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THE PREDICTIVE STRENGTH OF EMOTIONAL INTELLIGENCE ON COACHING EFFICACY AND LEADERSHIP STYLE OF HIGH SCHOOL BASKETBALL HEAD COACHES

presented by

Seunghyun Hwang

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THE PREDICTIVE STRENGTH OF EMOTIONAL INTELLIGENCE ON COACHING EFFICACY AND LEADERSHIP STYLE OF HIGH SCHOOL BASKETBALL HEAD COACHES

By

Seunghyun Hwang

A THESIS

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ABSTRACT

THE PREDICTIVE STRENGTH OF EMOTIONAL INTELLIGENCE ON COACHING EFFICACY AND LEADERSHIP STYLE OF HIGH SCHOOL BASKETBALL HEAD COACHES

By

Seunghyun Hwang

The main purpose of this study was to investigate the relationships among emotional intelligence, coaching efficacy, and leadership behavior of high-school basketball coaches on coaching effectiveness. High-school basketball coaches (N = 323) in MI, OH, IN, and IL participated in an on-line survey. The findings suggest that coaches' emotional intelligence predict coaching efficacy and leadership behaviors. More specifically, the ability of regulating emotions significantly predicts the game strategy (β = .28), motivation (β = .34), technique (β = .30), and character building (β = .40) in coaching efficacy, and democratic ($\beta = .20$), positive feedback ($\beta = .54$), training & instruction ($\beta = .39$), situational consideration ($\beta = .44$), and social support ($\beta = .28$) in leadership behaviors. The ability to appraise emotions significantly predicts the motivation ($\beta = .12$) in coaching efficacy, and democratic ($\beta = .12$), training and instruction ($\beta = .12$), situational consideration ($\beta = .12$), and social support ($\beta = .20$) in leadership behaviors. Additionally, the four dimensions of coaching efficacy significantly predicted leadership behaviors, explaining 22 % of variance in situational consideration behaviors, 25% of variance in positive feedback behaviors, and 36% in training and instruction behavior. Those relationships were confirmed by a structural equation modeling test.

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CHAPTER 1

INTRODUCTION

Nature of the Problem

John Wooden is reputed as the greatest basketball coach in NCAA history. He reflects his leadership in his autography, noting '*Emotion is Your Enemy*' (Wooden & Jamison, 2005).

"Emotionalism destroys consistency. A leader who is ruled by emotions, whose temperament is mercurial, produces a team whose trademark is the roller coaster-ups and downs in performance; unpredictability and undependability in effort and concentration; one day good, the next day bad. (p. 107)"

He insisted that it is critical to keep emotions under control, and to know one's own emotional state in order to consistently lead a team, and not to lose respect from athletes. That is, a coach should be emotionally intelligent to successfully coach a team.

Emotional intelligence (EI) has been conceptualized as the ability to perceive, express, understand, and regulate emotions in oneself and others in general. EI in the business setting has been studied extensively over the last decade. The research indicates that EI is an important aspect of leadership effectiveness, and is one of the characteristics of great leaders (Caruso, Mayer, & Salovey, 2002; Sosik & Megerain, 1999). A high level of EI allows leaders to be aware of their own emotions, to accurately identify the emotions of the group and of the individual followers, and to control their own emotions. Such leaders can generate enthusiastic circumstances for their tasks and motivate their followers. In accordance, Mayer and Caruso (2002) said that leaders who are high in EI

may be better equipped to develop stronger teams, and to communicate more effectively with others.

Rosete and Ciarrochi (2005) studied 41 Australian public service managers to explore the relationship between EI, personality, cognitive intelligence and leadership effectiveness. They found that higher EI scores were associated with higher leadership effectiveness. Kobe, Eiter-Palmon, and Rickers (2001) examined the power of both emotional and social intelligence to account for variance in self- reported leadership experiences through a regression analysis. The result showed that individuals who scored high on a measure of EI reported more participation in leadership experiences. Thus, the leaders with a high level of EI can be better equipped to promote effectiveness at all levels in organizations, which, in turn, strongly influence their followers' performance outcome (Humphrey, 2002). That is, the ability of leaders to influence the emotional climate can influence performance.

In addition to the above empirical studies, there are two distinct approaches to conceptualizing EI. One is the *ability conception* of EI, which was initially developed by Salovey and Mayer (1990), and Mayer and Salovey (1997). They have emphasized EI as a cognitive-emotional ability within an ability framework that ought to be measured by a maximum performance (IQ like) test, which consists of performance tasks requiring responses that are evaluated against predetermined scoring criteria (e. g., expert scoring). In the maximum performance test, respondents are instructed to choose the alternative that would best describe their actual behavior in the given situation (e. g., "You want to celebrate your birthday with some friends, but they tell you that they have other plans."). In contrast, the other conception of EI is the *trait framework*, which is based on Bar-On's

(1997) non-cognitive trait model of EI. Bar-On (1997) defined EI as "an array of noncognitive capabilities, competencies and skills that influence one's ability to succeed in coping with environmental demands and pressures." (p.14). According to Petrides and Furnham (2001), the trait approach places EI in the domain of personality, encompassing various behavioral dispositions and perceived abilities measured via self-report based on psychometric theory (Likert scale). Petrides and Furnham also introduced the alternative label, *emotional self-efficacy*, for the trait EI.

The present study was based on the trait conception of EI because of the problems of maximum performance test of ability EI. The test of ability EI cannot be objectively scored because the subjectivity of emotional experience (e. g., Robinson & Clore, 2002; Watson, 2000) undermines the development of valid maximum performance measurement. Ciarrochi, Chan, and Caputi (2000) criticized the ability measures because of low reliabilities caused by two different scoring-methods. That is, in most cases, there are no clear-cut criteria for what constitutes a correct response. Also, the nature of the present study focused on the relationship between individuals' characteristics, not cognitive ability.

To measure the trait EI, Bar-On (1997) developed the Emotional Quotient Inventory (EQ-i), which is a 133-item self-report measurement. With criticism about the number of items and low validation, Schutte, Malouff, Hall, Haggerty, Cooper, Golden and Dornheim (1998) developed the Schutte Emotional Intelligence Scale (SEIS) with 33 items responded to on a 5-point Likert scale. The SEIS consists of three sub-scales: the appraisal and expression of emotion, the regulations of emotion, and the utilization of emotion. Austin, Saklofske, Huang, and McKenney (2004) modified the SEIS because of a lack of reverse-keyed items (Petrides & Furnham, 2000; Saklofske, Austin & Minski, 2003), which could potentially lead to a confounding of EI score with acquiescent responding (Austin et al., 2004). The Modified Version of the SEIS (MVSEIS) consists of 41 items having 20 forward-keyed and 21 reverse-keyed items. Austin and colleagues reported that overall internal reliability is .85, and the sub-factors are following: .78 for regulation of emotions, .68 for utilization of emotion, and .76 for appraisal of emotion. They also reported that overall the MVSEIS was highly correlated (r=.66, p<.001) to the short version of Bar-On Emotional Quotient Inventory (EQ-i:S, Bar-On, 1997). Moreover, Austin and colleagues indicated this modified version is reasonably congruent with most theoretical approaches to the trait EI.

However, despite a high level of scientific interest, the scientific development of EI is in its early years, and many key questions remain unanswered regarding conceptual and psychometrical issues. Some psychometrical criticisms exist with EI: 1) there appears little consensus over how EI should be defined and conceptualized; 2) it is uncertain how EI may be best measured, with various tests of the construct failing to converge; 3) the practical utility of tests of EI is limited by these conceptual and psychometric deficiencies (Matthews, Zeidner, & Roberts, 2007). Still, researchers should put effort forth to draw consensus between the ability model and trait model of EI

Regardless of conceptual and psychometrical controversies, EI in the sport context is receiving growing attention from sport psychologists as it relates to athletes, but has been largely unexplored in terms of its potential influence on coaching effectiveness. Despite many differences between the business setting and sport (e. g.,

nature of the goal and context), a number of similarities between the two contexts exist, especially regarding the role of a coach in a team. Both athletic coaches and business leaders, for example, involve motivating followers, encouraging mutual esteem. evaluating follower's performance, communicating effectively with followers, encouraging performance results of followers, considering follower's development, and so on. Athletic coaches are also leaders of their teams just as business leaders. They provide instruction, guide the practice of skills, and prepare for and lead competition (Feltz, Chase, Moritz, & Sullivan, 1999). Coaches also have individual and group relationships with their team members during practices and games. Therefore, just as EI is perceived as an effective variable in the business setting, it also should be a powerful variable in coaching effectiveness.

The majority of research regarding coaching effectiveness indicates that the components of EI, which are perception, expression, understanding, and regulation of emotions in self and in others, are characteristics of good coaches, and valuable to coaching effectiveness. For instance, coaches have to accurately perceive their own emotional state in order to sufficiently regulate certain emotions that may negatively affect their athletes. At major competitions, for instance, some coaches may be nervous and agitated. They have to regulate and sometimes cover their emotional state in order for athletes not to be nervous and agitated. In an interview with James Counsilman, a legendary Olympic swim coach, he recalled that he was often nervous at major competitions but worked hard to not let his swimmers recognize his own stress (Kimiecik & Gould, 1987). Gould, Guinan, Greenleaf, and Chung (2002) surveyed Olympic-level coaches for coaching effectiveness, and identified that in Olympic competition, being in

control of one's own emotional state and masking certain emotions from athletes are just some aspects of a coach's performance.

Also, coaches have to be able to identify and understand not only their own emotional state but also their athletes' needs and emotions so that they can successfully deal with athletes' needs and emotions during a competition, practice, and conference. Regarding this capacity of coaches, Grace (1988) suggested that a successful coach demonstrates sensitivity to an athlete's needs both in and out of the competitive venue. More specifically, Hanson and Gould (1988) reported that coaches clearly indicated that being aware of their athletes' anxiety levels is a matter of great concern. Also, Cote and Sedgwick (2003) reported that, at the Olympic level, a coach's interpersonal skills and ability to relate to athletes in a personal manner is essential for the coach's success.

The only study in sport to examine EI and coaching effectiveness was a doctoral dissertation (VanSickle, 2004). VanSickle examined the relationship between the EI of Division I softball coaches and coaching effectiveness measured by win-loss records and athletes' satisfaction. EI was measured using the Emotional Competence Inventory-2 (ECI-2: Sala, 2002), which measures 18 competencies organized into four clusters based on trait model of EI: Self-Awareness, Self-Management, Social-Awareness, and Relationship Management. The research discovered that a coach's Self-Awareness was related to win-loss records and athlete satisfaction. Social- Awareness was related to current win-loss record. However, the study was focused on only the outcome of coaching effectiveness. VanSickle recommended further study using potential variables. such as coach's behavior, personal characteristics, and organizational climate, which contribute to coaching effectiveness.

Horn's (2002) working model of coaching effectiveness shows variables and links between the variables related to coaching effectiveness. 'Sociocultural context', 'organizational climate' and 'Coaches' personal characteristics' influence coaches' expectation, which affect coaches' behavior in practices and games. All of these factors influence athletes' behavior and performance in various ways (see Figure 1). According to Horn (2002), the leadership style is one of the coaches' behaviors to affect coaching effectiveness, and coaching efficacy is regarded as one of the coaches' personal characteristics to affect coaching effectiveness.



Figure 1 A Working Model of Coaching Effectiveness (Horn, 2002)

Note. From Coaching effectiveness in the sport domain. In T. S. Horn (Ed.), Advances in sport psychology (2nd., p. 313), by T. S. Horn, 2002, Champaign, IL: Human Kinetics. Copyright 2002 by the Human Kinetics. Reprinted with permission.

Feltz et al. (1999) proposed a conceptual model of coaching efficacy that includes coaching-specific sources of efficacy information as well as the effects or outcomes of coaching efficacy. Based on Bandura's (1977, 1997) theory of self-efficacy, coaching efficacy is defined as the extent to which coaches believe they have the capacity to affect the learning and performance of their athletes. As sources of coaching efficacy, Feltz and colleagues suggested coaching experience, prior success, perceived skill of athlete, and school/ community support as variables that would influence coaching efficacy beliefs. As outcomes of coaching efficacy, coaching behavior, player/ team satisfaction, player/team performance, player/ team confidence were suggested. Although Feltz et al. did not include 'emotional states' as a source of coaching efficacy information, Bandura includes it as a source of self-efficacy information. For instance, people who believe that they can control their negative emotions have higher efficacy beliefs that they can perform a task under pressure situations. It is, likewise, reasonable to suggest that coaches who believe they have good control of their emotions will have more confidence in their ability to affect the learning and performances of their teams.

To measure coaching efficacy, Feltz et al. (1999) developed the Coaching Efficacy Scale, which consists of 24 items containing four dimensions: Game Strategy Efficacy, Motivation Efficacy, Technique Efficacy, and Character Building Efficacy. Game strategy efficacy was defined as the confidence coaches have in their ability to coach during competition and lead their team to a successful performance. Motivation efficacy was defined as the confidence coaches have in their ability to affect the psychological skills and states of their athletes. Technique efficacy was defined as the belief coaches have in their instructional/diagnostic skills. The fourth factor, character-

building efficacy, was the confidence coaches have in their ability to influence a positive attitude toward sport in their athletes. EI probably is associated with all four dimensions of coaching efficacy as coaches need to regulate emotions during games, in instruction, in dealing with the emotional states of their athletes, and in influencing their positive development. To sufficiently regulate emotions, it is also required for coaches to exactly identify their own emotions, and express it well according to various situations.

To identify and measure coaches' perceived leadership style, Chelladuri and Saleh (1978, 1980) developed the Leadership Scale for Sport (LSS) with 40 items on a 5point scale. The LSS consists of five subscales: two decision-making style factors (Democratic and Autocratic Behavior), two motivational tendency factors (Social Support and Positive Feedback), and one direct task factor (Training and Instruction). The LSS has been mostly used in measuring coaching leadership style (Zhang, Jensen & Mann, 1997). Amorose and Horn (2000) used the LSS to measure collegiate athletes' perceptions of their coaches' leadership style. The results supported the hypothesis that athletes who perceived their coaches to exhibit a more democratic coaching style and to respond to players' performances with high levels of praise, encouragement, and information-based feedback would exhibit higher intrinsic motivation than would athletes who perceived their coaches to be more authoritarian in leadership style. As Amorose and Horn reported, coaches' behaviors influence athletes' attitudes such as motivation. Probably, coaches' supportive and democratic behaviors are associated with El. More emotionally intelligent coaches would show more supportive and democratic behaviors because they have behavioral tendencies to understand athletes' need and emotion and deal with it sufficiently.

Although LSS is the major measurement of perceived coaching leadership style, it has been criticized for the following two reasons: (a) low internal reliability (.45) of autocratic behavior; and (b) lack of support for the factor structure (Gordon, 1986; Summers, 1983). Chelladurai (1990) also expressed two concerns with the LSS: (a) items refer to the frequencies rather than the context of coaching leadership behavior; and (b) items were derived from scales in business and industry rather than from coaches and athletes.

Through changing items and increasing internal reliability, Zhang et al. (1997) revised the LSS. The Revised LSS has 60 items, which consists of six factors, including one new factor, Situation Consideration.

