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UNIVERSITY OF NORTHERN COLORADO

Greeley, Colorado

The Graduate School

PREDICTING COACHING EFFICACY IN NATIONAL
COLLEGIATE ATHLETIC ASSOCIATION
ASSISTANT COACHES: A SOCIAL
PSYCHOLOGICAL ANALYSIS
OF COACHING GOALS,
COMMITMENT,
AND VALUES

A Dissertation Submitted in Partial Fulfillment
of the Requirements for the Degree of
Doctor of Philosophy

Brett Allen Nichols

College of Natural and Health Sciences
School of Sport and Exercise Science
Sport and Exercise Science

December 2015

This Dissertation by: Brett Allen Nichols

Entitled: *Predicting Coaching Efficacy in National Collegiate Athletic Association Assistant Coaches: A Social Psychological Analysis of Coaching Goals, Commitment, and Values*

has been approved as meeting the requirement for the Degree of Doctor of Philosophy in College of Natural and Health Sciences in School of Sport and Exercise Science, Program of Sport and Exercise Science

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ABSTRACT

Nichols, Brett Allen. *Predicting Coaching Efficacy in National Collegiate Athletic Association Assistant Coaches: A Social Psychological Analysis of Coaching Goals, Commitment, and Values*. Published Doctor of Philosophy dissertation, University of Northern Colorado, 2015.

Coaching is a complex undertaking and understanding what it takes to be an effective coach is important for coaches and researchers in the field of sport and exercise science. Horn's (2008) heuristic model of coaching effectiveness organizes and summarizes the previously established relationships among predictors and outcomes of effective coaching. The purpose of this study was to examine the heart of Horn's model, specifically examining coaching goals, coaching commitment, and coaching values with the five dimensions of coaching efficacy (Feltz et al., 1999; Myers et al., 2008). Using intercollegiate assistant coaches (N=740) this study demonstrated initial reliability and factorial validity for an instrument to use the 5 Cs of Coaching Efficacy (Harwood, 2008) as five value variables. Four cluster profiles of coaching commitment revealed profiles of low commitment coaches, entrapped coaches, enjoyment-based commitment coaches, and coaches who identify strongly as coaches among NCAA DI and DIII assistant coaches. Lastly, a canonical correlation revealed significant relationships between two sets of variables: (1) coaching goals, commitment, and values, and (2) the five dimensions of coaching efficacy (motivation, game strategy, technique, character building, and physical conditioning). Results support the importance of learning more about assistant coaches, coaching efficacy, and further examining coaching goals,

commitment, and values as they relate to additional social-psychological variables.

Furthermore, the results provide an important glimpse into the understanding of assistant coaches, and imply that future research should continue to focus on the unique population of assistant coaches.

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moments. You three have helped me remember every day what this has been for, and how important it is for me to be a father that you are proud of.

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CHAPTER I

INTRODUCTION

In highly competitive sports, head coaches reap tremendous rewards and accolades when their teams are successful, but bear the blame when their teams or athletes fail to meet expectations (Coakley, 1994). While this is often the case at higher levels of sport, it is important to understand that head coaches at these levels rarely, if ever, act alone. In intercollegiate athletics, most teams have a group of coaches working together, each fulfilling a variety of roles in order to develop high-level athletes and successful teams. Questions about what effective coaching entails have been, and continue to be, an important focal point for academics and practitioners interested in sport coaching (Côté & Gilbert, 2009).

Current and past research about coaches has been focused on their behaviors, their knowledge, their education, and their learning (Nelson & Colquhoun, 2013). While coaching science research has been conducted for the last four decades, coaching science remains a minor area of interest that often takes a back seat to more dominant theoretical fields in university departments in sport and exercise science (Gilbert & Trudel, 2004a). As a result, coaching research is still in its infancy (Nelson & Colquhoun, 2013). However, sport coaching research examining effective coaching has dominated this research field in the last 40 years and has helped contribute knowledge on effective

coaching criteria (Côté & Gilbert, 2009). Côté and Gilbert (2009) defined coach effectiveness as:

The consistent application of integrated professional, interpersonal, and intrapersonal knowledge to improve athletes' competence, confidence, connection and character in specific coaching contexts (p. 316).

This definition is consistent with the idea that effective coaches maintain the responsibility for their athletes' enjoyment, motivation to compete, character development, and this advancement of a strong work ethic of their players (Chase & Martin, 2013).

As more research on coaching is conducted it becomes increasingly apparent that the job of a coach is complex (Abraham & Collins, 2011; Miller, Lutz, & Fredenburg, 2012; Washington & Reade, 2013). Coaches maintain a wide variety of roles including: motivator, communicator, leader, teacher, facilitator, planner, communicator, mentor, supporter (Martens, 1987), strategist, and character builder (Carter & Bloom, 2009). In addition, coaches are responsible for developing athletes' mental, physical, technical, and tactical abilities (Becker, 2009). Coaching involves juggling a variety of roles and responsibilities all of which are intended to enhance athlete development, team and individual performance, and the overall athletic experience (Martens, 2012). Coaches who are more confident in their ability to perform these roles may have a larger impact on the athlete experience.

In intercollegiate athletics, coaches assume additional roles including: recruiter, program figurehead, university representative, spokesperson, and fundraiser. Coaches of athletes playing at intercollegiate levels are expected to be knowledgeable, not just in technical and tactical areas of their sports, but also with regard to strength and

conditioning, psychological aspects of coaching, event scheduling, facilitating the success of the program, and a host of other tasks that allow athletes to perform at their highest levels (Washington & Reade, 2013). The complexities of sport coaching at higher levels of sport lead to increased expectations as well as increased stress for coaches (Washington & Reade), which suggests that having a strong and confident support staff (i.e., assistant coaches) would be beneficial.

Nature of Coaching

The nature of coaching involves juggling the aforementioned roles and duties, but in American culture it involves much more than “changing hats” throughout the day. With the development of interscholastic and intercollegiate sports in the U.S., a sport model has emerged in which a coach is responsible for, and has the opportunity to develop, the character of his/her athletes (Coakley, 1994, 2009). One could even argue that there is no other social milieu in the U.S. in which character and life lessons can be taught like they can be through sport. This perspective suggests that being successful as a coach involves more than winning, in that it also implies having a positive impact on athletes’ personal development. Recently, this perspective has given way to coaching initiatives such as positive youth development within sport (e.g., Conroy & Coatsworth 2006; Côté, Deakin, & Fraser-Thomas, 2011; Gould, Collins, Lauer, & Chung, 2007), intervention programs such as the 5Cs coaching efficacy program (Harwood, 2008), and an emergence of national and international coaching organizations such as the Positive Coaching Alliance (Thompson, 2010). Furthermore, an increasing amount of coaching research has included the development of character in athletes as a common goal (e.g., Gould et al., 2007; Shields & Bredemeier, 2011) and even as a component of effective

coaching (e.g., Feltz, Chase, Moritz, & Sullivan, 1999). In intercollegiate athletics, coaches have described success in terms of the character they saw develop in their athletes (Nichols, 2011), and anecdotal evidence from coaches supports the idea that character development is a part of effective coaching as well (e.g., Janssen & Dale, 2002; Krzyzewski, 2000).

Nature of Assistant Coaching

Effective intercollegiate coaches like John Wooden and Pat Summitt have long considered themselves to be facilitators of athlete development on and off the court/field/track (Summitt & Jenkins, 1999; Wooden, 2004). However the responsibility of facilitating athlete learning and development is not limited to head coaches. When scrutinizing the coaching profession, it is apparent that the roles of head and assistant coaches often overlap (Solomon & Buscombe, 2013), especially at higher levels of competitive sport. Becker (2009) explained that great coaches were able to use their assistant coaches effectively. This statement supports the belief that in higher levels of sport, assistant coaches often have an integral role in the development of players (Rathwell, Bloom, & Loughhead, 2014), the planning and implementation of game strategies (Lemyre, Trudel, & Durand-Bush, 2007; Rathwell et al., 2014), and ultimately the success of a sport program. Most coaching staffs are made up of more assistants than head coaches (Solomon & Buscombe, 2013), particularly in intercollegiate athletics. Despite the high number of assistant coaches, only a handful of studies have focused on assistant coaches (Cunningham, Doherty, & Gregg, 2007; Narcotta, Petersen, & Johnson,

2009). This relative absence of research on such a large portion of the coaching community is a significant void in the body of coaching research (Gilbert & Trudel, 2004a; Rathwell et al., 2014).

Among highly competitive National Collegiate Athletic Association (NCAA) intercollegiate sports, assistant coaches are frequently involved with the skill development, practice planning and execution, and game strategy implementation that require hands-on relationships with athletes on a daily basis. For example, in football, assistant coaches are assigned to work closely with a small group of players who play a single position (i.e., offensive line coach). In other sports, such as track and field, assistant coaches are assigned to a specific group of athletes such as jumpers, throwers, distance runners, sprinters or hurdlers. Having a specific coach who works with a specific group of players is not unique to track and field, it also happens with coaches in baseball where some coaches work primarily with pitchers, and in sports like soccer, field hockey, and ice hockey where most teams have an assistant coach who works primarily with the goaltenders.

Sports such as basketball or football also designate assistant coaches to plan, instruct, and coordinate large aspects of on field/court performance such as offensive or defensive strategies (Rathwell et al., 2014). Other hands-on responsibilities of assistant coaches involve skill development, game strategy implementation, and other aspects of general athlete development (e.g., motivation, character building). Assistant coaches often play important roles in recruiting, scheduling, managing, and organizing the program as well. In NCAA team sports, assistant coaches often outnumber head coaches 2-1 (e.g., soccer, softball), 3-1 (e.g., volleyball, basketball), or 9-1 (e.g., football). In

addition, it is advantageous for programs to identify and retain capable assistant coaches because of their numbers and their importance in teaching and implementing both skills and strategies with athletes.

Previous research examining relationships between head and assistant coaches has found that head coaches work closely with their assistants to plan practices and make decisions about how to delegate responsibilities based upon individual capabilities (Côté & Salmela, 1996). In addition, this research revealed that head coaches relied greatly on their assistants' knowledge and expertise in the technical and skill instruction of their athletes (Carter & Bloom, 2009). University-level assistant football coaches have also been found to play a role in developing their athletes' skills on the field and beyond the field of play (Rathwell et al., 2014). Head coaches also use their assistants as counsel on coaching advice and in discussions on how to strategize effectively (Lemyre et al., 2007). Head assistant coaches, usually the most experienced assistant coach on a team with multiple assistant coaches, have also been given important roles in recruiting such as recruit identification and autonomy in developing relationships with those recruits (Rathwell et al., 2014).

Need for the Present Study

With the complex and diverse roles faced by coaches at the university level, it is important that confident and capable assistant coaches are hired and retained. There is a lack of understanding with regard to the values, beliefs, expectancies, and goals that assistant coaches have in connection with coaching their sports. Specifically, very little is known about the career intentions of coaches (e.g., Cunningham et al., 2007; Sagas, Cunningham, & Pastore, 2006); the motivation or commitment coaches have to their

sport (e.g., Raedeke, 2004; Raedeke, Granzyk, & Warren, 2000); assistant coaches' values; and assistant coaches' efficacy. There is a lack of knowledge about assistant coaches as this group of coaches has rarely been studied in the coaching literature (Gilbert & Trudel, 2004b; Rathwell et al., 2014). The important roles assistant coaches play, in combination with the dearth of literature on assistant coaches was a driving force behind the need for the present study.