With regard to the proposed relationship between EI and coaching effectiveness (coaching efficacy and coaches' perceived leadership style), the following model was established to see if the factors of EI account for variance in coaching efficacy and coaches' perceived leadership style and if coaching efficacy accounts for variance in leadership style of coaches (see Figure 2). This model is delimited to basketball coaches because basketball is a major team sport that both boys and girls play and both males and females coach.





Purpose of the Study

The main purpose of this study was to examine the predictive strength of EI of coaches on coaching efficacy and leadership style of coaches. Additionally, the predictive strength of coaching efficacy on leadership style of coaches was examined. Examining these relationships will provide additional understanding of coaches' personal characteristics (coaching efficacy) and coaches' behavior (leadership style of coaches) to contribute to coaching effectiveness.

Hypotheses and Proposed Model

The following hypotheses are assessed within a proposed model in Figure 2

- 1. The EI of coaches positively predicts their coaching efficacy.
 - a. Regulation, utilization, and appraisal of emotion positively predict the each of four dimensions of coaching efficacy.
- 2. The El of coaches positively predicts their leadership style.
 - a. Regulation, utilization, and appraisal of emotion positively predict each of five factors of leadership style.
- 3. Coaching efficacy positively predicts the leadership style of coaches.
 - a. The four dimensions of coaching efficacy positively predict each of five factors of leadership style.
- 4. As illustrated in Figure 2, EI of coaches directly predicts coaching efficacy and leadership style and indirectly predicts leadership style through coaching efficacy.

Assumption

1. The measure of self-reported leadership style of coaching is assumed to reflect leadership behavior.

Delimitations

- 1. The population was delimited to high school boys' and girls' basketball coaches in Michigan, Indiana, Ohio, and, Illinois,
- The EI of coaches was measured by the self-report MVSEIS (Modified Version of Shutte Emotional Intelligence Scale).

 The coaching effectiveness of coaches was measured by the Coaching Efficacy Scale (CES) and the Revised Leadership Scale for Sports (RLSS) based on Horn's (2002) working model of coaching effectiveness.

Limitations

- 1. The MVSEIS was designed for life in general, not for sport settings.
- Among the factors to affect coaching effectiveness, only the aspects of the coaches' characteristics and behaviors were considered to explain coaching effectiveness based on Horn's (2002) working model of coaching effectiveness, CES and LSS.

Definitions

- 1. *Coaching Efficacy*: the extent to which coaches believe they have the capacity to affect the learning and performance of their athletes (Feltz et al., 1999).
- Emotional intelligence (EI): in general, the ability to perceive, express, understand, and regulate emotions in oneself and others. Academically, it is an array of non-cognitive capabilities, competencies and skills that influence one's ability to succeed in coping with environmental demands and pressures (Bar-On, 1997).

CHAPTER II

LITERATURE REVIEW

Emotional Intelligence

Emotional intelligence (EI) has been conceptualized as the ability to perceive, express, understand, and regulate emotions in the self and others in general. Salovey and Mayer (1990) created the first formal model and definition, and conducted the first relevant empirical studies of EI (Mayer, DiPaolo, & Salovey, 1990). Following this work, Goleman's (1995) influential book '*Emotional Intelligence: Why it can Matter More Than IQ*' strongly influenced most subsequent scientific conceptualizations and models of EI. Two fairly distinct approaches of EI have been proposed, that is, ability model and trait model. The following chapter provides a review of these two approaches of EI regarding conceptualizations and measurements, followed by an overview of EI in leadership, EI in sport, and an overview of the coaching effectiveness literature as it pertains to coaching efficacy and leadership style in sport.

Approaches to the Study of Emotional Intelligence

Although the two EI models include both cognitive (e.g., understanding and perceiving) and behavioral (e.g., expressing and regulation in others) components, Petrides and Furnham (2001) emphasized the differentiation between trait EI and ability EI. They proposed the trait approach places EI in the domain of personality, encompassing various behavioral dispositions and self-assessed abilities. By contrast, the ability EI is viewed as a cognitive-emotional ability within an ability framework that ought to be measured by a maximum performance test. Like IQ tests, the maximum

performance test for EI consists of correct answers and incorrect answers to the emotionally laden interpersonal situation (e. g., "You want to celebrate your birthday with some friends, but they tell you that they have other plans."). They also emphasized the importance of using different terms for the ability EI and the trait EI with the following alternative labels: cognitive-emotional ability for the ability EI and emotional self-efficacy for the trait EI.

The present study is based on the trait conception of EI because of the problems of maximum performance tests of ability EI. The tests of ability EI cannot be objectively scored because the subjectivity of emotional experience (e. g., Robinson & Clore, 2002; Watson, 2000) undermines the development of valid maximum performance measurement. That is, in most cases, there are no clear-cut criteria for what constitutes a correct response. Also, the nature of the present study focused on the relationship between individuals' characteristics, not cognitive ability.

For a broad discernment about two distinct EI models (see Table 1), Salovey and Mayer's (1990) original model of EI and Mayer and Salovey's (1997) revised ability model of EI are reviewed to understand what the ability model is. Bar-On's (1997) the first non-cognitive trait model of EI is reviewed for the trait model, and a modified version of Schutte et al.'s(1998) measurement (Austin et al., 2004) used for this study is discussed as a updated measurement of the trait model.

	Ability Model	Trait Model
	Ability Woder	That Woder
Initial work	Salovey and Mayer (1990)	Goleman (1995)
Major measurements	MEIS (Mayer et al., 1999)	Bar-on's EQ-i (1997)
	MSCEIT (Mayer et al., 2000)	Schutte's EIS (1998)
Conceptualization	Cognitive ability	Personality trait
Measurement style	Maximum performance test	Self-assessed
Scale	Correct/ incorrect answers	Likert scale
Alternative label	Cognitive emotional ability	Trait emotional self efficacy

 Table 1

 Comparison Between Ability and Trait Model of Emotional Intelligence

Ability models. Salovey and Mayer (1990) proposed the first published, conceptual model of EI. According to Salovey and Mayer (1990), EI comprises three conceptually related mental processes involving emotional information. These processes are (a) the appraisal and expression of emotion, (b) the regulation of emotion, and (c) the utilization of emotion (see, Figure 3). In the Salovey and Mayer's original model, two branches (the appraisal and expression of emotion and the regulation of emotion) are further subdivided into self and other. In the lower branch (the appraisal and expression), the self and other are further subdivided according to a verbal versus a nonverbal domain. Additionally, the upper left branch comprises four sub-factors, which assume that high EI persons to be more flexible in their utilization of emotions due to flexible planning, more creative thinking, the ability to (re-)direct attention, and a propensity to motivate themselves and others. Furthermore, this model assumes that emotionally intelligent individuals should be especially adept in the following certain domains: (a) perceiving and appraising their own emotions accurately (e.g., to identify coach's own emotional status), (b) expressing and communicating them accurately to others when appropriate (e.



Figure 3 Salovey and Mayer's (1990) Model of Emotional Intelligence

Note. From Models of Emotional Intelligence. In R. Schulze and T. D. Roberts (Eds.), *Emotional Intelligence: An International Handbook* (p. 34), by A. C. Neubauer and H. H. Freudenthaler, 2005, Cambridge, MA: Hogrefe & Huber. Copyright 2005 by Hogrefe & Huber. Reprinted with permission.

g., to share the emotions that coaches and athletes have felt during the competition), (c) recognizing the emotions in others accurately and responding to them with socially adaptive behaviors (e. g., to appropriately encourage the discouraged athletes), (d) regulating emotions in themselves and others effectively in order to meet particular goals (e. g., to enhance coaches' own and athletes' mood to accomplish a goal), and (e) using their own emotions in order to solve problems by motivating adaptive behaviors (e. g., to show enthusiasm to encourage athletes) (Neuhauer & Freudenthaler, 2005).

Mayer and Salovey (1997) presented a revised and refined model of EI. The two factors 'appraisal and expression of emotion' and 'regulation of emotion' in the original model remain in the first branch and the fourth branch with more elaborated meanings. Although the label of the factor 'utilization of emotion' was changed to 'emotional facilitation of thinking', the meanings are similar to the original model in terms of flexible thinking and redirected attention with reasoning. However, the third branch in the new model was newly added with a new component of understanding and analyzing emotions with emotional knowledge (e. g., ability to label emotions and understand complex feelings such as simultaneous feelings of love and hate)

In the revised model, Mayer and Salovey (1997) defined EI as a collection of emotional abilities that can be divided into four branches. The first branch (Perception, Appraisal and Expression of Emotion) involves the receiving and recognizing of emotional information and comprises the most basic emotion-related skills. These components cover the ability to identify emotions in one's self and in others, the ability to discriminate between emotions, and the ability to express emotions accurately.

The second branch (Emotional Facilitation of Thinking) describes the use of emotions to enhance reasoning and proposes various emotional events that assist in intellectual processing, which is the ability to assimilate emotions into perceptual and cognitive processes. Included under this branch are emotions that direct attention to important information and different kind of moods that may facilitate different forms of reasoning.

The third branch (Understanding and Analyzing Emotion) involves cognitive processing of emotions with emotional knowledge and comprises four representative

abilities involving abstract understanding and reasoning about emotions. These components range from the ability to label emotions and recognize relations among the words and the emotions themselves, to the ability to recognize likely transitions among emotions.

The fourth branch (Reflective Regulation of Emotions) refers to the ability to manage emotions in oneself, and in others, in order to enhance emotional and intellectual growth. This ability comprises the most advanced skills, ranging from the ability to stay open to feelings-both pleasant and unpleasant ones-to the ability to manage emotions in oneself and others by enhancing pleasant emotions and moderating negative ones.

Based on this conceptual model, Mayer, Caruso and Salovey (1999) developed the Multifactor Emotional Intelligence Scale (MEIS), which consists of 12 performance tasks, includes 402 items and yields four subscales: Perception, Assimilation, Understanding, and Managing Emotions. To validate the structure of MEIS, factorial analyses (e. g., Mayer et al., 1999; Roberts, Zeidner, & Matthews, 2001; Ciarrochi, Chan, & Capupi, 2000) were conducted. Findings support only Branch I (perception) and IV (management/regulation), and low reliabilities were revealed (Ciarrochi et al., 2000). Also, the correlations between consensus- and expert- scored subscales are much too low to demonstrate satisfactory convergence between two scoring-method: (a) Group consensus: each response is scored according to the proportion of participants who gave the same answer), (b) Expert scoring: the correct answer is determined by asking experts in the field what the correct answer is (the first two authors served as experts). To solve some of these problems, as well as to improve the psychometric qualities of the MEIS, the Mayer-Salovey-Caruso Emotional Intelligence Test (MSCEIT) was developed

(Mayer, Salovey, & Caruso, 2000) with the improved scoring procedures: (a) a general consensus criterion which is based on the answers of more than 2,000 participants, (b) an expert-consensus criterion which is based on the assessments of 21 members of the International Society of Research in Emotion (see Mayer, Salovey, Caruso, & Sitarenios, 2003). Mayer et al. (2003) reported a surprisingly high correlation coefficient of r = .91 between the two sets of scores, as well as improved reliabilities as compared to the MEIS.

Mayer and Salovey (1997) insisted that only performance tests of the proposed emotion-related abilities, enabling discrimination between correct and incorrect responses, can demonstrate and prove the existence of EI. Nevertheless, Ciarrochi et al. (2000) criticized about the ability measures that the some of the ability measures are problematic because of low reliabilities caused by two different scoring-methods.

Trait Model. In contrast to Mayer and Salovey's ability conceptualization of EI, the trait model (e.g., Bar-On, 1997; Cooper & Sawaf, 1997; Goleman, 1995, 1998; Weisinger, 1998) does not exclusively refer EI to emotion or intelligence. Instead, the authors claim that EI is often used as a label for a diverse group of personality characteristics that might predict success in professional and everyday domains (Neuhauer & Freudenthaler, 2005).

Bar-On (1997) defined EI as "an array of non-cognitive capabilities, competencies and skills that influence one's ability to succeed in coping with environmental demands and pressures." (p.14). Bar-On identified five broad dimensions, which are further subdivided into 15 subscales as key factors of EI (see Table 2).

To measure it, EQ-i (Emotional Quotient Inventory) was developed with 133 items. The EQ-i is one of the most widely used measures of the trait EI in the literature

(Perez, Petrides & Furnham, 2005). Empirically, however, there is no evidence for a higher-order structure, as the questionnaire seems to be unifactorial (Petrides & Furnham, 2001). As another limitation, Peres et al. (2005) said that it includes several irrelevant facets (e.g., "problem solving", "reality testing", "independence") and neglects many relevant ones (e.g., "emotion perception", "emotion expression", "emotion regulation").

Table 2Bar-On's (1997) Five Dimensions and 15 Sub-Categories

Self-regard Being aware of, understanding and accepting oneself Intrapersonal Skills Emotional self-awareness Skills Assertiveness		
Emotional self-awarenessBeing aware of and understanding one's emotionsIntrapersonal SkillsAssertivenessExpressing one's emotions, ideas, needs and	ng	
Intrapersonal self-awareness emotions Skills Assertiveness Expressing one's emotions, ideas, needs and		
Skills Assertiveness Expressing one's emotions, ideas, needs and		
desires	d	
Self-actualization Realizing one's potential capacities		
Independence Being self-directed, self-controlled and free emotional dependency	of:	
Empathy Being aware of and understanding other's emotions		
Interpersonal Skills Social responsibility Demonstrating oneself as a constructive member of one's social group	Demonstrating oneself as a constructive member of one's social group	
Interpersonal Forming and maintaining intimate		
relationships relationships		
Problem solving Solving personal and social problems constructively		
Adaptability Reality testing Validating one's thinking and feelings		
Elevibility Adjusting one's feelings, thoughts, and		
behavior to changing conditions		
Stress Stress tolerance Actively and positively coping with stress		
Management Impulse control Resisting or delaying an impulse or drive, an controlling one's emotions	ind	
General Mood Happiness Feeling satisfied with one's life		
Optimism Maintaining positive attitudes		

Note. From Models of Emotional Intelligence. In R. Schulze and T. D. Roberts (Eds.), *Emotional Intelligence: An International Handbook* (p. 41), by A. C. Neubauer and H. H. Freudenthaler, 2005, Cambridge, MA: Hogrefe & Huber.Copyright 2005 by Hogrefe & Huber. Adapted with permission. As a short measure of global trait EI, Schutte et al. (1998) developeled Schutte Emotional Intelligence Scale (SEIS), which consists of three sub-scales with 33 items responded to on a 5-point Likert Scale.

Despite being labeled a trait model, three of the factors, the appraisal and expression of emotion, the regulation of emotion, and the utilization of emotion, are based on the original conceptual model of Salovey and Mayer (1990), which is an ability model. Schutte and colleagues reported that the internal consistency was a Cronbach alpha of .90 for the 33-item scale, and 2-week test-retest reliability was .78. According to Schutte et al. (1998), the scale showed evidence of validity: scores on the scale were related to eight of nine measures predicted to be related to EI, furthermore, scores on the scales differed between groups one would expect to differ on level of EI.