In addition, the present study sought to fulfill several gaps in the coaching and social psychological knowledge bases. First, this study represents a rare inclusion of intent, as measured in line with the tenets of Theory of Planned Behavior (Ajzen, 1991) in a sport context. Second, it extends previous coaching commitment research (Raedeke, 2004; Raedeke et al., 2000; Raedeke, Warren, & Granzyk, 2002). Third, the present study involved the development and initial testing of an instrument to measure a coach's value in developing commitment, communication, concentration, control, and confidence (5Cs of Coaching Efficacy – Harwood, 2008) in athletes. Specifically, this study extends a successful and well-respected intervention program with coaches through the development of a potentially useful instrument to measure coach values. Even more importantly, this research examined intentions to be a head coach, coaching commitment, and coaching values as predictors of multidimensional coaching efficacy in the relatively unstudied population of intercollegiate assistant coaches. This research also answered the call for sport psychology research that focuses on concepts and connections within the left side of Horn's (2008) heuristic model (Figure 1). The analysis of these social-

psychological variables as predictors of coaching efficacy provides further understanding to support connections between sources of coaching efficacy within Horn's model of coaching effectiveness.

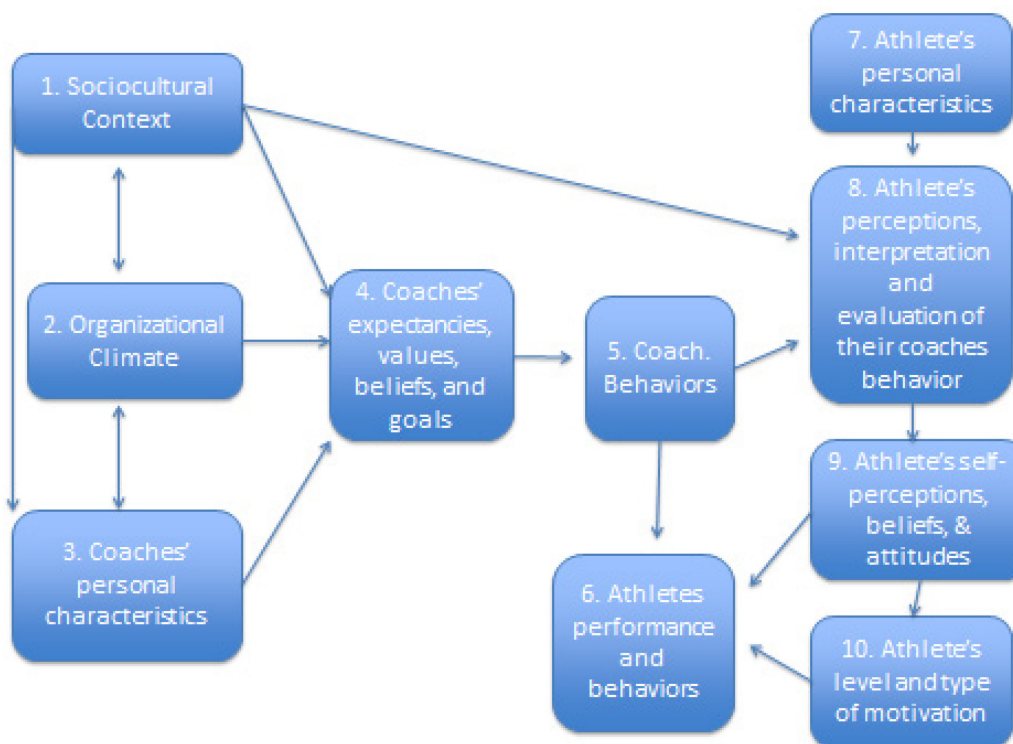


Figure 1. Heuristic (Working Model) of Coaching Effectiveness (Horn, 2008).

Framework of the Present Study

The present study is framed within Horn's (2008) coaching effectiveness heuristic (Figure 1), and relies on the theoretical model of coaching efficacy (Feltz et al., 1999). The heuristic of coaching effectiveness was developed in order to understand the "big picture" of coaching effectiveness and to attempt to combine research findings using multiple different theoretical frameworks (Horn, 2008). Three of the most influential theories in this heuristic are the Multidimensional Model of Leadership (Chelladurai, 1978), the Mediational Model of Leadership (Smoll & Smith, 1989), and the

Motivational Model of the Coach-Athlete Relationship (Mageau & Vallerand, 2003).

Understanding the framework of Horn's (2008) heuristic of coaching effectiveness is a critical component of this research as it provides a more global context in which the present study was conducted.

Using Horn's (2008) heuristic model, three previously established constructs have been identified and placed into Box 4 of Horn's model (see Figure 1). The first construct, intent, refers to coaching goals, and in this study was meant to represent each coach's goals by measuring his/her level of intention to become a head coach. The second construct, commitment, was represented by coach beliefs or level of commitment to his/her sport. The third construct was coaching values, and was measured using Harwood's (2008) 5Cs of coaching efficacy that identifies a coach's value of development of positive psychological and interpersonal skills in their athletes. Each of these is discussed in greater depth and breadth in the subsequent chapters (see Figure 2).

According to Horn's (2008) heuristic model of coaching effectiveness, there are three antecedents of coaches' behavior: sociocultural context, organizational climate, and coaches' personal characteristics. In this study, the sociocultural context was measured through the variables of race/ethnicity, gender, and sport coached. The organizational climate were measured at two different NCAA levels: I or III. The coaches' personal characteristics was measured through their playing experience, coaching experience, and education. These variables are included in Horn's heuristic model in Figure 2. Further examination of Horn's (2008) model shows that the relationship between coach effectiveness and coach behavior is mediated by coaches' expectancies, values, beliefs and goals.

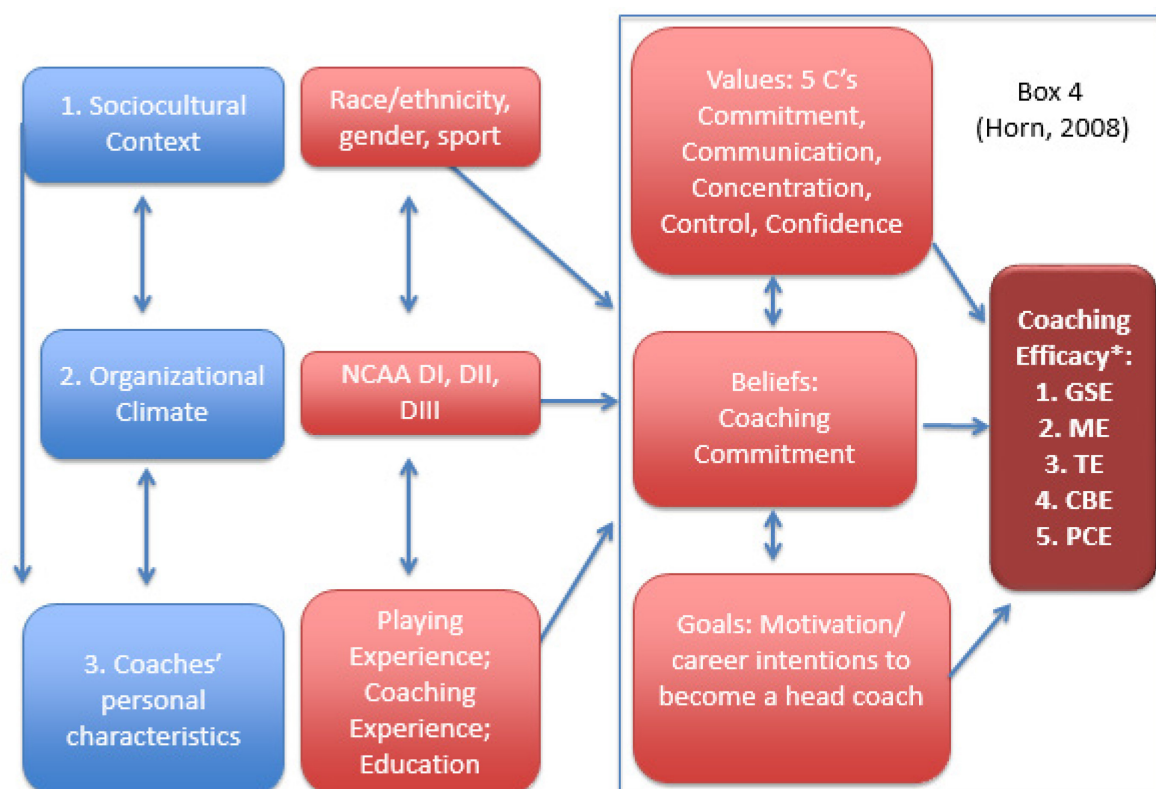


Figure 2. Working model for the present research within the framework of Horn's (2008) heuristic of coaching effectiveness (the present research model in red).

*Note – GSE (Game strategy efficacy), ME (Motivation efficacy), TE (Technique Efficacy), CBE (Character Building efficacy), and PCE (Physical Conditioning efficacy).

Although there has been some support for the linkages among boxes 1-4 (see Figure 1), within the sport psychology literature there has been a relatively limited consideration for examining the relationships within the left side of the model (Horn, 2008). Furthermore, when examining antecedents of coaching behaviors (Box 5) or effective coaching behaviors, coaching efficacy has shown to be a powerful variable in the explanation of coaching effectiveness (Feltz et al., 1999). Since perceived coaching efficacy has previously predicted player efficacy and player satisfaction (Malete & Feltz, 2000), and because coaching efficacy refers to the capacity with which a coach believes s/he can affect learning and performance, examining antecedents of assistant coach

efficacy could be a logical precursor to understanding coach effectiveness for assistant coaches. Figure 2 was created to capture the conceptual design of this research within boxes 1-4 of the coaching effectiveness heuristic model (Horn, 2008).

Coaching Efficacy

One of the most important and recent theories to be explored within the framework of coaching effectiveness is coaching efficacy theory (Feltz et al., 1999). Coaching efficacy is a direct, more specific application of self-efficacy (Bandura, 1986, 1997), and is also based upon a previously established model of teaching efficacy (Denham & Michael, 1981). As defined by Feltz and colleagues (1999), coaching efficacy refers to the “extent to which a coach believes that he/she has the capacity to affect both learning and skill performance of their athletes” (p. 765). Although coaching efficacy has been studied at the intercollegiate level (Kent & Sullivan, 2003; Myers, Vargas-Tonsing, & Feltz, 2005; Sullivan & Kent, 2003), no current research exists on coaching efficacy among assistant coaches in intercollegiate athletics. With the actively involved role assistant coaches play in competitive levels of athletics (e.g., NCAA), and considering that coaching efficacy has been shown to predict player efficacy and player satisfaction (Malete & Feltz, 2000), it is beneficial, from a research standpoint, to know what head coaches might be able to rely on, or to consider, when looking to retain and work with new assistant coaches.

Coaching efficacy has also been shown to impact team/player performance and team/player confidence in addition to team/player satisfaction (Feltz et al., 1999; Sullivan & Kent, 2003). As a result, assistant coaches with more experience, knowledge, and ultimately higher levels of coaching efficacy, beneficial in the development of successful

athletes and programs. Coaching efficacy involves a coach's confidence in his/her ability to influence player performance and confidence in four areas: (1) game strategy, (2) motivation, (3) technique, and (4) character building efficacy. These four dimensions are influenced by past performance and experience, the perceived ability of the athletes, and the perceived level of social support (Feltz et al., 1999; Maleté & Feltz, 2000). Myers and colleagues (2011) suggested that differences in coaching efficacy are relevant to explore in different age/talent levels of sport. Unfortunately, coaching efficacy at higher levels of sport have largely been unexamined. In addition, Myers and colleagues (2008) established a fifth dimension of coaching efficacy relevant when considering coaching efficacy at higher levels of sport: physical conditioning efficacy (see Figure 3).

Measurement of Coaching Efficacy

The Coaching Efficacy Scale (CES) was developed by Feltz and colleagues (1999) in order to measure a coach's belief in his/her ability to influence athletes' learning and/or performance (Myers, Feltz, & Wolfe, 2008). In the decade since the CES was developed, research findings have supported the use of this scale to predict leadership styles (Sullivan & Kent, 2003), to examine the coaching efficacy of youth sport coaches coaching athletes with ADHD (Vargas-Tonsing, Flores, & Beyer, 2008), and to examine how the coaching context and level can relate to coaching efficacy (Sullivan, Paquette, Holt, & Bloom, 2012).