Although SEIS (Schutte Emotional Intelligence Scale) has been used a lot as a measure of EI in the trait mode, it has been criticized due to a small number of items. Austin et al. (2004) modified the SEIS because of a lack of reverse-keyed items (Petrides & Furnham, 2000; Saklofske et al., 2003), which could potentially lead to a confounding of an EI score with acquiescent responding (Austin et al., 2004). The Modified Version of the SEIS (MVSEIS) consists of 41 items having 20 forward-keyed and 21 reverse-keyed items. Austin and colleagues reported that overall internal reliability is .85, and the sub-factors are following: .78 for regulation of emotions, .68 for utilization of emotion, and .76 for appraisal of emotion. They also reported that overall the MVSEIS was highly correlated to the short version of Bar-On Emotional Quotient Inventory (EQ-i:S, Bar-On, 1997). In addition, Austin and colleagues indicated this modified version is reasonably congruent with most theoretical approaches to trait EI.

Regardless the ability model and trait model on EI, the following psychometrical criticisms exist of EI: (a) there appears little consensus over how EI should be defined and conceptualized; (b) it is uncertain how EI may be best measured, with various tests of the construct failing to converge; (c) the practical utility of tests of EI is limited by these conceptual and psychometric deficiencies (Matthews et al., 2007).

With regard to weaknesses, Matthews and colleagues (2007) suggested systematic attempts to map the complete domain, to show that there is some interrelationship and coherence between different perspectives, and to find the key components of EI in order to increase the reliability and the validity of EI measurement, which may provide the validated application into the growing public and scientific interest in EI.

Emotional Intelligence and Effective Leaders

EI has been identified as one of the effective leaders' characteristics, regarding leadership in the business setting. George (2000) theorized that EI facilitates dimensions of leadership, including (a) the development of a unified sense of goals and objectives. (b) inculcating the value of work in subordinates, (c) creating a climate of excitement, enthusiasm, cooperation, optimism, and trust, (d) fostering adaptability to change, and (e) creating and sustaining an identity for the organization. That is, EI is a key factor in an individual's ability to be socially effective, and is viewed in leadership literatures as a key determinant of effective leadership (George, 2000).

Rosete and Ciarrochi (2005) studied 41 Australian public service managers to explore the relationship between EI, personality, cognitive intelligence and leadership effectiveness. He found that higher EI scores were associated with higher leadership effectiveness. Kobe et al. (2001) examined the power of both emotional and social

intelligence to account for variance in self- reported leadership experiences through a regression analysis. The result showed that individuals who scored high on a measure of El reported more participation in leadership experiences. Thus, the leaders with a high level of El can be better equipped to promote effectiveness at all levels in organizations, which, in turn, strongly influence their followers' performance outcome (Humphrey, 2002). That is, the ability of leaders to influence the emotional climate can influence performance.

Emotional Intelligence in Sport

While EI has been widely researched from clinical and organizational psychologists, it has not received widespread attention by sport psychologists in spite of the possible relations to the domain of sport. In recent years, the interest is arousing. As the interest reflects, researchers in the sport domain have tried to examine the relationship between EI and performance. Zizzi, Deaner, and Hirshhorn (2003) investigated the relationship between EI measured by Schutte's (1998) Emotional Intelligence Scale (SEIS) and global measures of baseball performance in a sample of college baseball players. For baseball performance, Zizzi and colleagues collected data of pitching statistics (earned run, walks, hit, strikeouts, and wild pitches) and hitting statistics (hits, doubles, walks, and strikeouts). Zizzi and colleagues reported that components of EI appear to be moderately related to pitching performance, but not related to hitting performance, indicating only modest support for the link between emotional skills (i.e., emotional awareness, control and utilization) and athletic performance.

Lane and Lowther (2005) investigated the relationship between EI and psychological skills of athletes in competition and practice. The finding showed that EI
scores were significantly related to self-talk used in competition and practice, along with goal-setting and imagery used in competition.

With the criticism about the delinquent behavior of collegiate athletes on and off the field, Crabbe (2007) hypothesized in his thesis that the higher the EI in collegiate athletes, the higher their ability to perceive, understand and manage emotions would be, as well as the lower acts of delinquent behavior on and off the field, and the better their performance during games would be. He assessed EI using the MSCEIT v. 2.0 (Mayer-Salovey-Caruso Emotional Intelligence Test v. 2.0). However, none of the hypotheses were supported.

Miller (2003) tried to qualitatively investigate the connection between EI and altruistic behavior of coaches through an interview with 15 collegiate level coaches. This qualitative study had the primary purpose of exploring coaches' perception of altruistic leadership. A secondary purpose was to examine the connection between altruism and EI by determining what factors of EI emerged with the coaches' perceptions of altruistic leadership. The results showed that several themes emerged from the interviews. Coaches' perceived character, consistency, balance, caring, and empowerment emerged as altruistic leadership factors, and factors of EI such as self-awareness, self-regulation, social skills, empathy, and self-motivation were reinforced in relation to altruistic leadership. This result implicates that five factors of EI identified by coaches' interviews are important competencies that may facilitate altruistic leadership behaviors.

One researcher used the concept of EI for coaching effectiveness in a doctoral dissertation. VanSickle (2004) examined the relationship between the emotional intelligence of Division I softball coaches and coaching effectiveness measured by win-

loss records and athletes' satisfaction. EI was measured using the Emotional Competence Inventory-2 (ECI-2: Sala, 2002), which measures 18 competencies organized into four clusters: Self-Awareness, Self-Management, Social-Awareness, and Relationship Management. The research discovered that a coach's Self-Awareness was related to winloss records and athlete satisfaction. Social- Awareness was related to current win-loss records. However, the study was focused on only the outcome of coaching effectiveness. Van Sickle recommended further study using potential variables, such as coach's behavior, personal characteristic, and organizational climate, which contribute to coaching effectiveness.

In addition to empirical studies, Meyer and Fletcher (2007) reviewed EI models and assessment inventories, and research on EI in business, health, and sport in order to identify directions for future research and professional practice in sport psychology. They suggested for future research that regardless of the two models (ability and trait), a cooperative approach with clear definition and construct would result in the testing of appropriateness for sports of current assessment inventories, and eventually the development of a sports-specific measure of EI. They also suggested that one of the most obvious applications of EI in sports may be as a systematic and hierarchical framework for enhancing the performance and satisfaction of athletes, teams, and coaches.

Coaching Effectiveness

In a team, a coach has number of roles as a leader, educator, instructor, supporter, and inspirer for athletes. Thus, research on coaching effectiveness has been conducted under the general assumption that coaches greatly influence not only the performance and behavior of their athletes but also the athletes' psychological and emotional well-being

(Horn, 2002). Most of the research that has been conducted on coaching effectiveness within the last 3 decades has been motivated by a desire to identify the most effective coaching characteristics, leadership styles, or behavior pattern (Horn, 2002). For example, the Leadership Scale for Sports (LSS) was developed by Chelladurai and Saleh (1978, 1980) to measure coaches' leadership style, and evaluates what behavioral pattern is the most effective in teams. In addition, Smoll and Smith (1989) proposed a theoretical model of leadership behavior that emphasizes relationships among situational, cognitive, behavioral and individual difference variables. According to this model, a coach's behavior is influenced by his or her individual difference variable such as coaching goal and motive and situational factors such as level of competition. Simultaneously, these situational factors as well as players' individual differences influence players' perception and recall.

According to Horn (2002), new perspectives regarding the influence of coaches on their athletes' psychosocial and emotional development should be combined with components of the models of Chelladurai's (1978, 1990, 1993) and Smoll and Smith's (1989) sport leadership effectiveness. The new perspectives that Horn mentioned are attribution theory (Weiner, 1986,1992), self-efficacy theory (Bandura, 1977,1986), achievement goal theories (Ames, 1984, 1992a, 1992b; Dweck, 1986, 1999), competence motivation theory (Harter, 1978, 1981), expectancy-value model (Eccles & Harold, 1991), self-determination theory (Deci &Ryan, 1985, 1991), and sport commitment model (Scanlan, Carpenter, Schmidt, Simons & Keeler, 1993). With the previous model of leadership effectiveness and the new perspectives, Horn (2002) created a working model of coaching effectiveness (Figure 1).

Horn (2002) noted that as these aspects of the working model indicate, researchers can no longer assume that one set of coaching behaviors will be effective for all athletes and in all sport situations; rather, effective coaching behaviors will vary as a function of the athlete and the sport context.

With regard to a working model of coaching effectiveness, Horn (2002) summarized three major points of it. First, identifiable antecedent factors including 'sociocultural context', 'organizational climate', coaches' personal characteristics', and 'coaches' expectancies, values, beliefs, and goals' explain the types of behaviors coaches exhibit in the sport settings. For example, due to the team climate that a particular game needs to be won, and given that coach's personality, the coach may exhibit different and complicated behavior than in another situation or setting (Horn, 2002).

The second point is that the coach's behavior in practices and games affects athletes' performance and behavior indirectly as well as directly. The athletes' performances and behaviors are indirectly affected by the interaction between the following factors: 'athletes' personal characteristics', 'athletes' perceptions, interpretation, and evaluation of their coaches' behavior', ' athletes' self-perceptions, beliefs, and attitudes' and 'athletes' level and type of motivation' For example, although a coach's behavior is extremely autocratic for some reason, the athletes may exhibit different behaviors, such as following or resisting their coach according to their interpretation of the coach's behaviors (Horn, 2002).

The last point is that the effectiveness of different types of coaching behaviors is mediated by both situational and individual difference variables. Specially, the direct link between a coach's behavior and athletes' performance and behavior is mediated by a

variety of sport contextual variables (e.g., competitive level, type of sport) and by a variety of athlete variables (e.g., age, skill level) (Horn, 2002).

According to Horn (2002), the leadership style is one of the coaches' behaviors to affect coaching effectiveness. In turn, coaching efficacy is regarded as one of the coaches' personal characteristics and belief in coaching to affect coaching effectiveness.

As shown in Figure 1, there is a direct link between coaches' behavior and athletes' performance and behavior. This means that a coach's behavior during practice and competitions will directly affect her or his athletes' performance and their ability to master the skills (Horn, 2002). The direct link between coaches' behavior and their athletes' performance and behavior is mediated by athletes' self-perceptions, beliefs, attitudes and level and type of motivation. That is, the types of coaching behaviors are most effective in facilitating the performance and behavior of the individual athlete (Horn, 2002).

In addition to the relationship between coaches' behaviors and athletes' performance, such coaches' behavior is also affected by their characteristics (e. g., coaching efficacy). According to the level of their confidence in coaching, they will differently behave. In this regard, using the Coaching Behavior Assessment System (CBAS: Smith, Smoll, & Hunt, 1997), Feltz et al. (1999) found that the fact that highefficacy coaches demonstrated less instructional and organizational behavior than lower efficacy coaches did may be because lower efficacy coaches were less efficient and therefore spent more time on organizing players for drills and practice. This result supports that coaching efficacy affects coaches' behaviors and finally coaching effectiveness.

Coaching Efficacy. According to Horn's (2002) working model of coaching effectiveness, a coach's personal characteristics are one of the antecedent factors to affect coaches' expectancies, values, beliefs, and goals and ultimately coaching effectiveness. Coaching efficacy is defined as the extent to which coaches believe they have the capacity to affect the learning and performance of their athletes (Feltz et al., 1999).

Using Denham and Michael's (1981) multidimensional model of teacher efficacy, Bandura's (1977, 1986) conceptualization of self-efficacy, and Park's (1992) initial measure of coaching confidence, Feltz et al. (1999) proposed a multidimensional model of coaching efficacy that includes coaching-specific sources of efficacy information as well as the effects or outcomes of coaching efficacy. With respect to the sources of coaching efficacy, Feltz and colleagues suggested coaching experience/preparation, prior success, perceived skill of athletes, and school/community support as the most important sources of coaching efficacy information. Also, as outcomes of coaching efficacy, Feltz and colleagues mentioned coaching behavior, player/team satisfaction, player/team performance, and player/team efficacy (see Figure 4).

The Coaching Efficacy Scale (Feltz et al., 1999) consists of 24 items containing four dimensions: Game Strategy Efficacy (7 items), Motivation Efficacy (7 items), Technique Efficacy (6 items), and Character Building Efficacy (4 items). Game strategy



Figure 4 Conceptual Model of Coaching Efficacy (Feltz et al., 1999)

Note. From "A Conceptual Model of Coaching Efficacy: Preliminary Investigation and Instrument Development," by Feltz et al., 1999, *Journal of Educational Psychology*, 91, p. 766. Copyright 1999 by American Psychological Association. Reprinted with permission.

efficacy was defined as coaches' confidence in their coaching during competition and their ability to lead the team to a successful performance. Motivation efficacy was defined as confidence in the ability to change the psychological states and abilities of athletes. Teaching technique efficacy referred to the degree of confidence coaches have in their diagnostic and teaching skills. Finally, character building efficacy involves coaches' perception of their ability to influence their athletes' personal maturation and positive sporting attitudes.

Regarding research on the sources of coaching efficacy, Feltz et al. (1999) found support for their model of coaching efficacy in that canonical loadings showed years in coaching (r = -82), perceived community support (r = -.61), perceived team ability (r = - .51), perceived parental support (r = -.44), and past winning percentage (r = -.43) to be significantly predictive of the dimensions of coaching efficacy. The strongest predictors of coaching efficacy were years of coaching experience and community support for these high school coaches. However, using collegiate coaches, Myers, Vargas-Tonsing, and Feltz (2005) found that perceived team ability was the strongest predictor as explaining that the major influence of perceived team ability has to do with the more competitive nature of collegiate compared to high school sports. They also found gender difference in the strength of sources. Female coaches reported that social support from the community was a stronger source of character-building efficacy compared to male coaches.

In recent years, efforts to specify and extend the sources of coaching efficacy have been attempted by several researchers (e.g., Chase, Feltz, Hayashi, & Hepler, 2005; Feltz, Hepler, Roman, & Paiement, 2006; Short, Smiley, & Ross-Stewart, 2005; Sullivan, Gee, & Feltz, 2006). Chase and colleagues (2005) proposed an extension to the sources in the original model, outlined follows:

- Extent of coaching experience and preparation:
 - Knowledge to prepare team
 - Past experience in coaching
 - Playing experience
 - Leadership skills
 - Coach's development
- Prior success (win/loss record)
- Perceived skill of athletes
- Player improvement
- Support from the following:
 - School students and teachers
 - o Community
 - o Parents
 - o Athletic director
 - o Players

One potential source of efficacy information for coaches is their perceived ability to regulate, utilize, and appraise their emotions. As stated in Chapter 1, coaches who believe they have good control of their emotions will have more confidence in their ability to affect the learning and performances of their teams. However, this hypothesis has yet to be tested.

Perceived ability to regulate, utilize, and appraise emotions fits with Bandura's (1977, 1997) sources of self-efficacy information within his theory. Bandura (1997) states that one way of altering efficacy belief is by reducing "negative emotional proclivities" (p. 106). This also includes mood states, such as anger, fear, anxiety, and joy. Bandura explains that moods provide sources of efficacy information "because they often accompany changes in quality of functioning" (p. 111). That is, they can influence how coaching situations are interpreted. Schunk (1995) suggested that emotional symptoms that signal anxiety might be interpreted by an individual to mean that he or she lacks the requisite skills to perform a certain task, which in turn influences efficacy judgments. It is, likewise, reasonable to expect that coaches who believe that they have good ability in regulation of their emotions to keep a positive mood will have more confidence in their ability to affect the performances of their teams. That is, it may be more difficult to attend to the tasks of game strategizing, teaching, motivating, and instilling character when one has less control of one's emotions.