According to Feltz and colleagues (1999), the conceptual model of coaching efficacy involves having a group or set of sources that predict a group or set of efficacy domains. Within this model some of the domains include coaching-specific concepts like preparation, experience, and prior success. Other domains include a coach's perception

of his/her teams' ability, and social support from a variety of providers (Myers, Feltz, & Chase, 2011). Numerous studies have extended the validity of the CES (e.g., Myers, Feltz, Chase, Reckase, & Hancock, 2008) or a revised version of the CES, specifically for high school teams (e.g., Myers, Feltz, et al., 2011). The research on coaching efficacy has established statistically significant connections from sources like coaching education to a coach's perception of his/her game strategy, or social support from a high school student body to the coaches' belief in their ability to motivate their players (Myers, Feltz et al., 2011). These findings have helped advance coaching science in a way that can positively affect coaching efficacy, and perhaps lead to specific coach education in less efficacious domains.

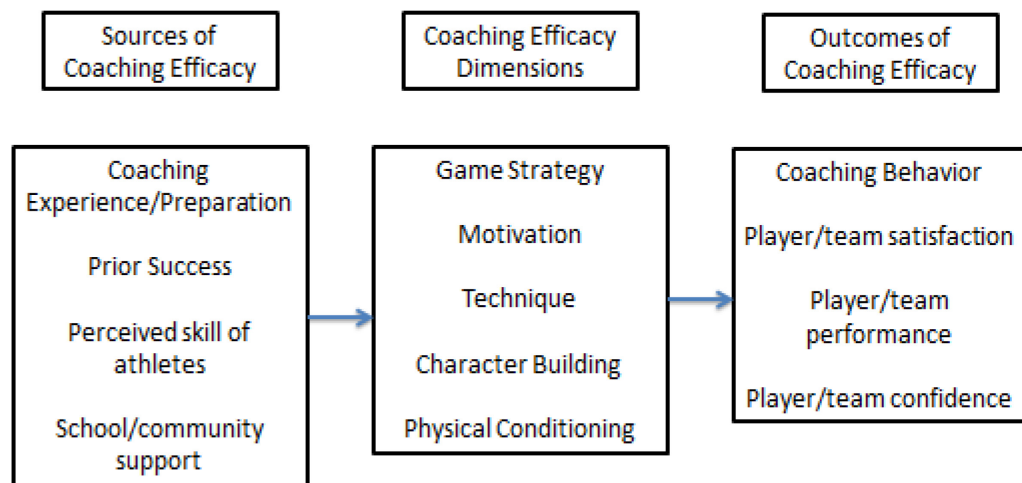


Figure 3. The conceptual model of coaching efficacy (Chase & Martin, 2013; Feltz et al., 1999; Sullivan & Kent, 2003)

Coaching Intentions

Similar to coaching efficacy, there remains much to be learned about the coaching goals or intentions of intercollegiate coaches. In order to examine coaching intentions, the Theory of Planned Behavior (TPB; Ajzen, 1991) provides an appropriate framework with which to begin that exploration. The TPB was developed to extend the application and use of the theory of reasoned action (Fishbein & Ajzen, 1975). TPB posits that one's intention to participate in a specific behavior is the closest precursor to that behavior. The structure of intent is shaped by three important and independent factors: attitude, subjective norms, and perceived behavioral control (Ajzen, 1991). According to Ajzen,

Intentions are assumed to capture the motivational factors that influence a behavior; they are indications of how hard people are willing to try, of how much of an effort they are planning to exert, in order to perform the behavior. As a general rule, the stronger the intention to engage in a behavior, the more likely should be its performance (p. 181).

The first factor, an individual's attitude towards a particular behavior, reflects each person's favorable, or unfavorable, beliefs about a particular behavior (Sagas et al., 2006). Subjective norms refer to the social pressures pushing or pulling them to perform the behavior or not (Ajzen, 1991). The third factor, perceived behavioral control is the perceived ease with which an individual could actually perform the behavior (Ajzen). In a coaching context, TPB suggests that intentions to become a head coach would predict one actually becoming a head coach in the near future (Sagas et al., 2006).

Coaching Commitment

In addition to head coaching intentions, a second social-psychological variable was examined in this research: coaching commitment. Coaching commitment represents a coach's motivation or beliefs about if, and why, he or she is committed to coaching his

or her sport. In spite of the extensive literature regarding motivation in sport (e.g., Hollembeak & Amorose, 2005; McLean, Mallet, & Newcombe, 2012; Roberts & Treasure, 2012) there is a void in the coaching literature examining a coach's motivation for, or commitment to, coaching. Using the coach commitment perspective, which was previously used by Raedeke and colleagues (Raedeke et al., 2000; Raedeke et al., 2002; Raedeke, 2004), this study provided a more in-depth social-psychological analysis of a coaching commitment for intercollegiate assistant coaches.

Commitment has been assessed in sport, applying various methods from different domains, for some time (Becker, 1960; Johnson, 1982, Kelley & Thibaut, 1978; Rusbult 1980a, 1980b, 1983). In the last several decades commitment has become a more specific area of focus within the sport context and is defined as a “psychological state representing the desire or resolve to continue sport participation” (Scanlan, Carpenter, Schmidt, Simons, & Keeler, 1993, p. 1). Applied directly to coaches, commitment has been described as “feelings of psychological attachment and a desire and intent to maintain involvement in a given activity or course of action” (Raedeke et al., 2000, p. 89).

Scanlan and colleagues (1993) developed the first commitment model specific to sport called the Sport Commitment Model (SCM). The SCM includes six primary components: sport commitment, sport enjoyment, involvement alternatives, personal investments, social constraints, and involvement opportunities. These six factors are all believed to influence participation and persistence (or sport commitment) for an individual (Scanlan, Carpenter, et al., 1993; Scanlan, Simons, Carpenter, Schmidt, & Keeler, 1993). Sport enjoyment was designed to be a central component of the SCM

(Scanlan & Simons, 1992) and the other five components are also intended to explain various pushes and pulls that can support or detract from an individual's level of commitment. The SCM was originally developed to measure athlete's commitment in youth sports. Raedeke and colleagues established a similar framework as the SCM, and have developed and tested a measure for intercollegiate coaching commitment (Raedeke et al., 2000; Raedeke et al., 2002; Raedeke, 2004). As a result of the direct application to the present study, Raedeke's coaching commitment framework was used.

5Cs of Coaching Efficacy

The third construct that is connected to box 4 of Horn's (2008) model of coaching effectiveness in this study was derived from a well-developed coaching intervention program: Harwood's 5Cs of Coaching Efficacy program (2008). This study investigated the content of the 5Cs Coaching Efficacy program in that data were collected from assistant coaches using Harwood's 5Cs model in order to analyze the value that these coaches reportedly place on positive psychology and the development of interpersonal skills in their athletes.

The 5Cs include outcomes that coach educators, researchers, and coaches have indicated are critical parts of being an effective coach. Furthermore, Smoll and Smith's (2006) Coaching Effectiveness Training (CET) was a driving force behind the creation of the 5Cs (Harwood, 2008) thus positioning the 5Cs as an appropriate variable to examine within an effective coaching framework. In addition, each of the 5Cs: commitment, communication, concentration, control, and confidence was established and are connected to core theories and principles related to effective coaching.

In the initial 5Cs intervention program, commitment is based upon Self-Determination Theory (Deci & Ryan, 1985) and Achievement-Goal Theories (Elliot 1999; Nicholls, 1989). The second C, communication, is structured around core principles of interpersonal communication and contextual and developmental issues (DeVito 1986; Gouran, Wiethoff, & Doegler, 1994). Facilitating the development of concentration skills is based upon attentional control principles (Nideffer & Sharpe, 1978). The fourth C, control, is developed through understanding and implementing mental and physical arousal regulation techniques (Harwood, 2008). Lastly, confidence is based upon self-efficacy theory (Bandura, 1986), and also uses progressive goal setting techniques, verbal persuasion, and role modeling (Harwood, 2008). Measuring these variables and providing instruction and feedback towards the 5Cs has allowed interventions to take place that measure how much each coach values these five positive psychological and interpersonal constructs, and has allowed sport psychology consultants an opportunity to influence a coaches' confidence in utilizing these social-psychological constructs to increase their coaching effectiveness. With an inherent emphasis on the value a coach places on positive psychology and the development of interpersonal skills in athletes, the 5Cs coaching efficacy program appeared to be a logical perspective to simulate coach values within Horn's (2008) model of coaching effectiveness.

Purpose of the Present Study

The purpose of this study was to examine predictors of assistant coaches' multidimensional coaching efficacy at the intercollegiate athletic level within the framework of Horn's (2008) working model of coaches' effectiveness. More specifically, the relationships among assistant coaches' efficacy and three social-

psychological constructs: (1) coaching goals, as defined by strength of intentions to become a head coach; (2) coaching beliefs, in this study coaching commitment, as measured by a coach's reported commitment to coaching his/her sport; and (3) the coaching values a coach demonstrates on positive psychological factors and the development of interpersonal skills (through the 5Cs of coaching efficacy) were examined. It was also the purpose of this research to examine the combination of the aforementioned factors according to the organizational climate, in this case NCAA division.

Assistant coaches' intention to become head coaches was examined using the Theory of Planned Behavior (Ajzen, 1985, 1991); coach commitment was examined using the coach commitment perspective (Raedeke et al., 2000); and coaches' perceived values with regard to positive psychology and the development of interpersonal skills was examined using Harwood's (2008) 5Cs Coaching Efficacy Program. Because the purpose was to examine assistant coaches' efficacy within the framework of the left side of Horn's model (see Figure 1 – boxes 1-4), actual coaching behaviors and perceived coaching behaviors were not examined in this research. As a result, the outcome for each coach was his/her coaching efficacy scores for each of the four subscales in the coaching efficacy model (Feltz et al., 1999): game strategy efficacy (GSE), motivation efficacy (ME), technique efficacy (TE), and character building efficacy (CBE). In addition, and as a result of the high level of sport with which assistant coach efficacy was considered, the fifth dimension of total coaching efficacy, physical conditioning efficacy (PCE) was included. Relationships were examined with assistant coaches' head coaching intentions, assistant coaches' commitment, assistant coaches' values, and coaching efficacy. This

research is the first to examine the relationships between these four major social-psychological constructs all within the framework of Horn's (2008) heuristic of coaching effectiveness.

Research Questions

- Q1 Is the Modified Coaching Confidence Questionnaire (based upon the 5Cs of Coaching Efficacy – Harwood, 2008), a valid and reliable tool with which to measure coach values?
- Q2 Which characteristics of coaches best explain coaching commitment?
- Q3 What are the relationships among coaching goals, beliefs, and values and the various dimensions of coaching efficacy?

Significance of this Study

The study of assistant coach efficacy was examined within a theoretical framework structured by contemporary coaching theory. The lack of research on assistant coaches is reflective of the early stages of coaching science and the emphasis on coaching behaviors and the ease with which head coaches can be observed, surveyed, or examined (Gilbert & Trudel, 2004a). One of the reasons that assistant coaches are so important to study is that the coaching model in the United States of America typically requires one be an assistant coach prior to being a head coach (Rathwell et al., 2014). This apprenticeship model (Denison, Mills, & Jones, 2013) suggests that research that will help identify characteristics of assistant coaches today, more will be understood about the head coaches of tomorrow.

Among the 40,000 current NCAA assistant coaches, there are not enough sports and positions for all of them to become head coaches (National Collegiate Athletic Association, 2014). And because very little empirical data exist that has examined characteristics of assistant coaches, therefore little information exists to suggest what

might set some of these assistant coaches apart as better candidates to become head coaches in the future. As it stands, many assistant coaches are selected based upon their playing experience (Rathwell et al., 2014), their knowledge of a particular system, or as a consequence of opportunities opening up as a result of personal contacts.

The findings from this study provide important insights with regard to four separate areas of application: (1) understanding coaching efficacy in assistant coaches; (2) assistant coaches' perceptions of motivational characteristics; (3) hiring confident and complementary assistants, and (4) head coaches, athletic administrators, coach educators, as well as current and aspiring assistant coaches who are attempting to develop their own skills as a coach. Additionally, this research demonstrated characteristics of coaches, with regard to goals (intent), values (5Cs), and commitment, that predict higher levels of coaching efficacy for assistant coaches. With the understanding that higher efficacy is a precursor to higher levels of effectiveness, this knowledge can aid assistant coaches to improve their coaching skills to help them be more effective. This knowledge provides an important link to the education and development of assistant coaches before they enter the profession and after they are immersed into the coaching world. Due to the largely exploratory nature of this study, findings from this research open a line of inquiry combining social-psychological constructs, coaching literature, and the understudied population of assistant coaches.

Limitations of this Study

There were several limitations of this study. The primary limitation of this study was simply the exploratory nature of this study. While several theories are included in this study, the design of this study was not to test any one particular theory with coaches. Second, while Horn's (2008) heuristic was used to predict coaching efficacy among assistant coaches, this study did not measure actual, or perceived coaching behaviors; rather it was a precursor examining coaches' values, beliefs, and goals as a predictor of coaching efficacy. Furthermore, because this research uniquely combined several social psychological theories (i.e., TPB, Coaching Efficacy) to a new population (assistant coaches) the generalizability of the results should be viewed with caution and future research should be completed in order to increase the meaningfulness of the current study.

Delimitations of this Study

This research included assistant coaches from NCAA Division I and III men's and women's sports who coached during the 2014-15 season. More than 135 universities and colleges were represented in this study from more than 50 different athletic conferences. Coaches from 24 different NCAA sanctioned sports were included in this study. This sport variation included high profile mainstream sports such as basketball and football, Olympic sports such as track & field and gymnastics, and lower profile sports such as equestrian, rowing, and water polo. Although the survey was directed to assistant coaches, and this study broadly defined assistant coaches as any individual in an official role who legally assists the head coach involving at least one coaching related capacity, surveys were accepted from other individuals legally assisting the program (i.e., director

of operations, graduate assistant). The inclusion of a variety of assistant coaches occurred for two reasons: (1) there is no plausible way to separate assistant coaches who play important hands-on roles with game strategy and athlete development with those coaches who do not, as assistant coaching roles vary from program to program, and sport to sport; and (2) currently no empirical knowledge exists to suggest that assistant coaches with different titles (e.g., video coordinator and associate head coach) would answer questions about their coaching in a manner different from those assisting a program in different roles.

Summary

While coaching effectiveness and coaching efficacy have been studied, the combination of intent, commitment, and positive psychological values have not previously been examined in any way, much less with regard to how these factors might predict coaching efficacy. In this study, the aim was to expand the coaching science and social-psychological knowledge by examining how coaching goals, beliefs, and values predicted higher levels of coaching confidence with regard to the five different types of coaching efficacy: GSE, ME, TE, CBE, and PCE. These results provide insight into the characteristics of more efficacious coaches. These insights provide suggestions for current assistant coaches with regard to their own professional development; to coach educators in ways that may suggest more or less important areas when helping current and future coaches with their own development and coaching efficacy; and perhaps even to athletics directors and coaches with regard to who to hire in order to complement other coaches in the program.

Definition of Terms

The following are important terms that are used frequently throughout this document. Each of them is discussed and defined more extensively in Chapter II.

Coaching Efficacy – explains the extent to which a coach believes that he/she has the capacity to affect both learning and skill performance of his/her athletes (Feltz et al., 1999).

Motivation Efficacy (ME) – the confidence coaches have in their ability to affect the psychological mood and the psychological skills of their athletes (Feltz et al., 1999).

Game Strategy Efficacy (GSE) – the confidence coaches have in their ability to lead during competition (Feltz et al., 1999).

Technique Efficacy (TE) – the confidence coaches have in their ability to use their instructional and diagnostic skills during practice (Feltz et al., 1999).

Character Building Efficacy (CBE) – the confidence coaches have in their ability to positively influence the character development of their athletes (Feltz et al., 1999).

Physical Conditioning Efficacy (PCE) – the confidence coaches have in their ability to prepare their athletes physically for participation in sport (Myers, Feltz, Chase, et al., 2008)

Behavioral Intentions/Intention- an indication of a person's readiness to perform a specific behavior (Ajzen, 2006)

Commitment - feelings of psychological attachment and a desire and intent to maintain involvement in a given activity or course of action (Raedeke, 2000, p. 89).

CHAPTER II

REVIEW OF LITERATURE

Coaches play important roles in the development of athletes, the strategies implemented by teams or groups of athletes, and ultimately in influencing the outcomes of games, matches, and meets. While the athletes exert great efforts on the field of play, one of the most important responsibilities a coach continually has is putting each of the athletes s/he coaches in a position where those athletes can be successful. In intercollegiate athletics, this is important not just for the positive development of athletes, but also for the job security of coaches who often need to earn favorable objective outcomes (i.e., wins) in order to retain their positions. As a result, a constant pursuit of understanding what it means to be an “effective coach” has dominated the coaching science research for most of the past 40 years (Côté & Gilbert, 2009).

Despite numerous definitions, ambiguity remains in terms of what describes or predicts a truly effective coach (Denison et al., 2013). As described in Chapter 1, Horn’s (2008) heuristic model of coaching effectiveness presents a framework with which to understand the contributors to effective coaching. While actual coaching behaviors have garnered much attention in the coaching science research (Nelson & Colquhoun, 2013); the antecedents of coaching behaviors have drawn less attention. Furthermore, various factors that predict the antecedents of coaching behaviors in Horn’s (2008) model have rarely been examined. The present research aimed to explore the relationships among

potential predictors (i.e., coaching goals, beliefs, and values) and one multidimensional antecedent of coaching behaviors, coaching efficacy, within the framework of Horn's (2008) heuristic model of coaching effectiveness.

Brief History of Coaching Science Research

In the last thirty years, research on coaching has increased exponentially. In conjunction with this increase, coaching science research has become an established field of expertise within many programs in the Sport and Exercise Science discipline. In a recent and exhaustive review of coaching literature (Gilbert & Trudel, 2004a), the history of coaching science research was categorized from 1970-2001. Gilbert and Trudel addressed the sheer volume of research articles focused on coaching from 1970 to the end of the 20th century. For example, from 1970-1973, there were a total of seven coaching articles published; however from 1998-2001, there were 131 coaching articles published (Gilbert & Trudel). This increase represents an annual increase from just under two articles per year to about 36 articles per year, or a 1,700% increase.

Since 2002, coaching science research has continued to boom, and has changed from an emerging science to an established one, with dozens of articles published each year in a wide variety of journals. Although sport coaching is similar to teaching (Drewe, 2000), has been connected to business and management leadership (Berri, Leeds, Leeds, & Mondello, 2009), can be linked to sport pedagogy (Abraham, Collins, & Martindale, 2006) and sport administration (Vallee & Bloom, 2005), sport coaching has become its own unique category within sport science research. One of the reasons that coaching research has become so important is a result of the various roles, responsibilities, and challenges that coaches are faced with on a regular basis. Research has been conducted

with a focus on the social interactions of coaches (e.g., Allen & Shaw, 2009; Jackson, Grove, & Beauchamp, 2010; Morgan & Giacobbi, 2006), and with attention to how coaches respond to a number of psychological considerations (Freitas, Dias, & Fonseca, 2013), as well as with regard to how coach behavior and athletes' psychological characteristics relate (Horn, Bloom, Berglund, & Packard, 2011). With many social and psychological forms of influence present within the coaching profession, coaching research as growing area of interest and study has become an important area of knowledge within the field of social psychology.

Review of Coaching Effectiveness

Despite the range of interest in coaching research, there have been more than 113 articles that have specifically focused on coaching expertise or effectiveness (Côté & Gilbert, 2009). Within this burgeoning pool of coaching effectiveness research, there are widespread inconsistencies in how coaching effectiveness is defined. Several researchers have attempted to reframe the many coaching descriptions (e.g., successful, expert, great, effective) into one singular frame of reference for 'good' coaching (Lyle, 2002) or to provide greater clarity on coaching effectiveness (Côté & Gilbert, 2009). While agreement in the coaching literature with regard to the precise definition of coaching effectiveness does not exist, three important theoretical perspectives do exist, which have been used to examine characteristics of effective coaches. Two of the most widely used models in attempting to measure coaching effectiveness in sport have been the Multidimensional Model of Leadership (Chelladurai, 1978), and the Mediational Model of Leadership (Smoll & Smith, 1989). A third more recent theoretical model with which

to examine coach effectiveness has been developed called the Motivational Model of the Coach-Athlete Relationship (Mageau & Vallerand, 2003). Each model is briefly described below.

The Multidimensional Model of Leadership (Chelladurai, 1978, 1990) has been one of the most widely used models when attempting to examine and understand the leadership behaviors of coaches in sport. The fundamental premise of the Multidimensional Model of Leadership (MML) is that group performance and member satisfaction are a function of the congruence between three different states of a leader's behavior. Those three states are: required leader behavior, actual leader behavior, and preferred leader behavior (Chelladurai, 1978, 1990). Furthermore, the MML includes three independent variables that each influence or act to help determine the actual leader behavior. These variables are: situational characteristics, leaders' characteristics, and member characteristics (Chelladurai, 1990, 2011).

Contentions of the MML model suggest that situational characteristics and member characteristics both influence required leader behaviors and preferred leader behaviors, while leaders' characteristics directly influence actual leader behavior. The MML posits that situational characteristics and member characteristics still influence actual leader behavior; this simply occurs through the required leader behaviors and the preferred leader behaviors that occur within any one specific coaching situation. In order to examine the model more closely it is helpful to discuss each of the constructs independently.

A leaders' required behavior is primarily influenced by situational characteristics (Chelladurai, 2011). Situational characteristics involve the context in which someone is coaching. These may include but are not limited to the community in which someone is coaching, whether the team is a club or school team, at the high school or professional level, or how the team/club/association one is coaching for has in place as its formal organizational structure (Chelladurai, 1990). All of these characteristics play a role in forming a set of required behaviors placed upon a coach. These may be contractual obligations, formal standards of conduct, or informal behavioral expectations.

Preferred leader behavior is mainly influenced by the characteristics of the members within a particular team (Chelladurai, 2011). Member characteristics can be described in large part as individual characteristics of the various members of the team (Chelladurai, 1990). Some examples of these include: needs that players have, a desire for positive feedback, preferences for coaching styles, mentorship, guidance, or any number of other personality traits. Situational characteristics can also affect preferred behavior in the form of organizational preferences for behavior that might not be required; however the influence that situational characteristics have on preferred behavior is less than the influence member characteristics will have on preferred behavior.

Actual leader behaviors are directly influenced by the leader characteristics. Although this has a significant role in the actual behavior, in the MML preferred behaviors and required behaviors also influence actual behaviors. This can be seen when comparing various contexts (i.e., youth and college sports), and through the previously mentioned variables (situational characteristics and member characteristics). Some of the leader characteristics that Chelladurai (1990) describes as having an influence on actual

leader behavior include: personality, coaching ability, and experience. This seems reasonable and easy to understand as a coach's philosophy of life, his/her coaching philosophy, and his/her personality traits will certainly play a role in the way that each coach will behave.

The consequences of a leader's behavior will influence both group performance and member satisfaction according to the tenets of this model. In the original model (Chelladurai, 1978), group performance and member satisfaction had separate links to leader behaviors (group performance to the congruence between actual and required leader behaviors; member satisfaction to the congruence between actual and preferred leader behaviors). However, it was soon understood that group performance and member satisfaction cannot be examined independently of each other, and both have direct relationships with actual leader behavior (Chelladurai & Carron, 1978). When considering this practically, player satisfaction and group performance would likely increase or decrease together. In other words when players are unhappy and particularly with their coaches behavior, their performance as a group would likely falter. On the other hand, players who are happy with their coach, with their teammates, and with the situation in which they are playing would be more likely to act cohesively, put forth more effort, and be willing to take on challenges as a group.