One of the major outcomes of coaching efficacy is coaching behavior. Feltz et al. (1999) investigated the coaching behaviors and commitment of high- and low- efficacy coaches, using the CBAS (Smith et al., 1997) which has 12 categories of coaching behaviors such as 'positive reinforcement in response to desirable player performance,'

'mistake contingent encouragement in response to player mistakes,' and 'general technical instruction.' They found that the fact that high-efficacy coaches demonstrated less instructional and organizational behavior than lower efficacy coaches did may be because lower efficacy coaches were less efficient and therefore spent more time on organizing players for drills and practice. Also, high-efficacy coaches used instruction that was paired with positive reinforcement more often than did low-efficacy coaches (Feltz et al., 1999).

Using multiple regression analysis, Sullivan and Kent (2003) examined the relationship between the coaching efficacy of intercollegiate coaches and their leadership style measured by the Leadership Scale for Sport (LSS: Chelladurai & Saleh, 1978, 1980). The LSS consists of five subscales: two decision-making style factors (Democratic and Autocratic Behavior), two motivational tendency factors (Social Support and Positive Feedback), and one direct task factor (Training and Instruction). Sullivan and Kent hypothesized that technique and game strategy efficacy would predict training and instruction leadership behavior, that motivation and character building efficacy would predict social support, and that game strategy efficacy would also predict democratic and autocratic behavior. However, results showed that training and instruction and positive feedback were both predicted by motivation and technique efficacy. Both models accounted for large amounts of variation in leadership style (28 and 42%, respectively), and both were based on positive relationships between leadership style and efficacy (Sullivan & Kent, 2003). Sullivan and Kent concluded that as coaches were more confident in their roles as motivators and teachers, they were closer to their image of the

ideal leader with respect to using positive feedback and appropriate training and instruction, and engaged in these behaviors to a greater extent.

Furthermore, Vargas-Tonsing, Warners, and Feltz (2003) examined the relationship between coaching efficacy and player and team efficacy in high school volleyball teams. The regression analyses showed coaching efficacy to significantly predict team efficacy, with no meaningful association with player efficacy, and character building efficacy were shown to be the strongest predictors of team efficacy (Vargas-Tonsing et al., 2003). They implied that coaches need to be cognizant that their sense of efficacy can impact their team as a whole. Specially, coaches' efficacy beliefs may be beneficial to the team when trying to increase the team's confidence (Vargas-Tonsing et al., 2003).

Leadership style for sports. To identify, evaluate and measure perceived coaches' leadership behavior (or style), several instruments have been developed and used: Leadership Scale for Sports (LSS: Chelladurai, 1993; Chelladurai & Riemer, 1998; Chelladurai & Saleh, 1978, 1980), Decision-Style Questionnaires (DSC: Chelladurai & Arnott, 1985; Chelladurai & Quek, 1991), Perceptions of Coaches' Interpersonal Style (PCIS: Pelletier & Vallerand, 1985), Perceived Motivational Climate in Sport Questionnaire-2 (PMCSQ-2: Duda & Whirehead, 1998; Newton & Duda; 1993), and Coaching Behavior Assessment System (CBAS: Smith, Smoll, & Curtis, 1978; Smith, Smoll, & Hunt, 1997).

Among those instruments, the LSS is the most often used inventory to measure coaches' leadership style. Chelladuri and Saleh (1978, 1980) developed this inventory with 40 items on a 5-point scale. The LSS consists of five subscales: two decision-

making style factors (Democratic and Autocratic Behavior), two motivational factors (Social Support and Positive Feedback), and one direct task factor (Training and Instruction). The LSS has three versions: athlete preference, athlete perception, and coach self-evaluation.

The major findings of athletes' perceptions of coach leadership behavior using LSS were that the subscale factors were consistently affected by the performance and satisfaction of the athletes' level of readiness (Chelladurai & Carron, 1983) and cultures or nationalities (Chelladurai, Imamura, Yamaguchi, Oinuma, & Miyauchi, 1988). In addition, the perceived coach social support behavior or relationship behavior was the most predictive factor in satisfying the needs of the athletes (Chelladurai, 1984).

Amorose and Horn (2000) used the LSS to measure collegiate athletes' perceptions of their coaches' leadership style. The results supported the hypothesis that athletes who perceived their coaches to exhibit a more democratic coaching style and to respond to players' performances with high levels of praise, encouragement, and information-based feedback would exhibit higher intrinsic motivation than would athletes who perceived their coaches to be more authoritarian in leadership style (Horn 2002).

However, the LSS has received criticism due to quality of measurement. According to Chelladurai and Saleh (1980), the measurement properties of the coaching self-evaluation version were not tested, and the development of LSS was first started in industry and business areas. Zhang and colleagues (1997) claimed that the LSS is not directly appropriate to sport because the sport setting has the following unique characteristics: (a) athletic training requires much more time to prepare for competition;

(b) athletic winning is always accompanied by losing; and (c) athletic teams exist for a specified time period.

Zhang and colleagues (1997) revised the three versions of the LSS to improve psychometric properties. According to them, the result shows that the Revised Leadership Scale for Sport (RLSS) has improved the measurement characteristics of the LSS in several ways: (a) the items were generated through interviewing the coaches, hence, they are sports specific; (b) the study was conducted in the United States and regulations of the National Collegiate Athletic Association were considered, thus, the scale is more culturally specific to the United States; (c) involvement of large samples of subjects in a variety of sports improves the generalization and the application of the scale; (d) the measurement properties of the coaching self-evaluation version were tested and improved; and (e) overall factor structures in determining the constructs of the scale were notably improved.

The RLSS contains 60 items on a 5-point Likert scale, which consists of six factors: Training and Instruction (10 items), Democratic Behavior (12 items), Autocratic Behavior (8 items), Social Support Behavior (8 items), Positive Feedback Behavior (12 items), Situation Consideration (10 items). Zhang and colleagues (1997) reported that coefficient alpha for each sub-factors were significantly (p<.05) greater than .70, with exception of the 'Autocratic Behavior': .93 for democratic behaviors, .85 for positive feedback behaviors, .81 for situation consideration behavior, .83 for teaching and instruction behavior, .81 for social support behaviors, and .35 for autocratic behaviors.

Using RLSS, Beam, Serwatka, and Wilson (2004) examined the differences of student-athletes' preferred leadership behavior for their coaches based on gender,

competition level, task dependence, and task variability. Four hundred and eight male and female student-athletes from four NCAA Division I and six Division II universities expressed their preferred coaching behaviors. As a result, male athletes showed significantly greater preferences for autocratic and social support behaviors, while female athletes preferred situational consideration and training and instruction behaviors. This result was consistent with Chelladurai and Saleh's (1978) result in which male athletes more preferred coach's autocratic and social support behaviors than female athletes.

EI is one variable that also should be predictive of leadership style in sport. Coaches with higher levels of EI should demonstrate greater coaching effectiveness through their democratic approach, greater signs of social support, more positive training and feedback, and better attention to situational considerations. Thus, coaches' leadership styles should be influenced by both coaches' efficacy and beliefs and their EI.

Summary

El has been conceptualized as the ability to perceive, express, understand, and regulate emotions in the self and others. It has been identified as one of the effective leaders' characteristics in business settings because it contributes to effective performance at work. Researches in the business setting indicate that a high level of EI promotes effectiveness at all level in organizations, which, in turn, enhances followers' performance.

Athletic coaches are also leaders of their team. In terms of coaching effectiveness, coaches play a key role to influence athlete performance and behavior. According to Horn's (2002) working model of coaching effectiveness, many factors influence coaching effectiveness and athletes' performance. Although many factors affect coaching effectiveness, in this study, the perspectives of coaches' characteristic and behaviors are considered to explain the coaching effectiveness. The leadership style is one of the coaches' behaviors to affect coaching effectiveness, and the coaching effectiveness and the coaching effectiveness and the coaching effectiveness and the coaching effectiveness. The leadership style is one of the coaches' behaviors to affect coaching effectiveness, and the coaching efficacy beliefs and EI are regarded as two of the coaches' personal characteristics. Those have a potential impact on coaching effectiveness as measured by leadership style. Further, EI is considered a potential source of coaching efficacy information.

CHAPTER 3 METHOD

Participants

The targeted population for this study was high school boys' and girls' basketball head coaches in Michigan, Ohio, Indiana, and Illinois. The total number of high school basketball programs in those states is approximately 5,162, in which boys' teams are 2,601 and girls' teams are 2,562. Participants for this study were 323 head coaches in high schools (280 male, 42 female, and 1 unidentified), which represents 6.3% of the targeted population. One hundred and seventy eight (55.3%) coaches were involved with boys' teams, and 144 (44.7%) were involved with girls' teams. All female coaches were involved with girls' teams. Table 3 and 4 summarize the information about the ethnicity and educational level of the participating coaches. Participants ranged in age from 22 to 68 years old (M=39.77, SD=10.23). More than 93% of the coaches were white/ Caucasian. About 68% of the coaches participated in at least one master or doctoral degree program.

Table 3			
Coaches' Ethnicity			
Types of Ethnicity	Frequency	Percent	
White/ Caucasian	302	93.5	
Black/ African American	10	3.1	
Hispanic	5	1.5	
American Indian/ Alaska Native	2	.6	
Other	3	.9	
Missing data	1	.3	
Total	323	100	

Coaches' Educational Level		
Level of Education	Frequency	Percent
High School Graduate	13	4.0
Less Than 2 Years College	14	4.3
2 or More Years College	18	5.6
Bachelor Degree	55	17.0
Some Master Level Work	68	21.1
Master Degree	144	44.6
Some Doctoral Level Work	8	2.5
Completed Doctorate	1	.3
Other	2	.6
Total	323	100.0

The majority of coaches (n = 239, 74%) had a teaching certification, and 216 (66.9%) participated in at least one coaching education program. The mean years of coaching experience as a head coach was 14.42 years (*SD*=9.36), and the average length of the coaches' previous playing experience was 12.95 (*SD*=7.68).

Instruments

Table 4

Demographic measures (See Appendix B). The demographics collected were the coaches' gender, team's gender, age, ethnicity, educational background, current occupation, experience of a coaching education program, years of coaching basketball, years playing basketball, and hours spent coaching basketball.

Modified Version of Schutte Emotional Intelligence Scale (MVSEIS; See Appendix C). To evaluate the EI level of coaches, the MVSEIS (Austin et al., 2004) was used because it is reasonably congruent with most theoretical approaches of the trait approach to EI. It has 41 items on a 5-point Likert scale; however, the short version (28 items) was

used for this study. The 5-point scale is as follows: 1= Strongly Disagree, 2=Disagree, 3=Neutral, 4=Agree, 5= Strongly Agree. It has the overall EI and three factors, which are regulation of emotions (e. g., *I use good moods to help myself keep trying in the face of obstacles.*), utilization of emotions (e. g., *When my mood changes, I see new possibilities.*), and appraisal of emotions (e. g., *I am aware of the non-verbal messages other people send.*). Austin et al. (2004) reported that overall internal reliability is .85, and the sub-factors are following: .78 for regulation of emotions, .68 for utilization of emotion, and .76 for appraisal of emotion. They also reported that overall the MVSEIS was highly correlated (r=.66, p<.001) to the short version of Bar-On Emotional Quotient Inventory (EQ-i:S, Bar-On, 1997).

The present study revealed that the coefficient alphas for each subscale and overall EI were acceptable, except for utilization of emotion: .72 for regulation of emotion, .53 for utilization of emotion, .76 for appraisal of emotion, .74 for overall EI. Utilization of emotion was not used to test any hypotheses due to low internal consistency. A list of the 28 items is contained in the Appendix C.

Coaching Efficacy Scale (CES; See Appendix D). In order to assess coaching efficacy, the CES (Feltz et al., 1999) was used. The CES is a 24-item self-report measure. In the present study, the 5-point Likert scale form was used from 1 (no confidence) to 5 (complete confidence) (Myers, Feltz, & Wolfe, in press). Myers et al. validated this category structure and found it to provide a better fit to the factor structure than the original 10-category structure.

The CES consists of four subscales: Game Strategy Efficacy (GSE: 7 items), Motivation Efficacy (ME: 7 items), Technique Efficacy (TE: 6 items), and Character

Building Efficacy (CBE: 4 items). Feltz et al. (1999) reported a confirmatory factor analysis (CFA) that revealed all significant parameter estimates (p<.01) for the first order factor structure, all R^2 values surpassed .40, and the results indicated an acceptable fit of the model using appropriate global indices of non-normed fit index (NNFI) = .88, comparative fit index (CFI) = .89, root-mean-square residual error of approximation (RMREA) = .08. Although the second-order CFA indices were slightly different, they were marginally acceptable.

For internal reliability, Feltz et al. (1999) reported that the coefficient alphas and test-retest coefficients for each subscale were quite acceptable with respective values of .88 and .77 for character building, .89 and .78 for technique, .91 and .83 for motivation, and .88 and .84 for strategy. The coefficient alpha for the total CES scale was .95, and the test-retest coefficient was .82 (Feltz et al., 1999).

The present study revealed that the coefficient alphas for each subscale and total coaching efficacy were quite acceptable: .89 for GSE, .91 for ME, .86 for TE, .90 for CBE, and .94 for total coaching efficacy.

Revised Leadership Scale for Sport (RLSS; See Appendix E). In order to measure the leadership style of the coaches, the RLSS (Zhang et al., 1997) was used. This instrument, measuring a broad spectrum of leadership behaviors, contains 60 items on a 5-point Likert scale, which consists of six factors: Training and Instruction Behavior (TIB: 10 items), Democratic Behavior (DB: 12 items), Autocratic Behavior (AB: 8 items), Social Support Behavior (SSB: 8 items), Positive Feedback Behavior (PFB: 12 items), Situation Consideration Behavior (SCB: 10 items). The Likert 5-point scale is accompanied with the following wording and quantification: Always (100% of time),

Often (75% of time), Occasionally (50% of time), Seldom (25% of time), and Never (0% of time). It has three versions: athlete preference, athlete perception, and coach selfevaluation. For the present study, the version of coach self-evaluation was used to evaluate their own perception of their coaching behavior. Zhang et al. (1997) reported that coefficient alphas for each sub-factors were significantly (p<.05) greater than .70, with exception of the 'Autocratic Behavior' (.35). The other sub-factors were .93 for democratic behaviors, .85 for positive feedback behaviors, .81 for situation consideration behavior, .83 for teaching and instruction behavior, and .81 for social support behaviors. Due to low internal consistency, the items of autocratic behaviors were not included in the questionnaire. The present study revealed that the coefficient alphas for each factor were acceptable: .85 for democratic behavior, .81 for positive feedback behavior, .78 for teaching and instructional behavior, .69 for situational consideration behavior, and .72 for social support.