With respect to group performance and member satisfaction, the MML also suggests one last relationship. That is with increased performance and satisfaction as a direct result of certain behaviors, these variables will influence leader behavior as well. This occurs when a coach can see increased performance and satisfaction as a direct result of certain behaviors that he/she has been implementing with his/her team. This

will lead that coach to attempt to duplicate those behaviors in order to sustain increased performance and satisfaction. On the other hand when actual behaviors lead to decreased performance and satisfaction, smart coaches will try something different or at the very least attempt to avoid the behaviors that lead to decreased levels of performance and satisfaction.

When looking at the MML as a complete model, it is the congruence of required, actual, and preferred leader behaviors that predict group performance and member satisfaction. Constructs within this model are measured using the Leadership Scale for Sport (LSS - Chelladurai & Saleh, 1978). The LSS describes five dimensions of leader behavior: training and instruction; democratic behavior; autocratic behavior, social support, and positive feedback. This scale has been widely used among the research in leadership and coaching in sport and for the last several decades has demonstrated psychometric properties of reliability and validity (e.g., Andrew, 2009; Chelladurai & Saleh, 1980; Weiss & Frederichs, 1986). One of the most important critiques or additions to the model occurred in the construction of the Revised Leadership Scale for Sport (RLSS) that included an addition of a sixth dimension: situational considerations (Zhang, Jensen, & Mann, 1997). As is the case with the LSS, reliability and validity of this scale has also been consistently demonstrated (e.g., Jambor & Zhang, 1997; Sullivan et al., 2012; Zhang et al., 1997).

The MML highlights the importance of understanding member characteristics and ultimately their preferred leader behaviors. Assuming one is coaching in a context where a positive group performance and member satisfaction were goals (part of the fundamental premise of MML), in order to maximize these dependent variables a coach

must be aware of his/her players. As is often the case with young coaches or volunteer coaches of youth, they rely on past experiences as an athlete or from coaches that they have seen, and expect their players to adjust to their coaching style. In essence this creates actual leader behaviors that rely heavily on the leaders' personal characteristics and often ignore athlete characteristics altogether. According to the MML, when this happens the possibility that actual behavior and preferred behavior are congruent diminish and as a result group performance and member satisfaction will likely suffer. In concert with the MML, a more effective coaching style would involve coaching with a keen eye on the personality of one's team and its' athletes.

Another important consideration for coaching effectiveness within the MML is the end goal of coaching. Chelladurai (1978, 1990) categorized what all coaches should be in pursuit of: increasing group performance and member satisfaction. However, Chelladurai (2011) explained that this model is about developing athletes to their fullest potential, facilitating their pursuit of excellence, and winning. While this seems like a reasonable focus on group performance, pursuit of excellence, and maximizing athletes' potential, Chelladurai takes a more old-fashioned hardline stance on outcomes. Furthermore, Chelladurai supports the idea of "winning at all costs" (Chelladurai, 2011), which can be problematic and potentially destructive in all levels of sport. This is an important consideration for coach leadership practices which differs tremendously from some of the fundamental concepts in Achievement Goal Theory (Duda, 1992; Nicholls 1984, 1989), Dweck's (1986) implicit theories, and the autonomy-supported coaching model (Mageau & Vallerand, 2003).

A large portion of previous research exploring coaching effectiveness has been completed using the MML as a framework. A small sample of studies framed in the MML revealed how leader behaviors affected athlete satisfaction (i.e., Andrew, 2009), the relationship between athlete leadership and team cohesion (i.e., Vincer & Loughhead, 2010), and other research pursuing athletes' perceptions of their coaches' behaviors (i.e., Pyun, Kwon, Koh, & Wang, 2010). Even more research has been conducted directly with coaches within this framework including, but not limited, to coaching efficacy as a predictor of leadership style (Sullivan & Kent, 2003), leader behaviors related to building a successful university program (Vallee & Bloom, 2005), and with regard to the relationships between coach contexts, coach education, and leadership behaviors (Sullivan et al., 2012).

As a behavior-oriented model, the Coaching Behavior Assessment System (CBAS; Smoll & Smith, 1989) has not been used as extensively in the research as has the MML. Like the LSS, the CBAS instrumentation focuses on the athletes' perceptions of their coaches' behavior (Horn, 2008). Studies that have used this model have examined intrinsic motivation in college athletes as it relates to perceived coach behaviors (Amorose & Horn, 2000) self-esteem and athlete reactions to coach behaviors (Smith & Smoll, 1990), and examinations of similarities and differences between the CBAS and the LSS as measurement instruments (Cumming, Smith, & Smoll, 2006).

Another important model within coaching effectiveness, related to the CBAS, is the Mediational Model of Leadership (Smoll & Smith, 1989), which was developed in order to examine leadership in a sport setting in a different way than the LSS. With a

behavior-oriented focus, the heuristic model (Figure 4) was developed by Smoll and Smith (1984) after developing the Coaching Behavior Assessment System [CBAS] (Smith, Smoll, & Hunt, 1977).

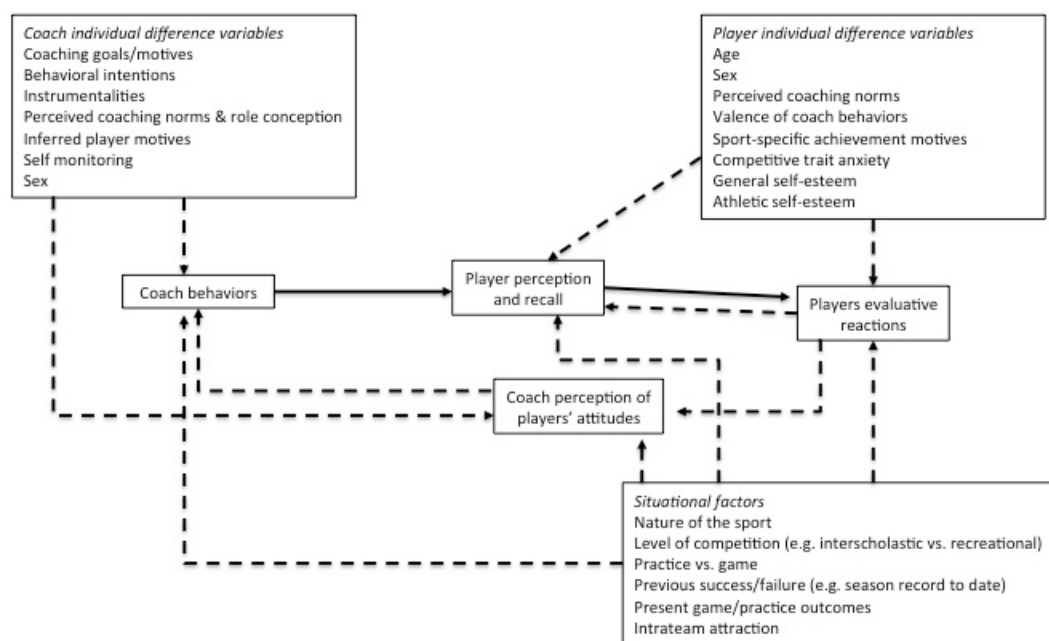


Figure 4. Leadership model in sport (Smith & Smoll, 1984; Smoll & Smith, 1989)

The CBAS considers 12 different response behaviors to assess leadership in sport coaches through direct observation. The CBAS categorizes those behaviors into spontaneous and reactive behaviors (Smoll & Smith, 1989). The reactive behaviors are further grouped into three sub-factors: (1) responses to desirable performance, (2) responses to mistakes, and (3) responses to misbehavior. Smoll and Smith describe the responses to desirable performance as either reinforcement for the behavior or nonreinforcement. Responses to mistakes is the largest of the sub-factors underneath reactive behaviors with five potential measurable responses: (1) mistake-contingent encouragement, (2) mistake-contingent technical instruction, (3) punishment, (4) punitive

technical instruction, and (5) ignoring mistakes. The third sub-factor within reactive behaviors is a response to misbehavior: keeping control (Smith, et al., 1977; Smoll & Smith, 1989). The CBAS also includes game-related and game-irrelevant spontaneous coaching behaviors. The three game related coaching behaviors are: general technical instruction, general encouragement, and organization. The final sub-factor underneath game-irrelevant spontaneous behaviors is general communication (Smith et al., 1977; Smoll & Smith, 1989).

As seen in the leadership heuristic developed by Smoll and Smith (1984), coach behaviors directly impact player perception and recall, which has a direct relationship with players' reactions. Influencing coach behaviors are coach individual differences, situational factors, and each coach's perception of player attitudes. Situational factors affect both coach and player perceptions as well as the reactions of players. And lastly, individual differences among players impact player perception and recall as well as players' evaluative reactions. Subsequent research has indicated that coaches who have the most positive impact on athletes' development usually follow a similar pattern including providing frequent positive reinforcement, a high degree of mistake-contingent encouragement, and both corrective and technical instruction (Smith & Smoll, 1996).

Work with the CBAS (Smith et al., 1977) began with observations of coaches and coding their various responses to player behaviors. The resulting 12 empirically-derived coach behaviors are separated into reactive and spontaneous behavior groups. The reactive behaviors include: reinforcement, non-reinforcement, mistake-contingent encouragement, punishment, punitive technical instruction, ignoring mistakes, and keeping control. The four spontaneous behaviors are general technical instruction,

general feedback, organization, and general communication (i.e., Smith & Smoll, 1990). While this method of observing coaches has been used by researchers for the last several decades (e.g., Amorose & Horn, 2000; Smith, Smoll, & Christensen, 1996) it has led to a coaching effectiveness training (CET) program based upon results of previous studies. When trained versus non-trained coaches were examined within CET modeled studies, results have shown that young athletes who play for trained coaches demonstrated more positive attitudes after the season, had increased levels of self-esteem (Coatsworth & Conroy, 2006), had lower levels of anxiety (Smith, Smoll, & Barnett, 1995), enjoyed playing for their coaches more (Smith, Smoll, & Curtis, 1979), and persisted longer (Horn, 2008).

A third model, the Motivational Model of the Coach-Athlete Relationship (Mageau & Vallerand, 2003) can be traced back to two different origins. The concept within this model can be traced first to Cognitive Evaluation Theory (Deci & Ryan, 1985), which is a mini-theory of Self-Determination Theory (SDT - Deci & Ryan, 1985; Ryan & Deci, 2000). Cognitive Evaluation Theory (CET) was developed to provide an explanation for an individual's intrinsic motivation (Weiss & Amorose, 2008). The second origin that helped spur the development of this model was Vallerand's (1997, 2000) Hierarchical Model (HM) of intrinsic and extrinsic motivation.

The HM of intrinsic and extrinsic motivation presents a motivational model with a high degree of agreement with SDT (Vallerand, 2000). As CET was created to explain effects of various social contexts on motivation (Weiss & Amorose, 2008), the HM of intrinsic and extrinsic motivation examines social factors (global, contextual, situational) and how those factors influence motivation on various levels (global, contextual,

situational) as mediated by individuals' basic needs: competence, autonomy, and relatedness (Vallerand, 2000).

The most important aspect of the Motivational Model of the Coach-Athlete Relationship is the promise that a coach's autonomy-supportive behaviors influence an athlete's intrinsic or self-determined extrinsic motivation (Mageau & Vallerand, 2003). However, the relationship between autonomy-supported behaviors is mediated by athletes' perceptions of their three basic needs: competence, autonomy, and relatedness. In other words autonomy-supported behaviors impact athletes' perceptions of competence, athletes' perceptions of autonomy, and athletes' perceptions of relatedness. According to this model the structure instilled by the coach will also impact an athlete's perception of competence, and the coach's degree of involvement will impact an athlete's perceptions of relatedness (Mageau & Vallerand, 2003).

Furthermore, there are three factors that will influence autonomy-supported behaviors: coach's personal orientation, situational context, and a coach's perception of his/her athletes' motivation. Mageau and Vallerand (2003) outline seven behaviors that they categorize as autonomy-supported in this model: (a) providing choice to athletes, (b) explaining rationale for tasks and limits, (c) acknowledging players feelings and perspectives, (d) providing the opportunity for individual work and opportunities for players to take the initiative, (e) providing non-controlling feedback, (f) avoiding controlling behaviors, and (g) preventing the development of ego-involvement on their team.