Data Collection Procedures

I conducted an online survey for the study. Permission to use human subjects for this study was obtained from the Institutional Review Board at Michigan State University. I contacted the coaches in Illinois and Ohio through e-mail or director of basketball coaches association in Michigan, asking for cooperation and sending an email out to every basketball coach in Michigan. Also I contacted the athletic directors of high schools in Michigan and Indiana to ask to forward emails to basketball coaches of their schools. The emails contained the purpose and procedure of the research as well as asked for participation in this study, along with web address for direct link. The 'QuestionPro' software was used to create an online based questionnaire which contains one consent

form, demographic questions, the MVSEIS, the CES, and the RLSS. The follow-up emails were sent to encourage participation, and remind participants of the deadline. Furthermore, all participating coaches were told that all participants who complete and submit a questionnaire will be entered in a drawing. Five participants were randomly selected to win \$50 as a reward.

Data Analyses

Data analysis was conducted in a two-step process. In the first step of data analysis, the calculation of descriptive statistics for the used variables was conducted. Pearson correlations were calculated for all variables of EI, coaching efficacy, and leadership behaviors to determine if there was a sufficient relationship between each variable.

In the second step, the following statistical methods were used to test the hypotheses with SPSS 15.0. The first three hypotheses were tested with separate canonical correlation, and a multivariate multiple regression (MMR) analyses. In the case of a significant overall multivariate effect, follow-up univariate multiple regression (UMR) analyses were conducted on each efficacy dimensions and leadership behaviors. Alpha level for statistical significance for each test was set at 0.05.

For the modeling test, the primary statistical procedure used in the study was Structural Equation Modeling (SEM). SEM was conducted using EQS 6.0 to test the overall model fit. The fit indices included chi-square statistic (x^2), the Non-normed Fit (NNFI), the Comparative Fit (CFI), and Root Mean Square Residual Error of Approximation (RMSEA). Before the SEM test, preliminary data analyses, such as multivariate normality, homoscedasticity, univariate normality, outliers, and

mulicollinearity were conducted as required to screen data before the examination (Kline, 1998).

CHAPTER 4

RESULTS

The results are presented in three sections. First, the preliminary analysis is presented to evaluate the accuracy and normality of the variables. The second section presents descriptive information of the variables and correlations among the variables. The last section presents the results of testing hypotheses with a canonical correlation, MMR, and the further UMR for the predictability of the variables and the SEM results for testing the proposed conceptual model in the study.

Preliminary analyses

The preliminary analyses were conducted to assess the normality and reliability of the valuable. For the assumption of normality of variables, skewness and kurtosis values for each of variables were assessed (see Table 5). The skewness values of each variable ranged from -.35 (regulation of emotion) to .12 (appraisal of emotion), and kurtosis values ranged from -.63 (technique efficacy) to .64 (regulation of emotion), except for character building efficacy, which was -1.36 for skewness, and 2.63 for kurtosis. Although all values of skewness and kurtosis were different from zero, indicating nonperfect normal distributions, the assumption of normality could be made if the value of skewness ranges from -1 to +1, and the values of kurtosis range from -1 to +2 (Huck, 2004). Thus, reasonable assumptions about normality could be established, except for character building efficacy.

Variables	Ν	Skewness (Skewnee/SE)	Kurtosis	Cronbach' α
Game strategy efficacy	323	23 (-1.71)	31	.89
Motivation efficacy	323	26 (-1.93)	01	.91
Technique efficacy	323	33 (-2.40)	63	.86
Character building efficacy	323	-1.36 (-10.02)	2.63	.90
Total coaching efficacy	323	26 (-1.88)	39	.94
Regulation of emotion	323	35 (-2.57)	.64	.72
Utilization of emotion	323	02 (14)	08	.53
Appraisal of emotion	323	.12 (.85)	32	.76
Overall emotional intelligence	323	.06 (.43)	.18	.74
Democratic behavior	323	01 (07)	13	.85
Positive feedback behavior	323	20 (-1.43)	.03	.81
Teaching & instruction behavior	323	26 (-1.94)	46	.78
Situational consideration behavior	323	.09 (.68)	60	.69
Social support behavior	323	22 (-1.60)	19	.72
Note. SE: Standard Error				

Table 5Summary Statistics for Normality and Internal Consistency

For reliability of variables, the Cronbach' alpha values were calculated to evaluate the internal consistency of a variable (see Table 5). Values ranged from .69 (situational consideration behavior) to .94 (overall coaching efficacy), except for .53 of utilization of emotion. Since Nunnaly (1978) has indicated 0.7 to be an acceptable reliability coefficient, I concluded that all variables were internally consistent, except for situational consideration behavior (.69) and utilization of emotion (.53). I accepted the value of .69 for situational consideration behavior as an acceptable reliability coefficient because it is very close to .70. But, .53 for utilization of emotion was not accepted as an internally consistent variable, which means that it is not appropriate psychometrically to test a hypothesis. Thus, this variable was eliminated for further analysis as a dependent or independent variable.

Descriptive Statistics and Gender Differences

Descriptive statistics for the variables of emotional intelligence, coaching efficacy, and leadership behavior are presented in Table 6. All scales are 5-point scales from 1 to 5.

For the coaching efficacy variables, the highest mean is of character building efficacy indicating that the coaches perceived that they had the highest confidence in character building of their athletes, while motivation efficacy was the lowest mean. However, the overall descriptive scores of coaching efficacy, high mean and low deviation, shows that the coaches perceived that they are highly confident in basketball coaching.

For the emotional intelligence variables, regulation of emotion was the highest while utilization was the lowest mean. Regulation of emotion was highly rated, compared to utilization of emotion, which means that the coaches highly perceived their emotional ability in regulating emotion when interacting with athletes.

Descriptive Statistics for Variables					
Variables	N	М	SD	Minimum	Maximum
Game strategy efficacy	323	4.15	.53	2.43	5.00
Motivation efficacy	323	3.94	.58	2.14	5.00
Technique efficacy	323	4.31	.50	2.83	5.00
Character building efficacy	323	4.57	.52	2.00	5.00
Total coaching efficacy	323	4.24	.42	2.92	5.00
Regulation of emotion	323	4.02	.36	2.58	5.00
Utilization of emotion	323	3.50	.51	2.00	5.00
Appraisal of emotion	323	3.93	.46	2.70	5.00
Overall EI	323	3.98	.34	2.64	4.83
Democratic behavior	323	2.92	.52	1.42	4.33
Positive feedback behavior	323	4.16	.41	2.50	5.00
Teaching & instruction behavior	323	4.23	.37	3.10	5.00
Situational consideration behavior	323	4.08	.36	3.30	4.90
Social support behavior	323	3.78	.49	2.38	5.00

Table 6

For the variables of the leadership behavior, democratic behavior was rated considerably lower than other leadership behaviors. The coaches thought that they did not exhibit democratic behavior much, compared to other leadership behaviors.

Although coaches' gender differences could not be investigated due to the low rate of female coaches' participation (i. e., 87% male coaches versus 13% female coaches), the differences of teams' gender on the variables could be investigated with independent *t*-tests. However, no differences between head coaches of boys' teams and girls' teams on the all variables were found.

Correlations among the variables

Pearson correlations were calculated in order to find which predictors of EI showed sufficient relationship with coaching efficacy and leadership behaviors (see Table 7), and between dependent variables (see Table 8). Additionally, the relationships between the demographic variables of coaches such as age, education level, coaching and playing years, and coaching hours and EI, coaching efficacy, and leadership behavior were investigated with Pearson correlations (see Appendix F).

Table 7 displays the correlations of EI, coaching efficacy, and leadership behavior, indicating that regulation and appraisal of emotion correlated significantly with the four dimension of coaching efficacy, total coaching efficacy, and five sub-domains of leadership behavior. Overall, regulation of emotion produced higher correlations with coaching efficacy and leadership behavior, as compared to other dimensions of EI. Especially, regulation of emotion was highly correlated with CBE (.43), TCE (.45), PFB

Efficacy and	Leaders	snip Ber	lavior							
Emotional		Coac	hing Eff	icacy			Leade	rship Be	havior	
Intelligence	GSE	ME	TE	CBE	TCE	DB	PFB	TIB	SCB	SSB
Regulation	.30**	.38**	.31**	.43**	.45**	.24**	.55**	.43**	.48**	.34**
Appraisal	.14**	.23**	.17**	.23**	.25**	.19**	.21**	.24**	.26**	.28**
Overall	.26**	.36**	.28**	.39**	.41**	.26**	.44**	.39**	.43**	.38**
** <i>p</i> < .01, *	p < .05	(2-tailed	d)							

Table 7Pearson Correlation Coefficients between Emotional Intelligence and CoachingEfficacy and Leadership Behavior

Note. GSE = Game Strategy Efficacy; ME = Motivation Efficacy; TE = Technique Efficacy; CBE = Character Building Efficacy; TCE = Total Coaching Efficacy; DB = Democratic Behavior; PFB = Positive Feedback Behavior; TIB = Training & Instruction Behavior; SCB = Situational Consideration Behavior; SSB = Social Support Behavior.

(.55), TIB (.43), and SCB (.48). It is estimated that coaches' higher perceived ability to regulate emotion tends to show more confidence in character building and overall coaching skill, and more positive feedback behavior, teaching and instructional behavior, and situational consideration behavior during games and practice.

Table 8 displays the correlations between coaching efficacy and leadership behavior. It indicates that all variables of coaching efficacy are correlated significantly with and five sub-domains of leadership behavior, except for the relationship between GSE and DB, and TE and DB. Overall, teaching & instructional behavior (TIB) produced higher correlations with coaching efficacy, as compared to other dimensions of leadership behavior, which indicates that teaching and instructional behavior of coaches are highly associated with coaches' confidence in game strategy, motivation, technique, character building for athlete. Additionally, positive feedback behavior is highly correlated with CBE (.43), and TCE (.49), situational consideration behavior are highly correlated with GSE (.42), and TCE (.47).

Coaching		Le	adership Behav	ior	
Efficacy	DB	PFB	TIB	SCB	SSB
GSE	.05	.26**	.51**	.42**	.24**
ME	.17**	.39**	.45**	.37**	.31**
TE	.02	.34**	.49**	.36**	.18**
CBE	.13*	.43**	.42**	.33**	.30**
TCE	.12*	.45**	.59**	.47**	.33**

 Table 8

 Pearson Correlation Coefficients between Coaching Efficacy and Leadership Behavior

** *p* < .01, * *p* < .05 (2-tailed)

Note. GSE = Game Strategy Efficacy; ME = Motivation Efficacy; TE = Technique Efficacy; CBE = Character Building Efficacy; TCE = Total Coaching Efficacy; DB = Democratic Behavior; PFB = Positive Feedback Behavior; TIB = Training & Instruction Behavior; SCB = Situational Consideration Behavior; SSB = Social Support Behavior.

Regarding the relationship with the demographic variables (see Appendix F),

coaches' age is positively correlated with ME (.13), CEB (.14), TCE (.12), and TB (.11),

but negatively with appraisal of emotion (-.25) and overall EI (-.18). Coaching years is

also positively correlated with GSE (.24), ME (.14), TE (.13), CBE (.16), TCE (.21), TB

(.19), and SCB (.12) but negatively with appraisal of emotion (-.16).

Educational level (.11) and playing years of coaches (.14) are correlated with TE,

and coaching hours per a day is correlated with GSE (.14) and appraisal of emotion (.11).

Tests of the Hypotheses

Table 9

The first hypothesis tested the predictive strength of EI on the four dimensions of coaching efficacy and was tested in a MMR analysis and four UMRs using regulation and appraisal of emotion as two predictors and GSE, ME, TE, and CBE as the criterion variables. Also, the multivariate relationship between two perceptual sets (i. e., EI's and coaching efficacy's subscales) was tested through canonical correlation analysis.

The result of the MMR indicated that EI was a significant predictor of the coaching efficacy's subscales, Wilks's lambda = .75, $F_{(8,634)}$ = 12.06, p < .001. Also, the canonical relationship was found to be significant (Rc = .50, $Rc^2 = .25$, p < .001). The redundancy index that measured the amount of variance predicted in coaching efficacy from the set of EI was 14%. A redundancy index of 10% or higher is considered to be meaningful (Pedhazur, 1982). Table 9 presents a summary of the canonical correlations

Variables	Canonical loadings	Standardized canonical coefficients
EI	O	
Regulation	97	88
Appraisal	55	26
Percentage of variance	15.18	
Redundancy	.15	
Coaching efficacy subscales		
Game strategy	61	.04
Motivation	79	41
Technique	64	23
Character building	89	61
Percentage of variance	55.89	
Redundancy	.14	
Canonical correlation	.50	

Summary of the Canonical Correlation Analysis between Emotional Intelligence and Coaching Efficacy Subscales analysis. Canonical loadings were calculated to determine the specific variables that contributed to the multivariate relationship between the two sets. Considering the rule of thumb (i. e., loadings greater than .30), both predictors in EI were important contributors to the relationship. Regulation's contribution was bigger than appraisal's. Thus, coaches who perceived that they were higher in ability in regulating and appraising of emotion were more confident in their coaching, especially in the areas of motivation and character building.

In addition to multivariate analysis, the UMR (see Table 10) results indicated that regulation and appraisal of emotion significantly predicted GSE ($F_{(3.320)} = 16.23$; p < .001), ME ($F_{(3.320)} = 29.27$; p < .001), TE ($F_{(3.320)} = 17.69$; p < .001), and CBE ($F_{(3.320)} = 38.50$; p < .001) with a considerably strong predictive relationship with ME ($R^2 = .15$), and CBE (.19).

Table	10	

The Predictability of Emotional Intelligence on Coaching Efficacy and Leadership Behavior

Duralistan	Coaching Efficacy				
Predictors	GSE	ME		TE	CBE
Regulation (β_1)	.28**	.34**		34** .30**	
Appraisal (β_2)	.05	.12*	K	.08	.10 (<i>p</i> =.051)
Predictors	Leadership Behavior				
Predictors	DB	PFB	TIB	SCB	SSB
Regulation (β_1)	.20**	.54**	.39**	.44**	.28**
Appraisal (β_2)	.12*	.03	.12*	.12*	.20**

** *p* < .01, * *p* < .05 (2-tailed)

Note. GSE = Game Strategy Efficacy; ME = Motivation Efficacy; TE = Technique Efficacy; CBE = Character Building Efficacy; TCE = Total Coaching Efficacy; DB = Democratic Behavior; PFB = Positive Feedback Behavior; TIB = Training & Instruction Behavior; SCB = Situational Consideration Behavior; SSB = Social Support Behavior. The factors of EI (regulation and appraisal) accounted for 15% of variance in ME and 19% in CBE. Regulation of emotion is a stronger predictor than appraisal of emotion within coaching efficacy. Specifically, the predictive strength of regulation was strong within ME (β = .34) and CBE (.40). Thus the first hypothesis was supported, implying that coaches' perceived ability to regulate their own emotion and appraise their own and athlete's emotion is the source of the overall coaching efficacy, especially motivation and character building efficacies.

The second hypothesis to test the predictive strength of EI on the five sub domains of leadership behavior was tested in a MMR and five UMRs using regulation and appraisal of emotion as two predictors and DB, PFB, TIB, SCB, and SSB as the criterion variables (see Table 10). Also, the multivariate relationship between two perceptual sets (i. e., EI's and leadership behavior subscales) was tested through canonical correlation analysis (see Table 11).

Tab	le	1	1
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	Canonical	Standardized canonical
Variables	loadings	coefficients
EI		
Regulation	99	94
Appraisal	46	16
Percentage of variance	21.68	
Redundancy	.22	
Leadership behavior		
sub-factors		
Democratic	42	03
Positive feedback	91	62
Training & instruction	72	10
Situational consideration	81	37
Social support	60	09
Percentage of variance	51.00	
Redundancy	.19	
Canonical correlation	.60	

Summary of the Canonical Correlation Analysis between Emotional Intelligence and Leadership Behaviors Sub-Factors

The result of MMR indicated that the predictiveness of El was significant in relation to the leadership behavior's subscales, Wilks's lambda = .61, $F_{(10.632)}$ = 17.50, p < .001. Also, the canonical relationship was found to be significant (Rc = .60, $Rc^2 = .36$, p < .001). The redundancy index that measured the amount of variance predicted in leadership behavior from the set of El was 19%. Table 11 presents a summary of the canonical correlation analysis. Canonical loadings were calculated to determine the specific variables that contributed to the multivariate relationship between the two sets. Both predictors in El were important contributors to the relationship. Regulation's contribution was bigger than appraisal's. Thus, coaches who perceived that they were higher in ability for regulating and appraising emotion tended to think that they showed more leadership behaviors, such as democratic, positive feedback, training and instruction, situational consideration, and social support behaviors.

In addition to multivariate analysis, the UMR (See Table 10) results indicated that regulation and appraisal of emotion significantly predicted DB ($F_{(3.320)} = 12.10$; p<.001), PFB ($F_{(3.320)} = 69.98$; p<.001), TIB ($F_{(3.320)} = 38.13$; p<.001), SCB ($F_{(3.320)} = 51.00$; p<.001), and SSB ($F_{(3.320)} = 27.96$; p<.001) with a considerably strong predictive relationship with TIB ($R^2 = .19$), SCB (.24), and PFB (.30). The factors of EI (regulation and appraisal) accounted for 19% of variance in TIB, 24% in SCB, and 30% in PFB. Regulation of emotion is a stronger predictor than appraisal of emotion within leadership behaviors. Specifically, the predictive strength of regulation was strong within TIB ($\beta =$.39), SCB (.44), and PFB (.54). Thus the second hypothesis was supported, implying that coaches perceiving more ability to control their own emotion show more positive feedback behavior, situational consideration behavior and teaching and instructional behavior.

For the third hypothesis, the multivariate relationship between two perceptual sets (i. e., coaching efficacy's and leadership behavior's subscales) was tested through canonical correlation analysis (see Table 12). Also, the predictability of coaching efficacy on the five sub-domains of leadership behavior was tested in a MMR and five UMRs using four dimensions of coaching efficacy as four predictors and DB, PFB, TIB, SCB, and SSB as the criterion variables (see Table 13).

The result of MMR indicated that the predictiveness of coaching efficacy was significantly related to the sub-factors of leadership behaviors, Wilks's lambda = .53, $F_{(20,1042)} = 10.93$, p < .001. Also, the canonical relationship was found to be significant $(Rc = .62, Rc^2 = .39, p < .001)$. The redundancy index that measured the amount of variance predicted in leadership behavior from the set of coaching efficacy was 18%. Table 12 presents a summary of the canonical correlations analysis. Canonical loadings were calculated to determine the specific variables that contributed to the multivariate relationship between the two sets. All four predictors in coaching efficacy were important contributors to the relationship (i. e., loadings greater than .30). Thus, coaches who perceived that they were confident in coaching tended to think of them that they show more leadership behaviors, such as democratic, positive feedback, training and instruction, situational consideration, and social support behaviors.

Table 12

	Canonical	Standardized canonical
Variables	loadings	coefficients
Coaching efficacy subscales		
Game strategy	.80	.23
Motivation	.77	.28
Technique	.81	.39
Character building	.76	.37
Percentage of variance	24.11	
Redundancy	.240	
Leadership behavior		
sub-factors		
Democratic	.18	14
Positive feedback	.74	.35
Training & instruction	.95	.72
Situational consideration	.74	.11
Social support	.52	.01
Percentage of variance	45.84	
Redundancy	.18	
Canonical correlation	.62	

Summary of the Canonical Correlation Analysis between Coaching Efficacy and Leadership Behaviors Sub-Factors

In addition to multivariate analysis, in univariate analysis (see Table 13), The result indicated that the four dimensions of coaching efficacy significantly predicted DB $(F_{(4, 318)} = 3.21; p = .013)$, PFB $(F_{(4, 318)} = 26.61; p < .001)$, TIB $(F_{(4, 318)} = 43.96; p < .001)$, SCB $(F_{(4, 318)} = 22.50; p < .001)$, and SSB $(F_{(4, 318)} = 11.48; p < .001)$ with a considerably strong predictive relationship with SCB $(R^2 = .22)$, PFB (.25), and TIB (.36), and the moderate relationship with SSB (.17).

Predictors	Leadership Behavior				
	DB	PFB	TIB	SCB	SSB
GSE (β_1)	06	13	.21**	.22**	.06
ME (β_2)	.18**	.23**	.15*	.13*	.19**
TE (β ₃)	07	.20**	.22**	.10	01
CBE (β_4)	.09	.30**	.18**	.13*	.19**

Table 13The Predictive Strength of Coaching Efficacy on Leadership Behavior

** *p* < .01, * *p* < .05 (2-tailed)

Note. GSE = Game Strategy Efficacy; ME = Motivation Efficacy; TE = Technique Efficacy; CBE = Character Building Efficacy; TCE = Total Coaching Efficacy; DB = Democratic Behavior; PFB = Positive Feedback Behavior; TIB = Training & Instruction Behavior; SCB = Situational Consideration Behavior; SSB = Social Support Behavior.

The four dimensions of coaching efficacy accounted for 22% of variance in SCB, 25% in PFB, 36% in TIB, and 17% in SSB. GSE predicted TIB (β = .21), and SCB (.22). ME predicted DB (.18), PFB (.23), TIB (.15), SCB (.13), and SSB (.19). TE predicted PFB (.20), and TIB (.22). CBE predicted PFB (.30), TIB (.18), SCB (.13), and SSB (.19). The strongest predictor was ME (β = .18) in DB, CEB (β = .30) in PFB, TE (β = .22) in TIB, GSE (β = .22) in SCB, and ME and CBE (β = .19) in SSB. Thus the third hypothesis was supported. It implies that coaches who have confidence in game strategy, motivation, technique, and character building tend to show more leadership behaviors, especially training and instructional behavior, positive feedback behavior, situational consideration behavior, and social support behavior.

Structural Equation Modeling

For the modeling test, the primary statistical procedure used in the study was Structural Equation Modeling (SEM). Before the SEM test, preliminary data analyses such as multivariate normality, homoscedasticity, univariate normality, outliers, and mulicollinearity were conducted as required to screen data before the examination (Kline, 2005). As a result, nothing was found to be problematic.

The hypothesized model. At the first stage of the modeling examination, the emotional intelligence (EI), the coaching efficacy (CE), and the leadership behavior (LB) were hypothesized as 'latent variables' in the model as were represented with subcategories. In the model, the sub-categories were called sub-factors and applied as 'indicators' to the latent variables. At the same time, characters of the variables in relation were also determined with the terms, 'exogenous' and 'endogenous'. In the study, EI was employed as an 'exogenous' variable because it was used as equivalent to an independent variable. Then, CE and LB were defined as endogenous variables because they were used as equivalent to dependent variables. Using EQS 6.0, the hypothesized model was entered into the relationships between the variables; (1) EI \rightarrow CF, (2) EI \rightarrow LB, and (3) CF \rightarrow LB. The relationships also applied sub-categories of the major variables. In Figure 5, correlation coefficients of the model are reported. They demonstrated strengths of the relationships between and within variables.


Figure 5 The Initially Proposed Model for Structural Equation Modeling (* Statistically significant correlation coefficients)

The ovals in the model demonstrate the latent variables, and the rectangles represent the sub-factors. In the diagram of Figure 5, I found statistical significance on every relationship between variables; (1) EI and CE, $\beta = .602$, (2) EI and LB, $\beta = .579$ and (3) CE and LB, $\beta = .335$. All the sub-categories also showed statistical significance under each variable.

Along with the relationships between variables in the hypothesized model, the SEM test reported the goodness of fit indexes to demonstrate whether the model fit the data. According to the results, this model could not obtain acceptable values of fit indexes; the goodness of fit indexes summary indicated that any of the indexes did not meet the recommended fit criteria; $\chi^2_M = 180.950$ (df = 41, p < .01), NFI = .867, NNFI =

.857, CFI = .893, RMSEA = .103. The recommendation for the cut-off value of NFI, NNFI, and CFI was .90, and RMSEA was .10 (Kline, 1998).

Table 14 summarized parameter, estimate, and standard errors of the first model test. In Table 14, 'parameter' indicates the relationships between the variables, and 'estimate' demonstrates the correlation coefficients. In addition, 'SE' represents the standard errors of the variables, and R^2 demonstrates the proportion of variability that can be explained in the model. Overall, it was suggested that the hypothesized model failed to reach all the satisfactory goodness of fit index criteria. Therefore, a modification was recommended. In the modification, reassessment of correlations coefficients among major variables was suggested.

Table 14Parameter Summary of the First Model

Parameter	Estimate^	SE	Parameter	Parameter Estimate	
Direct Effe			Measurement	t Error Varia	nces &
Direct Effect			Dis	sturbance	
$EI(F1) \rightarrow CE(F2)$.602	.177	D _{F2}	.799	.020
$EI(F1) \rightarrow LB(F3)$.579	.120	D _{F3}	.563	.004
$CE(F2) \rightarrow LB(F3)$.335	.052			
Indicators	3				
EI (F1) \rightarrow Regulation (V1)	.768	-	Evi	.640	.012
$EI(F1) \rightarrow Appraisal(V2)$.424	.124	Ev2	.906	.015
$CE(F2) \rightarrow GSE(V3)$.803	-	E _{V3}	.803	.012
$CE(F2) \rightarrow ME(V4)$.712	.079	Ev4	.712	.017
$CE(F2) \rightarrow TE(V5)$.727	.068	Ev5	.687	.012
$CE(F2) \rightarrow CBE(V6)$.600	.072	Ev6	.800	.016
$LB(F3) \rightarrow DB(V7)$.375	-	Ev7	.927	.018
$LB(F3) \rightarrow PFB(V8)$.685	.236	Ev8	.728	.008
$LB(F3) \rightarrow TIB(V9)$.812	.240	Ev9	.583	.005
$LB(F3) \rightarrow SCB(V10)$.804	.232	Ev10	.595	.005
$LB(F3) \rightarrow SSB(V11)$.622	.262	Ev11	.783	.013





The final model. As suggested in the first model test, all the correlation coefficients in the first model were reassessed. This assessment showed that CBE in CE and DB in LS had the lowest correlation coefficients (β = .600 and 375 respectively, see Figure 5) under each of their latent variables. Therefore, I decided to exclude these two sub-factors from the model. The following model shows the final model.

Along with the modifications, the researchers found that all the correlation coefficients among the latent variables were statistically significant (p<.05) in the model (see Figure 6); (1) EI and CE, β = .522 and (2) EI and LB, β = .583, and (3) CE and LB, β = .353 CE. In addition, every correlation coefficient of all the sub-factor were also statistically significant (p<.05): (1) CE and GSE, β =.849, (2) CE and ME, β = .674, (3) CE and TE, β = .747 (4) LS and PFB, β = .668, (5) LS and TIB, β = .827, (6) LS and SCB, β = .806, and (7) LS and SSB, β = .605. In terms of the goodness of fit indexes, we found fairly considerable improvement in the second model. The model reported; $\chi^2_M = 101.398$ (df = 24, p < .01), NFI = .911, NNFI = .894, CFI = .930, RMSEA = .10. The values of NFI, CFI, and RMSEA met the fit criteria as they were above .90 and .10 (for RMSEA). However, the value of NNFI did not meet the fit criteria as it was below .90. This model also was compared to the previous model. The following table demonstrates the goodness of fit indexes of the second model and comparisons with the first model.

In the Table 15, chi-squares and Akaike Information Criterions (AIC) were reported to compare the first and second models. In comparison, it was suggested that the second model was significantly different from the model; $\Delta \chi^2 = 79.552$ (df = 17, p < 0.01).

In the examination for AICs of the two models, the researchers found that the AIC value of the second was lower than that of the first model; AIC_{M2} (53.398) < AIC_{M1} (98.950). Reflecting these model comparisons, the second model was suggested as a better model than the first model. Table 16 summarized parameters, estimates, and standard errors that were used for the second model test.

Table 15Goodness of Fit Indexes Summary of the Final Model

	χ^2	df	χ²/df	NFI	NNFI	CFI	RMSEA	$\Delta \chi^2$	AIC
Final Model	101.398	24	4.224	.911	.894	.930	.100	79.552	53.398
1 st Model	180.950	41	4.413	.867	.857	.894	.103		98.950

Parameter	Estimate [^]	SE	Parameter	SE	
Direct Effects			Measuremen <u>& D</u>	nt Error Vari	ances
$EI (F1) \rightarrow CE (F2)$.522	.175	D _{F2}	.853	.022
$EI(F1) \rightarrow LB(F3)$.583	.140	D _{F3}	.583	.006
$CE(F2) \rightarrow LB(F3)$.353	.056			
Indicator	<u>S</u>				
EI (F1) \rightarrow Regulation (V1)	.772	-	E_{V1}	.635	.013
EI (F1) \rightarrow Appraisal (V2)	.421	.128	E_{V2}	.907	.015
$CE(F2) \rightarrow GSE(V3)$.849	-	E _{V3}	.528	.013
$CE(F2) \rightarrow ME(V4)$.674	.075	E_{V4}	.739	.018
$CE(F2) \rightarrow TE(V5)$.747	.065	E_{V5}	.665	.012
$LB(F3) \rightarrow PFB(V8)$.668	-	E_{V6}	.744	.008
LB (F3) \rightarrow TIB (V9)	.827	.091	Ev7	.562	.005
$LB (F3) \rightarrow SCB (V10)$.806	.087	Ev8	.592	.005
$LB(F3) \rightarrow SSB(V11)$.605	.113	Ev9	.796	.013

Table 16Parameter Summary of the Final Model

^ Refers to standardized solutions

Summary

Coaches' EI significantly predicts coaching efficacy and leadership behaviors in this sample of coaches. More specifically, the ability of regulating emotions significantly predicts the game strategy ($\beta = .28$), motivation ($\beta = .34$), technique ($\beta = .30$), character building ($\beta = .40$) coaching efficacy, and democratic ($\beta = .20$), positive feedback ($\beta =$.54), training & instruction ($\beta = .39$), situational consideration ($\beta = .44$), and social support ($\beta = .28$) in leadership behaviors. The ability to appraise emotions significantly predicts the motivation ($\beta = .12$) coaching efficacy, and democratic ($\beta = .12$), training and instruction ($\beta = .12$), situational consideration ($\beta = .12$), and social support ($\beta = .20$) in leadership behaviors. Additionally, the relationship between coaching efficacy significantly predicted leadership behaviors, explaining 22 % of variance in situational consideration behaviors, 25% of variance in positive feedback behaviors, and 36% in training and instruction behavior. Those relationships were confirmed by a structural equation modeling test.