Coaches are likely to demonstrate autonomy-supportive behaviors depending on their personal orientation, the coaching context, and perceptions of their athletes'

motivation. For example, researchers in education who have completed research on the characteristics of teachers have found that an autonomy-supportive teaching style is one with which student's basic need of autonomy is respected and nurtured (Reeve, Bolt, & Cai, 1999). In the sport domain, Mageau and Vallerand (2003) consider autonomy-supported coaching "athlete-centered" as opposed to controlling coaching, who would be considered "coach-centered".

The coaching context also plays a role in a coach's propensity to exhibit autonomy-supportive behaviors. For example coaches face different pressures when coaching a 6th grade basketball team than they would if they were coaching a college or professional team. At higher levels of sport because there are additional pressures to win, sell tickets, and perform well, it is logical to understand why college or professional coaches might be more controlling. Furthermore, with professional athletes who are getting paid, the facilitation of intrinsic or self-determined motivation might be a less important factor to consider. However if the coaching context involves a lower level where persistence in the sport is a top priority (i.e., youth sports) demonstrating autonomy-supportive behaviors might be highly relevant and important.

The third source of influence on coach's autonomy-supportive behaviors is a coach's perception of athletes' behaviors and/or motivation. One of the joys, or challenges, of coaching is dealing with athletes who have different personalities, varying dispositions, and a variety of temperaments. Coaches formulate and make judgments about the expectations that they have for an athletes' performance based on their perceptions of these factors in each of their athletes. For example, if a coach does not believe his/her players can be trusted, then he/she is more likely to be controlling, and

this increased level of controlling behavior will negatively influence athletes' intrinsic and self-regulated motivation (Mageau & Vallerand, 2003).

The Motivational Model of the Coach-Athlete Relationship (MMC-AR; Mageau & Vallerand, 2003) has both similarities and differences with the MML (Chelladurai 1978, 1990) and the Mediational Model of Leadership (Smoll & Smith, 1989). The major tenets of this model are that a coach's autonomy-supportive behaviors will predict athlete's motivation, mediated by an athlete's perception of their basic needs satisfaction (competence, autonomy, and relatedness). Furthermore, sources of autonomy supportive behavior include each coach's personal orientation, the coaching context, and a coach's perception of athletes' behavior and motivation. Research examining autonomy-supportive versus controlling coaching has indicated that athletes are more intrinsically motivated when competing for an autonomy-supportive coach (Pelletier & Vallerand, 1989). More recent research has indicated that perceived autonomy supportive coaching behaviors from the coach lead to an individual's perception of greater autonomy, which leads to higher levels of intrinsic motivation (Almagro, Saenz-Lopez, & Moreno, 2010); and autonomy-supportive coaching predicts the extent of athletes' competence and relatedness need satisfaction (Coatsworth & Conroy, 2009).

From a practical coaching perspective the MMC-AR model has tremendous potential to impact coaches and has a number of important implications. The research posits that positive feedback can be either a detriment or a facilitator of athletes' intrinsic motivation. In order for feedback to be beneficial it should stimulate perceptions of autonomy and competence, deliberately target behaviors that athletes can control, and convey both realistic and challenging expectations (Mageau & Vallerand, 2003). Often

coaches try to treat all athletes equally, but according to model contentions, any perception a coach has about a player has the potential to skew treatment of that player. In the event a coach has a negative perception about a player, controlling behavior can increase, which can lead to decreases intrinsic and self-determined extrinsic motivation. This means that coach behaviors can be detrimental in ways that result in all sorts of varying motivational dispositions. For athletes in intercollegiate sports, this model describes how a coach can derail an athlete's sport experience in a way that could lead directly to sport attrition, among other negative consequences (i.e., stress, anxiety, etc.). This model also predicts how a coach could positively influence choice, effort, and persistence through the development of intrinsic and self-determined extrinsic motivation, when autonomy-supportive behaviors are appropriately utilized (Mageau & Vallerand, 2003).

One of the struggles that practitioners (e.g., coaches) often seem to have with the facilitation of motivation is that they understand the benefits of having players who are intrinsically motivated, but they have no idea how to cultivate this type of motivation. One of the most important aspects of this model is that Mageau and Vallerand (2003) present an explicit, yet understandable, practical model that outlines how coaches can help develop intrinsic motivation in their athletes. Coaches can look at the seven specific autonomy-supportive behaviors and take time to think of ways to give their players choices or opportunities to take the initiative in practices, games, or outside of the field of play. Coaches can see this model and remind themselves to provide rationales for drills that they do in practice and perhaps rethink the incorporation of drills where they are unable to construct a viable rationale. This model encourages coaches to think of players

as human beings, not just subordinates; and as such players have real feelings and perspectives that are important to acknowledge and understand. Using the autonomy-supportive coaching model can encourage coaches to carefully evaluate the feedback they provide and intentionally develop methods of positive critique and criticism without ulterior motives or controlling intentions. Furthermore this model can help coaches become less controlling and prevent the development of a performance-oriented motivational climate.

Understanding the motivational climate in sport has splintered from Achievement Goal Theory (Elliot 1999; Nicholls, 1984, 1989) as its own area of sport research, and it has strong similarities to the conceptual framework of autonomy-supportive coaching. The motivational climate refers to the structure or focus of the environment in which an individual is participating in an activity. It is the motivational climate that plays a central role in the overall process of motivation in sport (Nicholls, 1984, 1989; Roberts, 2012). Research in AGT has examined this in a way to determine how the structure of the environment can impact an individual's task or ego involvement and how certain situational factors can then impact an individual's choice, effort, and persistence (Roberts, 2012). Coaches are influential individuals who can play a role in the development of the motivational climate.

The coach-initiated motivational climate stemmed from the idea that coaches have the opportunity and ability to influence the perceived motivational climate of their players in a variety of ways, including but not limited to: individual and team goals, the conviction and incorporation of their own coaching philosophies, and the scope of interactions that they have with players (Ames, 1992). According to Reinboth and Duda

(2004) coaches play an active role in the development of the motivational climate for their players. Creating a positive mastery motivational climate can include autonomy-supportive measures such as, providing choices for athletes, giving athletes decision-making responsibilities, listening to their thoughts/feelings, and explaining ones' rationale for the coaching decisions that are made. These are a few of the autonomy-supportive coaching behaviors that can lead to higher levels of effort, persistence, and athletes making choices that may positively influence their sport participation, enjoyment, and performance. Perhaps more so than any other social psychological theory for leadership, this model includes connections to more practical tools that can be used directly by coaches, many of which are incorporated within a positive, autonomy-supportive motivational climate.

Each of these three theoretical perspectives MML, the Mediational Model of Leadership, and autonomy-supportive coaching include critical beliefs about effective coaching, yet focus on very different components. Studies have linked important coaching behaviors (e.g., training/instruction, democratic) in the MML to athlete satisfaction (Chelladurai, 2007). Using the Mediational Model of Leadership and CBAS studies have been used to examine the ways coaches' influence their athlete's psychological development in sport (i.e., Smith & Smoll, 1990). And the autonomy-supportive coaching model relies on sound motivational theory (SDT; Deci & Ryan, 1985) to illuminate clear methods to influence athlete's intrinsic motivation. Because these models are theoretically grounded, yet represent unique tenets, another model of coach effectiveness has been established; Horn's (2008) working model of coaching effectiveness. Horn's heuristic model combines aspects of each of the three theories

discussed above, and provides an excellent framework for coaching scientists to understand and examine both predictors and outcomes of coaching effectiveness (Lauer & Dieffenbach, 2013).

Horn's Heuristic Model of Coaching Effectiveness

As is indicated by scores of research focused on coaching behaviors, antecedents of coaching behaviors, coaching effectiveness, and various coaching outcomes, Horn's (2008) model of coaching effectiveness (see Figure 1) posits that coaching behaviors can be predicted by coaches' expectancies, values, beliefs, and goals (Box 4). Additionally, coaches' expectancies, values, beliefs, and goals are determined by three different yet interrelated groups of factors: sociocultural context (Box 1), organizational climate (Box 2), and each coaches' personal characteristics (Box 3). The entire heuristic model is simply too large to incorporate in a single study, as a result the present research focused on the relationships among variables in boxes 1-4, and specifically within box 4, for which a discussion of the links and supporting research will commence henceforth.

Sociocultural context (Box 1). The sociocultural context refers to the degree which factors such as race, gender, and sexual orientation affect the behaviors and/or experiences of those who participate in sport. As seen in the heuristic, the sociocultural context can influence the organizational climate (Box 2), coaches' personal characteristics (Box 3), coach expectancies, values, beliefs, and goals, and has a direct link to an athlete's perceptions, interpretation, and evaluation of his/her coaches' behavior. Very little research has been conducted to examine the link between sociocultural context and coaches' expectancies, values, beliefs, and goals (Horn, 2008). Despite a lack in research that supports this connection, several researchers who have

investigated athletes' achievement goals have found that aspects of sociocultural context (i.e., race, gender) are related to, at least in part, their sociocultural background (Dweck, 1999; Li, Harris, & Solomon, 2004; Li & Lee, 2004). As a result, the link between a coach's sociocultural context and his/her expectancies, values, beliefs, and goals is understandable (Horn, 2008). Several researchers have examined occupational turnover intentions in relation to other variables according to race (Cunningham & Sagas, 2004b; Sartore & Cunningham, 2006) and gender (Cunningham & Sagas, 2002; Cunningham, Sagas, & Ashley, 2003). A closer review of these studies is included in the coaching intentions section below. In general, very little is known about the link between sociocultural context and coaches' expectancies, values, beliefs, and goals and more research should be conducted to examine the socio-cultural context and various aspects of the coach-athlete relationship (Horn, 2008).

Organizational climate (Box 2). The second dimension recognized in Horn's (2008) heuristic model is also an antecedent of coaches' expectancies, values, beliefs, and goals. The organizational climate refers to the competitive level at which an individual is coaching. The link between boxes 2 and 4, suggests that the sport program structure may have an effect on a coach's expectancies, values, beliefs, and goals. This appears to be a reasonable assumption as effective coaches of a fourth grade volleyball team and an intercollegiate volleyball team likely have different goals.

A few studies (e.g., Chaumeton & Duda, 1988; Halliburton & Weiss, 2002; Jambor & Zhang, 1997) have focused on how coaches' behavior may vary based upon the competitive level of a team that they coached. Results of these studies showed that coaches of older age athletes tended to be less democratic and more ego-involved (Horn,

2008). Gilbert and Trudel (2004b) found, with youth sport coaches, that the age of players and the competitive level influenced their coaching approach in both practice and game situations.

At higher levels of sport (i.e., intercollegiate levels) there are fundamental organizational differences that mirror what a coach might experience from middle school as compared to high school, or high school compared to college. For example, NCAA Division I athletics involves full-ride athletic scholarships and involves a high level of competition; as a result, more media exposure, and an increased pressure for many coaches to win exists in Division I. NCAA Division III athletics involves high-level competition without athletic scholarships, and as a result is without the extrinsic motivators and pressure that comes with increased money involved. NCAA Division II is a hybrid of Divisions I and III with some athletic scholarships, but in large part includes a wide range of regional universities that compete with very different budgets and expectations. Each of these three levels offer different experiences and have coaches with different expectancies, values, beliefs, and goals. However, because of the scholarship and non-scholarship parameters that completely differentiate Divisions I and III, the present research examined only these two divisions in terms of the organizational context.

Some research exists comparing various intercollegiate athletic levels, however the link between organizational context and coaches' expectancies, values, beliefs, and goals has been given very limited consideration in the coaching effectiveness literature. Research in intercollegiate athletics comparing divisions has been conducted to examine the influential factors of college selection between Division I, II, and III lacrosse recruits

(Pauline, 2010). The results revealed that factors were very different across divisions; for example, financial aid was very low for DIII recruits, higher for DI recruits, and even higher for DII recruits. This certainly suggests three different organizational contexts in which athletes are motivated for very different reasons. Other research comparing divisions in a sport context has considered the differences in media guide cover pictures (Van Mullem, Sterling, & Peck, 2013) and has compared injury rates in intercollegiate sports (Agel & Schisel, 2013).

Specific to coaching, Horn (2008) cited unpublished data from Amorose and Horn (1999) that showed “significant differences in the perceptions of Division I and Division III collegiate male and female athletes regarding their coaches’ behavior” (p. 253). More specifically, Division I athletes perceived their coaches to exhibit higher levels of autocratic (commanding) behavior, and offered lower levels of social support and positive feedback than the Division III athletes. In addition, these researchers found that when higher percentages of athletes on a team were on scholarship the perception of the athletes indicated that they perceived their coaches to be more autocratic, provide less support, and provide more punishment-oriented feedback than teams with fewer athletes on scholarship (Horn, 2008). This directly supports the importance of organizational context on coaches’ expectancies, values, beliefs, and goals as well as future exploration of the differences between NCAA divisions as a predictor of coaching values, beliefs, and goals. Furthermore, future research has been called for in order to examine coaches’ values and beliefs across various levels of competition (Horn, 2008).

Coaches' personal characteristics (Box 3). The third factor recognized in Horn's (2008) heuristic model is also an antecedent of coaches' expectancies, values, beliefs, and goals. Coaches' personal characteristics refer to a number of factors that can be linked to box 4. Within sport psychology, a number of researchers (e.g., Feltz et al., 1999; Myers, Vargas-Tonsing, & Feltz, 2005; Sullivan & Kent, 2003; Sullivan, et al., 2012) have investigated relationships between coaching efficacy and coaches' behavior towards their athletes. Other research that has explored the links between box 3 and 4 include comparing a coach's motivational style and their decision making style within a sport context (Frederick & Morrison, 1999), and assessing how a coaches' motivational orientation can affect behaviors in practices and games (Losier, Gaudette, & Vallerand, 1997).

While coaching efficacy and motivation are two of the most common links between coaches' personal characteristics and coaches' expectancies, values, beliefs, and goals, there are other factors within box 3 that may predict coaches' expectancies, values, beliefs, and goals (Horn, 2008). Factors that have been noted as possible personal characteristics of coaches worth investigating include critical-thinking aptitude, decision-making ability, self-reflectiveness, coaching experience, sport playing experience, and coach knowledge base or even education (Abraham & Collins, 1998; Horn, 2008; Streat, Senecal, Howlett, & Burgess, 1997). This list represents characteristics or attributes commonly found throughout the effective coaching literature from knowledge (i.e., Becker, 2009; Côté & Gilbert, 2009) to self-reflectiveness (i.e., Gilbert & Trudel, 2001) to experience (i.e., Becker, 2009). For the purposes of the present research coaching

experience, sport playing experience, and coach education represent coaches' personal characteristics (see Figure 2).

Coaches' expectancies, values, beliefs, and goals (Box 4). Coaches' expectancies, values, beliefs, and goals are all direct antecedents to coaching behavior in Horn's (2008) heuristic model. In a review of coaching effectiveness, one of the few implications of box 4 in the model is that stereotyped beliefs about ability based upon gender have been known to affect a coach's behavior towards his/her athletes (Horn, 2008). While this certainly could be the case in youth sport, at intercollegiate levels one would hope that full-time coaches in either male or female sports, would act without any sort of gender bias, and to-date no research suggests otherwise.

A small ray of light among the scant research on coaches' beliefs, values, and goals involves the implication that coaches' most frequently used type of motivation will influence coaching behaviors. Horn (2008) makes the argument based on tenets of achievement goal theory (Ames, 1992; Nicholls, 1984, 1989); coaches who hold task-oriented beliefs about feedback regarding their athletes and sport programs would be likely to provide feedback consistent with mastery outcomes such as learning, effort, and skill improvement. Contrastingly, coaches who hold ego-oriented beliefs with regard to feedback would be more likely to exhibit behaviors that focus on outcomes and social comparisons. In the same way, Dweck's (1986) implicit theories (entity versus incremental) could be used to identify antecedents of coaching behavior (box 4) for future investigation as well. More specifically, coaches who believe that traits like intelligence and ability are innate (entity theorists) are likely to demonstrate various behaviors with their athletes based upon their own preconceived notions about each

athlete's ability. Conversely, coaches who believe that their athlete's ability and/or intelligence is malleable would be likely to demonstrate more consistent behaviors across their interactions with athletes. While both of these motivational perspectives provide support for future research examining coaches' values, beliefs, and goals, with specific reference to coaching effectiveness, current research has yet to undertake this line of inquiry.

Additionally, no research exists examining multiple variables within box 4 that might establish empirically based implications about predicting coaching behaviors. Previous examinations of box 4 variables are limited to research on expectancy theory (Horn, 2008) and specifically self-fulfilling prophecy (Becker & Solomon, 2005); research on stereotypical beliefs about gender (Gilbert & Trudel, 2004b), race/ethnicity, and sexuality as it relates to coaching (Horn, 2008); and with the previously mentioned achievement goal orientation research (Horn, 2008). Also worth noting is that although coaching values are important in box 4 as a predictor of coaching behaviors, few if any studies have deliberately examined coaching values per se. Self-reflection has emerged as a potential value that may be critical to effective coaching (Gilbert & Trudel, 2001; Horn, 2008), however the consideration of self-reflection as a "coaching value" has been more implied than overtly examined as such. In addition to these previous research tracts, coaching efficacy has been considered a belief within the coaching effectiveness model (Myers et al., 2005), however it has received little focus as a critical component of the overall effective coaching model.

As a less understood, yet important part of Horn's coaching (2008) effectiveness model, box 4 provided an opportunity to examine relationships between different

coaching values, beliefs, and goals with coaching efficacy. In addition, Horn's (2008) review suggested examining these factors across different levels of competition. As a result more complete review of the literature representing the variables that were used to represent coaches coaching goals (intent to become head coach), beliefs (commitment to their sport), and coaching values (5Cs of coaching efficacy: commitment, communication, concentration, control, and confidence) is included below.

Intentions to be a Head Coach

Behavioral intentions refer to an indication of a person's readiness to perform a specific behavior (Ajzen, 2006). Using the framework of Theory of Planned Behavior (TPB; Ajzen, 1991), intentions have been, and continue to be, more widely examined in exercise contexts (i.e., Hoyt, Rhodes, Hausenblas, & Giacobbi, 2009; Raedeke, Focht, & Scales, 2007) as compared to sport. Although, TPB has been used in the sport context to predict sport dropout (Nache, Bar-Eli, Perrin, & Laurencelle, 2005), and to examine recreational sport participation (Chuan, Yusof, Soon, & Abdullah, 2014). Within a sport coaching context, TPB has also previously been used to study coaches' use of exercise as a punishment (Richardson, Rosenthal, & Burak, 2012) and to predict head coaching intentions of assistant coaches (Sagas et al., 2006).

In spite of the more popular use of TPB in exercise research, there is a small body of research within the sport domain that has examined head coaching intentions with the purpose of describing and understanding why some intercollegiate coaches persist in their careers and others do not (e.g., Cunningham et al., 2007; Cunningham & Sagas, 2004a). This research examined intentions within the framework of occupational turnover intent. Occupational turnover intent is a business model used to help understand why some

individuals quit their jobs and why others persist. The versatile nature of this intent variable has led to a wide variety of uses from medical research (Blau, 2007) to the persistence of accountants (Ciftcioglu, 2011) to the retention of correctional officers (Griffin, Hogan, & Lambert, 2014) and even to intercollegiate coaching (i.e., Cunningham et al., 2007).

Previous research within the context of coaching has examined racial differences in occupational turnover intent (Cunningham & Sagas, 2004b) and the group diversity, commitment, and turnover intentions (Cunningham & Sagas, 2004a) among NCAA Division IA football coaches. When an entire football coaching staff was investigated, a significant association was found between ethnic status and occupational turnover intent (Cunningham & Sagas, 2004a). Coaching staffs with greater racial/ethnic diversity reported higher interest/intentions in changing careers. Previously, black basketball coaches were found to have higher turnover intentions (i.e., not continuing in coaching) than white coaches (Cunningham, Sagas, & Ashley, 2001). In addition, Cunningham and Sagas (2004b) found that black football coaches perceived fewer opportunities for career advancement and were, in general, less satisfied with their careers. Previous findings support the idea that race/ethnicity still holds a relevant place in the intercollegiate sport context in connection to the career intentions of assistant football coaches (Cunningham & Sagas, 2004a).

In addition to the research on coaching intentions with a racial focus, a similar popular set of demographic studies have focused on gender differences of intercollegiate coaches. These studies include examinations of the effects of human capital on basketball coaches (Cunningham & Sagas, 2002), treatment discrimination of women's

sport coaches (Cunningham & Sagas, 2003), understanding head coaching intentions of assistant coaches of women's teams (Cunningham et al., 2007), and gender differences in coaching efficacy, desire to become head coach, and turnover intentions of assistant coaches of women's teams (Cunningham et al., 2003). Findings from these studies revealed that female coaches have lower career aspirations and higher turnover intentions than male coaches (Cunningham & Sagas, 2002), men have higher coaching self-efficacy and more positive outcome expectations than women (Cunningham et al., 2007), and female coaching experiences are the same, if not better than male coaches (Cunningham & Sagas, 2003). Other results have indicated that female coaches do not apply for head coaching positions as frequently as men (Sagas, Cunningham, & Ashley, 2000), and Sagas (2000) indicated that women had less desire, interest, and intent toward head coaching positions (as cited in Cunningham et al., 2003).

Cunningham and colleagues (2003) found that there were meaningful differences in the ways that men and women approach head coaching positions. In concert with this result, research indicates that women appear to report greater turnover intentions in the coaching context (Cunningham et al., 2003; Sagas & Ashley, 2001; Sagas et al., 2000). Coaching self-efficacy as a predictor of occupational turnover intent did not appear to predict intent to leave coaching among women, and was only slightly related among men (Cunningham et al., 2003). This finding is not consistent with Bandura's (1977, 1986) self-efficacy theory, which suggests that self-efficacy, will be a predictor of persistence in a situation such as coaching. While there is some knowledge about occupational turnover intent with regard to race and gender in intercollegiate coaches, intent has yet to be examined as a predictor in Feltz's (1999) coaching efficacy model.

Only one study currently exists where head coaching intentions were directly examined within the framework of TPB (Sagas et al., 2006).

According to the theory of planned behavior, perceived behavioral control, together with behavioral intention, can be used directly to predict behavioral achievement. At least two rationales can be offered for this hypothesis. First, holding intention constant, the effort expended to bring a course of behavior to a successful conclusion is likely to increase with perceived behavioral control. For instance, even if two individuals have equally strong intentions to learn to ski, and both try to do so, the person who is confident that he can master this activity is more likely to persevere than is the person who doubts his ability. (Ajzen, 1991, p. 184)

The point of the quote above is important because it suggests that in a comparison of two coaches with the same head coaching aspirations (intent), the more confident coach will be more likely to follow through with his/her coaching goals. The importance of coaching confidence as it relates to behavioral intent is relevant in an intercollegiate sport coaching context because there is little research aimed at understanding the motivation of assistant coaches to obtain head coaching positions (e.g., Cunningham & Sagas, 2002; Sagas et al., 2000; Sagas et al., 2006).

Using a random sample of assistant coaches from NCAA Division I and III coaches in basketball, soccer, softball, and volleyball, Sagas and colleagues (2006) found that TPB was a useful model with which to predict head coaching intentions. Other findings from this study suggest that assistant coaches are often motivated to be head coaches in order to implement their own coaching philosophies and to further develop their own coaching skills. Furthermore, assistant coaches were not drawn towards being head coaches for external gratification (i.e., financial rewards, recognition). While the present research was not concerned with specific TPB subscales to measure intent (i.e., attitudes, subjective norms, and behavioral control), the pioneering research that involved

TPB and NCAA Division I and III coaches (Sagas et al., 2006) was used as a reference with which to measure the variable of intent within the current model to predict coaching efficacy. This study was not the first study to examine head coaching intentions, however, expanding on the exclusively gender-focused application previously published (Sagas et al., 2006) was sought, and findings add to the relative dearth of literature that has incorporated TRB in the sport domain.