CHAPTER 5

DISCUSSION

The main purpose of this study was to investigate the predictive strength of EI of coaches on coaching efficacy and leadership behavior of coaches. The first hypothesis, that the four dimensions of coaching efficacy would be predicted by EI of coaches, was supported. The factors of EI (regulation and appraisal) accounted for 15% of variance in ME and 19% in CBE. Thus, the EI of coaches was particularly predictive of coaches' motivational and character-building efficacy beliefs. This makes sense that coaches' perceived ability to regulate and be aware of their own and athletes' emotions would inform their sense of being able to motivate and build the character of their athletes during practices, conferences, and competitions. For example, if coaches appropriately regulate the agitated situation, they would think that these behaviors positively affect the attitude of athletes in sport participation and athletes' character development. If coaches are good at being aware of athletes' emotional states (e.g., burn-out, boredom, and anxiety level), they could effectively motivate the athletes with confidence. Hanson and Gould (1998) emphasized the importance of coaches' ability to estimate athletes' anxiety levels to the athetes' motivation.

Although there is no previous research linking EI and coaching efficacy in sport, there is research in education that has examined the relationship between teaching efficacy and EI of teachers (e. g., Chan, 2004; Okech, 2004; Penrose, Perry, & Ball, 2007). Those results were consistent with the results of this study. Okech (2004) found a significant positive relationship between EI and teacher self-efficacy. Chan (2004) found that the component of EI (positive regulation and empathic sensitivity) significantly

predicted efficacy beliefs of teachers. Penrose et al. (2007) reported that 14% of the variation in personal teaching efficacy could be explained by taking EI into account.

Such association originated from Bandura's self-efficacy theory (1997) that physiological and emotional states work together as a source of efficacy beliefs. Aside from the physiological state, perceived ability to regulate, utilize, and appraise emotions fits with Bandura's (1977, 1997) sources of self-efficacy information within his theory. Bandura (1997) states that one way of altering efficacy belief is by reducing "negative emotional proclivities" (p. 106). This also includes mood states, such as anger, fear, anxiety, and joy. Bandura explains that moods provide sources of efficacy information "because they often accompany changes in quality of functioning" (p. 111). That is, they can influence how coaching situations are interpreted. Schunk (1995) suggested that emotional symptoms that signal anxiety might be interpreted by an individual to mean that he or she lacks the requisite skills to perform a certain task, which in turn influences efficacy judgments. It is, likewise, reasonable to expect that coaches who believe that they have good ability in regulation of their emotions to keep a positive mood will have more confidence in their ability to affect the performances of their teams. That is, it may be more difficult to attend to the tasks of game strategizing, teaching, motivating, and instilling character when one is less control of one's emotions.

Regarding EI of coaches and leadership behavior, the second hypothesis, that each of the five sub-factors of leadership behavior would be predicted by EI of coaches, was also supported. These results suggest that coaches who have higher perception in regulating their own emotion to keep a positive mood are likely to demonstrate positive feedback behaviors (e. g., encouraging an athlete after a mistake and complimenting

properly), situational consideration behaviors (e. g., selecting an athlete for the appropriate game position or line up and differentiating coaching methods at different maturity stages and skill levels), and training and instructional behavior (e. g., instructing the athletes in the skills, techniques, and the tactics of the sport, and planning training practices and evaluating the performance of the athletes).

In addition to regulation of emotion, the appraisal of emotion was a significant predictor of social support behavior, democratic behavior, situational consideration, and training and instructional behavior. Although it was not a strong predictor, as compared to regulation of emotion, the coaches' perceived ability to be aware of their own and athletes' emotional states contributed to their perceptions of their coaching behavior. For instance, if coaches are good at being aware of athletes' emotional states (e. g., burn-out, boredom, and anxiety level), they could demonstrate different behaviors considering athletes' and groups' feelings and climates. Those coaches are more likely to select an athlete for the appropriate game position, and consider situational factors, such as emotions, time, environment, individual, and health condition. The coaches also would touch and relieve the non-starting members' feelings and disappointment by the recognition of the athletes that they are supporting.

These results are consistent with Goleman's (1995) primary book in El *Emotional intelligence: Why it can matter more than IQ*' asserting that EI is an essential contributor to effective leadership, and other empirical studies in business (e. g., Caruso et al., 2002; Humphrey, 2002; Kobe et al., 2001; Mayer & Caruso, 2002; Rosete & Ciarrochi, 2005; Sosik & Megerain, 1999) indicating that leaders' EI promoted effectiveness in organization.

Regarding the relation to leadership behaviors in coaching, the result is aligned with Miller's (2003) qualitative study on the relationship between altruistic leadership and EI of coaches. Through interviews with 15 collegiate coaches, she found that the factors of EI (self-awareness, self-regulation, social skills, empathy, and self-motivation) were reinforced in relation to altruistic leadership, and suggested that the five factors of EI were possible factors of altruistic leadership. Specifically, regarding self-regulation, some coaches' perceptions of altruistic leadership included controlling emotions, controlling language, and remaining consistent with athletes (Miller, 2003).

The fact that EI significantly predicted the technique efficacy and the training and instructional behavior is interesting. Given the theoretical tenant of EI, it seemed to take account only for motivation and character building efficacy of athlete and positive feedback and social support behavior, not related to technique instruction. But, the result indicated that emotionally intelligent coaches are more likely to perceive that they have more technique coaching confidence and show more instructional behavior effectively. Because they are equipped with the ability to regulate their emotion without agitation or anger during the instruction, they know how to lead the instruction with confidence and reasonable behavior.

Based on Salovey and Mayer's (1990) model, utilization of emotion means that using emotion and not being disrupted by emotion. An individual high in utilization of emotion shows more efficiency in doing flexible planning, creative thinking, redirected attention, and motivating. In coaching situations, coaches should be able to purposely show their own enthusiasm toward their team in order to motivate athletes after identifying and regulating their own emotions. However, despite this important property

of an individual's EI, the utilization of emotion was not used for this study because of low internal consistency. This low internal consistency may have been the result of the following: (a) relatively small number of items (six items) as compared with other factors of EI, (b) unclear items for coaches to think about in basketball coaching situations (e. g., emotions don't play a big part in how I deal with problems.), and (c) items' low fit to the sport setting (e. g., I don't believe that my emotions give any help in coming up with new ideas.).

The additional hypothesis was that efficacious belief in coaching would predict perceived leadership behaviors of coaches. This was based on Feltz and colleagues' (1999) coaching efficacy model indicating that coaching behavior is the major outcome of coaching efficacy. The coaches' efficacious beliefs in coaching explained 36% variance of training and instructional behaviors, 25% of positive feedback behaviors. 22% of situational considering behaviors, and 17% of social support behaviors. These results partially support Feltz and colleagues' (1999) finding that higher-efficacy coaches used more praise and encouragement behavior. However, the fact that the positive linear relationship between the coaching efficacy and training and instructional behaviors is inconsistent with Feltz and colleagues' (1999) finding that less confident coaches demonstrated more instructing organizing behavior. However, Sullivan and Kent (2003) reported the positive relationship between technique efficacy and training and instruction leadership behaviors, using the self-reported Leadership Scale for Sport (LSS: Chelldurai & Saleh, 1980).

The big difference between Feltz and colleague's (1999) study and this study including Sullivan and Kent's (2003) study is the measurement style. Feltz and

colleagues (1999) used the CBAS (1978, 1997) to measure coaches' behavior in which coaches' behavior was observed and assessed by others who had been trained in using the CBAS (Smith et al., 1978, 1997). By contrast, this study and the Sullivan and Kent' (2003) study used the self-reported measurement style to assess coaches' behavior.

For more specific predictors of leadership behaviors in coaching, Sullivan and Kent (2003) reported motivation and technique efficacy beliefs predicted training and instruction and positive feedback behaviors. However, as compared to Sullivan and Kent's study, the present study revealed many predictors: (a) game strategy efficacy beliefs predicted training and instruction behaviors and situational consideration behaviors, (b) motivation efficacy beliefs predicted democratic behaviors, positive feedback behaviors, training and instruction behaviors, situational consideration behaviors, and social support behaviors, (c) technique efficacy belief predicted positive feedback behaviors, and training and instruction behaviors, (d) character building efficacy belief predicted positive feedback behaviors, training and instruction behaviors, situational consideration behaviors, and social support behaviors. Although it was expected that the game strategy and technique efficacy would predict training and instruction and situational consideration behaviors, and the motivation and character building efficacy would predict social support and positive feedback behaviors, those were only partially supported. That is, efficacy belief in the four dimensions predicted leadership behaviors in various ways. Specifically, in the case of motivation efficacy, as coaches were more confident in motivating their athletes, they were more concerned with all five sub-factors of leadership (i. e., predicted democratic behaviors, positive feedback behaviors, training and instruction behaviors, situational consideration behaviors, and

social support behaviors). This result is comparable with Sullivan and Kent's study finding that motivation efficacy predicted positive feedback and training and instruction behaviors. In the present study, it appears that the various beliefs in coaching influence the coaching behaviors in various ways. However, the fact that technique efficacy predicted positive feedback behaviors, and training and instruction behaviors, is consistent to Sullivan and Kent's study.

The big difference between the predictive strength of coaching efficacy in this study and Sullivan and Kent's study may result from using the psychometrically improved measurement, the diversity of sports, and the coaches' level. Instead of LSS (Chelldurai & Saleh, 1980), this study used the Revised Leadership Scale for Sport (Zhang, et al, 1997), which was psychometrically improved in several ways. In terms of the subjects, Sullivan and Kent used intercollegiate coaches in various sports while only basketball coaches in high-schools participated in this study.

The relationships among EI, coaching efficacy, and leadership behavior in the sport setting were confirmed by SEM, indicating that coaches' EI influences coaching efficacy beliefs and leadership behaviors excluding democratic behaviors. The coaching efficacy beliefs influence leadership behaviors excluding democratic behaviors. The fitness of the model suggests that the concept of EI fits in the contents of coaching efficacy and leadership behaviors of the coaching effectiveness. Research regarding EI can be developed in sports investigating coaching effectiveness.

Implications

Given the lack of research on EI in sport, the results of this investigation are important in several ways. First, given that coaching confidence and coaching behaviors

affect coaching effectiveness, according to Horn (2002)'s model, EI contributes to the coaching effectiveness as a characteristic of a coach. Emotionally intelligent coaches are more confident in coaching, and perceive that they show more effective leadership behaviors (i. e., positive feedback, situational consideration, social support, and training instruction behaviors). The reason that those coaching behaviors are called effective behaviors is due to Chelladurai (1984)'s contention that coaches' social support behavior, or relationship behavior, was the most productive factor in satisfying the needs of the athletes. In an empirical study, Amorose and Horn (2000) reported that athletes who perceived their coaches to exhibit a more democratic coaching style and to respond to players' performances with high levels of praise, encouragement, and information-based feedback would exhibit higher intrinsic motivation than would athletes who perceived their coaches to be more authoritarian in leadership style. Therefore, EI is one of the qualities of an effective coach, as Humphrey (2002) indicated that the leaders with a high level of EI can be better equipped to promote effectiveness at all levels in organizations, which, in turn, strongly influences their followers' performance outcome.

Second, coaches' perceived emotional functioning is another source of coaches' efficacious belief in coaching. The fact that coaches' perceived ability to regulate and appraise their emotion influences their coaching confidence is evidence to add it as a source of coaching efficacy, along with coaching experience, prior success, perceived skill of athletes, and school/community support.

Third, EI is valuable enough to be applied to sport settings. Coaches' emotions in relation with athletes have received little attention as compared to athletes' emotions. Studies regarding coaches' emotions indicated that coaches need the ability to regulate

emotions for themselves and athletes. They should regulate their emotion not to be agitated, to appraise it to know their own and athlete's emotional status, and to use it for a good relationship with athletes. In addition to the nature of EI, researchers should consider psychological characteristics of coaches as well as apparent variables such as coaching behaviors. The major theme of studies about coaching is coaching behaviors (i. e., leadership style). But researchers need to describe coaches psychologically and emotionally, because coaches' personal characteristics affect coaching behaviors, coaching effectiveness, and athletes' outcomes in various ways. This suggestion is aligned with Feltz's efforts with the coaching efficacy model, trying to explain coaches' psychological belief in coaching.

Limitations and Future Direction

The major weakness of the study was the unavailability of an adequate scale for El in sport settings. The self-report MVSEIS is designed for life in general, not for a sport setting. It was developed in clinical psychology for the well-being of individuals. The major concern in sport psychology is with the content validity. Despite the lack of the content validity, it was deemed sufficient for our purpose when considering items such as 'I am aware of the non-verbal messages other people send.' and 'my mood has little effect on how I deal with problems.' Additionally, the problematic nature of the selfreported measurement exists. It is totally based on respondents' perceptions. The score may be over estimated or under estimated, or others may think of them differently in their emotional ability. Therefore, the development of the specific scale for emotional intelligence, competence, efficacy, or ability in the sport setting is recommended where items are developed that are suited for the sport setting.

In terms of coaching effectiveness, this study regarded only coaching efficacy and leadership behavior as the major factors of coaching effectiveness. We can infer that EI of a coach contributes to coaching effectiveness from the study's results. However, a study about association with actual outcome of coaching effectiveness, such as coaching behavior and performance (perhaps using the CBAS, Smith et al., 1978, 1997), win-loss record, and athlete's perceived motivational climate and satisfaction, are needed for practical studies of EI. VanSickle (2004) has reported that coaches' self-awareness of emotion predicted athletes' satisfaction.

The current study lacks variety in samples. Only basketball coaches in highschool participated in the study, which means that it is hard to generalize the results to all coaches. For that reason, the following future research is recommended that (a) involves coaches in various types of sports to compare those of team and individual sports, (b) involves coaches in various coaching levels such as professional, intercollegiate, high school, and recreational coaches to compare coaching levels, and (c) involves male and female coaches, and male and female teams with similar rate of participation to see coaches' gender differences, teams' gender differences, and the interaction of them. I failed to compare the gender differences that had been hypothesized because of the low rate of female coaches' participation (i. e., 87% male coaches versus 13% female coaches).

Although this study focused only on the personal characteristics of coaches, the studies investigating whether EI of coaches and athletes affect the group dynamics in a team, such as coach-athletes relationship, group cohesion, communication, and collective efficacy, are recommended.

APPENDICES

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APPENDIX A

Research Participant Information and Consent Form

You are being asked to participate in a study conducted by graduate student Seunghyun Hwang under the supervision of Deborah Feltz, Ph.D., from Michigan State University. The purpose of this study is to examine the relationship between emotional intelligence and coaching effectiveness. You have been selected as a potential participant in this study because you are currently a high school basketball coach.

As part of this research, you will be asked to complete 3 different surveys regarding your emotional intelligence and coaching effectiveness. Your participation will require approximately 30 minutes. Participation is voluntary and you have the right to choose not to participate, withdraw from the study at any time, or refuse to answer any question(s) without penalty.

Your participation in this study will remain completely confidential, as no one except the principal investigators will have access to these responses or to participation records. All data will be kept in a locked file cabinet and a password protected computer. At the end of the project, responses will be presented at the group level to ensure the confidentiality and anonymity of individual responses. Group-based findings will be made available to those who are interested. Your privacy will be protected to the maximum extent allowable by law.

In exchange for you participation, we will provide you with a brief summary of the results of the study. Additionally, your participation in this study may serve to further our knowledge about coaching effectiveness. There are no foreseeable risks involved with participation in this study.

You are not guaranteed to receive any form of monetary compensation for participating in this study. However, all participants who complete and submit a questionnaire will be entered in a drawing. Five participants will be randomly selected to win \$50 as a reward. 230 people were invited to participate in this research. If all participants respond, you have a 1 in 46 chance of winning.

If you have any questions about this study, such as scientific issues, how to do any part of it, or to report an injury, please contact Seunghyun Hwang, (hwangse6@msu.edu, or 224-688-1500) or Deborah L. Feltz (dfeltz@msu.edu or 517-355-4732).

If you have any questions about your role and rights as a research participant, or would like to register a complaint about this study, you may contact, anonymously if you wish, the Director of MSU's Human Research Protection Programs, Dr. Peter Vasilenko, 517-355-2180, FAX 517-432-4503, e-mail irb@msu.edu, or regular mail at: 202 Olds Hall, MSU, East Lansing, MI 48824.

Thank you for your time and cooperation.

Seunghyun Hwang Deborah L. Feltz

I, _____(Type your initials), have been informed of and voluntary agree to participate in the above-mentioned study.

Note: Typing initials means that you agree to voluntarily participate in this study.

APPENDIX B

Demographic Response Form

Please complete the following questions:

- 1. What is your gender? (Male Female)
- 2. What is the gender of your team? (Boy's Basketball Team Girl's Basketball Team)
- 3. What is your age? ()
- 4. What is your ethnicity?
 - 1) White/ Caucasian
 - 2) Black/ African American
 - 3) Hispanic
 - 4) American Indian/ Alaska Native

)

- 5) Hawaiian/ Pacific Islander
- 6) Asian American
- 7) Other (
- 5. What is your educational background?
 - 1) High School
 - 2) Less Than College/ Tech
 - 3) 2 or More Years College
 - 4) Bachelor Degree
 - 5) Some Master Level Work
 - 6) Master Degree
 - 7) Some Doctoral Level Work
 - 8) Completed Doctorate
 - 9) Other (
- 6. If you attended college or graduate school,

What is your undergraduate major? (if any)	()	
What is your master's major? (if any)	()	
What is your doctoral major? (if any)	()	

7. Do you have a teaching certificate? (Yes No)

)

- 8. What is your current occupation? (
- 9. How many years have you been coaching basketball, including this year? ______years
- 10. How many years had you been playing basketball before becoming a coach? _____years

)

- 11. How many hours do you spend for coaching basketball per a week? _____hours
- 12. Have you ever attended a coaching education program?1) No
 - 2) Yes, then how many programs did you attend? ()

APPENDIX C

Modified Version of Schutte Emotional Intelligence Scale (MVSEIS)-Short Version

Y Circle the answer that best matches your response to each statement.

EX) I know how to speak to others.	Strongly disagree	Disagree	Neutral	Agree	Strongly agree
	Ð	2	3	(4)	5

No.	Items	Strongly disagree	Disagree	Neutral	Agree	Strongly agree
1	When I am faced with obstacles, I remember times when I faced similar obstacles and overcame them.	Û	2	3	4	5
2	My mood has little effect on how I deal with problems.	Û	2	3	4	5
3	I find it hard to understand the non-verbal messages of other people.	Û	2	3	4	5
4	Some of the major events of my life have led me to re-evaluate what is important and not important.	0	2	3	4	(5)
5	I sometimes can't tell whether someone I am conversing with is serious or joking.	Û	2	3	4	5
6	When my mood changes I see new possibilities.	0	2	3	4	5
7	Emotions don't have much effect on my quality of life.	Û	2	3	4	5
8	I generally don't expect good things to happen.	0	2	3	4	5
9	When I experience a positive emotion, I know how to make it last.	Û	2	3	4	5
10	I quite often misread what is going on in social situations.	D	2	3	4	5
11	I seek out activities that make me happy.	D	2	3	4	5
12	When I am in a positive mood, solving problems is easy for me.	Û	2	3	4	5
13	I tend to misread people's facial expressions.	D	2	3	4	5
14	I don't believe that my emotions give any help in coming up with new ideas.	Û	2	3	4	5
15	I find it hard to control my emotions.	D	2	3	4	5
16	People have told me that I am difficult to talk to.	Û	2	3	4	5
17	I motivate myself by imagining a good outcome to task I take on.	0	2	3	4	5

18	I compliment others when they have done something well.	1	2	3	4	5
19	I am aware of the non-verbal messages other people send.	Û	2	3	4	5
20	When I feel a change in emotions, I tend to come up with new ideas.	Û	2	3	4	5
21	Emotions don't play a big part in how I deal with problems.	D	2	3	4	5
22	When I am faced with a challenge, I give up because I believe I will fail.	0	2	3	4	5
23	I know what other people are feeling just by looking at them.	Û	2	3	4	(5)
24	I help other people feel better when they are down.	0	2	3	4	5
25	I use good moods to help myself keep trying in the face of obstacles.	Û	2	3	4	5
26	I find it hard to tell how someone is feeling from their tone of voice.	D	2	3	4	5
27	It is difficult for me to understand why people feel the way they do.	D	2	3	4	5
28	I find it hard to make close friendships.	0	2	3	4	5

APPENDIX D Coaching Efficacy Scale (CES)

 Υ Circle the answer that best matches your response to each statement.

Ex) How confident are you in your ability to cook.

ok.	\cap	
1	23,	45
No		Completed
Confidence		Confidence

No.	ITEMS
	How confident are you in your ability to recognize opposing team's strengths.
	135
	How confident are you in your ability to understand competitive strategies.
2	135
2	How confident are you in your ability to adapt to different game/meet situations.
3	135
	How confident are you in your ability to recognize opposing team's weakness during
	competition. 15
	How confident are you in your ability to make critical decisions during competition.
3	135
6	How confident are you in your ability to maximize your team's strengths during competition.
	135
7	How confident are you in your ability to adjust your game/meet strategy to fit your team's talents
	135
8	How confident are you in your ability to maintain confidence in your athletes.
	1345
9	How confident are you in your ability to mentally prepare athletes for game meet strategies.
10	How confident are you in your ability to build the self-esteem of your athletes.
	How confident are you in your shility to motivate your athlates
11	How confident are you in your admity to motivate your admetes.
	How confident are you in your shility to huild team cohesion
12	
	How confident are you in your ability to build the self-confidence of your athletes
13	
	·

	How confident are you in your ability to build team confidence.	
14	1	5
	How confident are you in your ability to demonstrate the skills of you	r sports.
15	1	
	How confident are you in your ability to coach individual athletes on	technique.
16	1	5
	How confident are you in your ability to develop athletes' abilities.	
17	1	5
	How confident are you in your ability to recognize talent in athletes.	
18	1	5
	How confident are you in your ability to detect skill errors.	
19	1	5
	How confident are you in your ability to teach the skills of your sport	•
20	1	
	How confident are you in your ability to instill an attitude of good mo	oral character.
21	1	
	How confident are you in your ability to instill an attitude of fair play	among your athletes.
22	1	
	How confident are you in your ability to promote good sportsmanship).
23	1	
	How confident are you in your ability to instill an attitude of respect f	or others.
24	1	5

APPENDIX E

Revised Leadership Scale for Sports (LSS)

 Υ Circle the answer that best matches your response to each statement.

EX) In coaching, I let athletes work at their speed

·	Never(0 % of time) Seldom	(25%) Occ (a.(50%) C 3	(25%)	6) Alway (s(100%) 5
No.	Items	Never 0% of time	Seldom 25%	Occa. 50%	Often 75%	Always 100%
1	In coaching, I get input from the athletes at daily team meetings.	Û	2	3	4	5
2	In coaching, I use alternative methods when the efforts of the athletes are not working well in practice or in competition.	D	2	3	4	5
3	In coaching, I congratulate an athlete after a good play.	Û	2	3	4	5
4	In coaching, I use a variety of drills for a practice.	0	2	3	4	5
5	In coaching, I remain sensitive to the needs of the athletes.	D	2	3	4	5
6	In coaching, I put the suggestions made by the team members into operation.	Û	2	3	4	5
7	In coaching, I pat an athlete after a good performance.	0	2	3	4	5
8	In coaching, I perform personal favors for the athletes.	1	2	3	4	5
9	In coaching, I give credit when it is due.	0	2	3	4	5
10	In coaching, I let the athletes set their own goals.	0	2	3	4	5
11	In coaching, I adapt coaching style to suit the situation.	0	2	3	4	5
12	In coaching, I express appreciation when an athlete performs well.	0	2	3	4	5
13	In coaching, I encourage the athletes to confide in the coach.	Û	2	3	4	5
14	In coaching, I supervise athletes' drills closely.	Û	2	3	4	5
15	In coaching, I give the athletes freedom to determine the details of conducting a drill.	D	2	3	4	5
16	In coaching, I put an athlete into different positions depending on the needs of the situation.	0	2	3	4	5
17	In coaching, I Show 'O.K.' or 'Thumbs UP' gesture to the athletes.	D	2	3	4	5
18	In coaching, I let the athletes decided on plays to be used in a competition.	0	2	3	4	5

No.	Items	Never 0% of time	Seldom 25%	Occa. 50%	Often 75%	Always 100%
19	In coaching, I clap hands when an athlete does well.	D	2	3	4	5
20	In coaching, I pay special attention to correcting athlete's mistakes.	0	2	3	4	5
21	In coaching, I tell an athlete when the athlete does a particularly good job.	D	2	3	4	5
22	In coaching, I assign tasks according to each individual's ability and needs.	Û	2	3	4	5
23	In coaching, I stress the mastery of greater skills.	Ð	2	3	4	5
24	In coaching, I let the athletes try their own way even if they make mistakes.	Û	2	3	4	5
25	In coaching, I make complex things easier to understand and learn.	D	2	3	4	5
26	In coaching, I increase complexity and demands if the athletes find the demands are too easy.	0	2	3	4	5
27	In coaching, I compliment an athlete for good performance in front of others.	Û	2	3	4	5
28	In coaching, I put the appropriate athletes in the lineup.	0	2	3	4	5
29	In coaching, I clarify training priorities and work on them.	D	2	3	4	5
30	In coaching, I ask for the opinion of the athletes on important coaching matters.	Û	2	3	4	5
31	In coaching, I possess good knowledge of the sport.	Û	2	3	4	5
32	In coaching, I alter plans due to unforeseen events.	Û	2	3	4	5
33	In coaching, I recognize individual contributions to the success of each competition.	D	2	3	4	5
34	In coaching, I explain to each athlete the techniques and tactics of sport.	1	2	3	4	5
35	In coaching, I look out for the personal welfare of the athletes.	0	2	3	4	5
36	In coaching, I reward an athlete as long as the athlete tries hard.	D	2	3	4	5
37	In coaching, I clarify goals and the paths to reach the goals for the athletes.	D	2	3	4	5
38	In coaching, I see the merits of athletes' ideas when they differ from mine.	Û	2	3	4	5
39	In coaching, I use objective measurements for evaluation.	D	2	3	4	5
40	In coaching, I set goals that are compatible with the athletes' ability.	D	2	3	4	5

No.	Items	Never 0% of time	Seldom 25%	Occa. 50%	Often 75%	Always 100%
41	In coaching, I encourage the athletes to make suggestions for ways to conduct practices.	Û	2	3	4	5
42	In coaching, I conduct proper progressions in teaching fundamentals.	0	2	3	4	5
43	In coaching, I stay interested in the personal well- being of the athletes.	D	2	3	4	5
44	In coaching, I get approval from the athletes on important matters before going ahead.	1	2	3	4	5
45	In coaching, I praise the athletes' good performance after losing a competition.	D	2	3	4	5
46	In coaching, I encourage close and informal relationship with the athletes.	0	2	3	4	5
47	In coaching, I let the athletes share in decision making and policy formulation.	D	2	3	4	5
48	In coaching, I help the athletes with their personal problems.	D	2	3	4	5
49	In coaching, I visit with the parents/ guardians of the athletes.	D	2	3	4	5
50	In coaching, I ask for the opinion of the athletes on strategies for specific competition.	0	2	3	4	5
51	In coaching, I encourage an athlete when the athlete makes mistakes.	Û	2	3	4	\$
52	In coaching, I coach to the level of the athletes.	1	2	3	4	5

	1	2	3	4	5	6	7	8	6	10	11	12	13	14	15	16	17	18
l. Age	1																	
2. Educational Level	.024	-																
3. Coaching Years	.78 **	.18**																
4. Playing Years	-01	II	13*	1	·													
5. Coaching Hours	-07	.11*	-01	Ş.	1					. <u></u>								
6. GSE	П.	6	24**	50	.14*	1												
7. ME	.13*	10.	.14*	8	8		1											
8. TE	10.	* II.	. 13 *	.14*	ġ	** S	45**											
9. CBE	.14*	10.	.16**	8	8	.42**	49**	39**	1									
10. TCE	.12*	8	21**	.10	8	.84**	**18	**8/.	.73**	1								
11.EI Regulation	-01	10.	8	ġ	-01	30**	38**	31 **	43**	45**	1							
12. EI Appraisal	-25**	.03	16**	10.	*11*	.14**	23**	.173**	23**	25**	33**	1						
13. Overall EI	18**	8	-1.00	-02	6	26**	36**	28**	39**	41**	** 9Ľ	8 6**	1					
14. DB	8	-01	8	-8	-01	8	.17 **	8	.13*	.12*	24**	** 6[.	26**	1				
15. PFB	8.	-01	6	8	-03	26**	39**	34*	43**	45**	. 55**	21**	44**	35**	1			
16. TB	.11*	- <u>0</u> 3	.188**	8	8	51**	45**	49**	.42**	2 9**	43**	24**	39**	23##	52**	1		
17. SCB	10.	8	.12*	60;	.10	420**	37**	36**	33**	47**	.48**	26**	43**	31**	52**	**89	1	
18. SSB	<u>5</u>	-05	Ş	80:-	8	24**	31**	.18**	30**	33**	34**	28**	38**	39**	43**		51**	1
** <i>p</i> < .01, * <i>p</i> < .05 ((2-tailed	(1																

APPENDIX F

Note. GSE = Game Strategy Efficacy; ME = Motivation Efficacy; TE = Technique Efficacy; CBE = Character Building Efficacy; TCE = Total Coaching Efficacy; DB = Democratic Behavior; PFB = Positive Feedback Behavior; TIB = Training & Instruction Behavior; SCB = Situational Consideration Behavior; SSB = Social Support Behavior. REFERENCES

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