Commitment in Sport

Another of the social psychological variables that was explored in the present study as a potential source of coaching efficacy was coaching commitment. The idea of understanding commitment in the workplace has been around for some time. Different definitions have emerged including an individual's tendency towards completing a particular task (Boyst, 2009). Commitment has been defined as an explanation of individual persistence in a task (Becker, 1960) or in a relationship (Kelley, 1983). Commitment explains whether an individual feels like they want to be involved in something, or whether they feel like they have to be involved in that activity (Johnson, 1982).

Early reviews of employee commitment (e.g., Mobley, Griffeth, Hand, & Meglino, 1979; Mowday, Porter, & Steers, 1982) suggested that process-oriented explorations, longitudinal research, and multivariate research be conducted to learn more about employee turnover and commitment. Subsequent research and the development of theories about the turnover process focused on the "psychological experiences and choices individuals confront as they continue in or withdraw from an organization" (Rusbult & Farrell, 1983, p. 429). During the pursuit of understanding this psychological

process, commitment theories like interdependence/social exchange theory (Kelley & Thibaut, 1978; Thibaut & Kelley, 1959) and Rusbult's (1980a, 1980b, 1983) investment model were established.

The investment model asserts that job satisfaction should be greater to the extent that a position offers high rewards and relatively low costs (Rusbult & Farrell, 1983). The formula posited in the investment model indicates that satisfaction equals rewards minus costs. Furthermore, the investment model suggests additional complexities in understanding commitment. According to this model, job commitment will increase with greater perceived rewards, fewer costs, increases in individual investment in the job, and decreases in alternative opportunities. These factors change the equation to: *Satisfaction = (Rewards – Costs) + Investments – Alternative Opportunities*. Lastly, turnover is believed to be directly impacted by commitment, with a decrease in commitment resulting in turnover or a great likelihood for turnover (Rusbult & Farrell, 1983). Early applications of the investment model included a study of commitment among blue-collar workers (Farrell & Rusbult, 1981), commitment in romantic relationships (Rusbult, 1980a), commitment in friendships (Rusbult 1980b) or close relationships (Rusbult, 1988), and the deterioration of satisfaction and commitment over time (Rusbult, 1983). Results have consistently supported the belief that job satisfaction is associated with increased rewards and lower costs (e.g., Rusbult & Farrell, 1983; van Dam, 2005) and job commitment is related to increased perceived rewards, lower costs, increased investments, and negatively with alternative opportunities (e.g., Cini & Harden Fritz, 1996; Martinez-Inigo, 2000; Rusbult & Farrell, 1983; van Dam, 2005). Interestingly with regard to relationships, Martinez-Inigo (2000) found that the perception of a better

alternative option was associated with lower commitment, while the actual availability of an alternative option was not.

Sport Commitment Model

The examination of commitment in sport came with the development of the Sport Commitment Model (SCM; Scanlan, Carpenter, Schmidt, et al., 1993). Scanlan and colleagues were originally interested in examining sport enjoyment (or satisfaction) as a motive for sport participation (Weiss & Amorose, 2008). Early studies of enjoyment (e.g., Scanlan, Carpenter, Lobel, & Simons, 1993; Scanlan & Lewthwaite, 1986; Stein & Scanlan, 1992) identified that positive social interactions, recognition by others with regard to competence, mastery, and effort, and positive social interactions were important determinants of sport enjoyment in youth (Weiss & Amorose, 2008). Scanlan and colleagues framed this model of sport commitment around sport enjoyment (Scanlan & Simons, 1992). The SCM was developed using social exchange theory (Kelley & Thibaut, 1978; Thibaut & Kelley, 1959) and the investment model (Rusbult, 1980a, 1980b, 1983) as guiding perspectives. The previous commitment models all identified three antecedents of commitment: (a) attraction towards an activity, (b) how desirable one perceives the alternative options for that activity to be, and (c) the perception of barriers that could potentially end involvement in an activity (Weiss & Amorose, 2008).

Building from the previous theoretical foundation of commitment research, SCM includes five constructs: sport enjoyment, involvement alternatives, personal investments, social constraints, and involvement opportunities. These five factors are hypothesized to influence participation and persistence, or sport commitment, for an individual (Scanlan,

Carpenter, Schmidt, et al., 1993; Scanlan, Simons, et al., 1993). See Figure 5 for a diagram of the Sport Commitment Model.

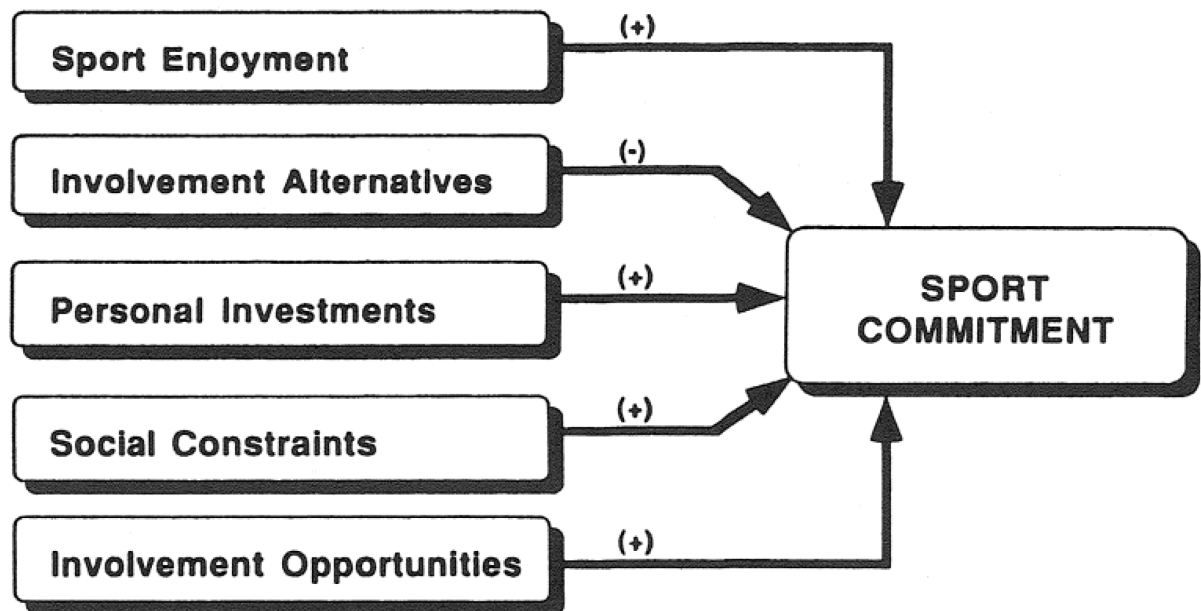


Figure 5. The Sport Commitment Model (Scanlan, Carpenter, Schmidt, et al., 1993).

During the initial testing of the SCM, sport enjoyment and personal investments were the only significant predictors of commitment for youth athletes (Scanlan, Carpenter, Schmidt, et al., 1993). In the years since this initial study, enjoyment has consistently emerged as the most robust predictor of commitment (Scanlan, Russell, Magyar, & Scanlan, 2009), thus upholding the initial belief that enjoyment is critical in the sport commitment model. As a result, Weiss and Amorose (2008) developed the mediational model of SCM with an even stronger value placed on enjoyment.

Although the SCM was originally designed to examine commitment among athletes of various ages, groups, and demographics, the primary focus of using SCM was in youth sport (Scanlan, Carpenter, Schmidt, et al., 1993; Scanlan, Simons, et al., 1993;

Carpenter, 1992). More recently, SCM research has been completed in competitive youth levels (Weiss & Weiss, 2007), with longitudinal research in youth sport (Weiss & Weiss, 2006), looking at adult recreational sport commitment (Casper, Gray, & Babkes Stellino, 2007), examining how motivational climate may be able to predict sport commitment (Torregrosa, Sousa, Viladrich, Villamarín, & Cruz, 2008), in strength and conditioning (Waldron & Troupe, 2008; Weiss & Halupnik, 2013), and examination of commitment differences among recreational and collegiate athletes (Casper & Andrew, 2008).

The development and incorporation of social support as a sixth construct occurred when Scanlan, Russell, Wilson, and Scanlan (2003) developed a revised version of SCM after working on the Project on Elite Athlete Commitment (PEAK). While the inclusion of this important additional construct was noteworthy, so too was the new focus on elite level athletes that the PEAK version of the SCM provided. In addition, Scanlan and colleagues created what is now coined the Scanlan Collaborative Interview Method (SCIM). The SCIM added an additional qualitative method in collecting data, and aided in the assessment of the already valid SCM (Scanlan, Russell, Wilson, et al., 2003).

As the SCM has evolved, research exploring commitment in sport has expanded with studies evaluating commitment in elite athletics for men (Scanlan, Russell, Beals, & Scanlan, 2003) and women (Scanlan et al., 2009), masters level athletes (Crocker & Augaitis, 2010; Medic, Starkes, Young, & Weir, 2006; Wigglesworth, Young, Medic, & Grove, 2012; Young & Medic, 2011), and in nontraditional sports such as ballroom dance (Chu & Wang, 2012). In recent years, the SCM has been used to examine sport commitment of athletes in Japan (Hagiawara & Isogai, 2013), Thailand (Harmer,

Vongjaturapat, Li, & Choosakul, 2009), and Taiwan (Chu & Wang, 2012). Other variables have been examined in conjunction with commitment such as participation frequency and purchase intention (Casper et al., 2007) and social orientation (Hagiawara & Isogai, 2013), as well as additional determinants such as perceived costs and perceived competence have been examined with SCM (Weiss, Weiss, & Amorose, 2010).

The SCM (Scanlan, Carpenter, Schmidt, et al., 1993) is one of the major frameworks with which commitment has been studied, but this is not the only framework in which sport commitment has been considered. A model in which enjoyment mediates the sources and level of commitment has been used in the sport domain as well (Weiss, Kimmel, & Smith, 2001). This mediational model has been useful in determining levels of commitment for female gymnasts (Weiss & Weiss, 2006). As is the case with SCM, enjoyment has continually been found to be the strongest predictor of commitment for youth (Martin, 2006) and age-group athletes (Weiss & Weiss, 2007) in this second model as well. Sport commitment has also been linked to participation behaviors including behavioral frequency, intensity, and duration (Horn, 2008). Commitment has been found to positively contribute to successful player progression (Holt & Dunn, 2004). In another study examining coaching commitment for high performance basketball coaches, sources of coach commitment included fun, social and economic recognition, involvement in projects, and personal investments (Jimenez, Borrás, & Gomez, 2009), largely consistent with previous results using the SCM.

Coaching commitment. The SCM has not yet been used to explore coaching commitment among college coaches. To date, very few studies have been conducted with a focus on coaching commitment. Although not as widespread in the sport literature

as athlete commitment using the SCM, several studies have examined coaches' commitment to their profession (Raedeke, 2004; Raedeke et al., 2000; Raedeke et al., 2002). Two studies have examined coach burnout (Raedeke, 2004; Raedeke et al., 2000), and another has carefully considered commitment as it relates to coaches' choice to continue or discontinue their coaching career (Raedeke et al., 2002). Similar to the SCM, and based upon Rusbult's (1980a, 1983, 1988) investment model, Raedeke and colleagues commitment perspective is based in part around satisfaction (or enjoyment), and combined with various costs and benefits of involvement. In addition, using Rusbult's (1980a, 1983, 1988) investment model, the coaching commitment includes the importance of investments in an activity and the attractiveness of alternative options as well. According to this model, the more an individual has invested and the less attractive any alternative options the higher an individuals' commitment will be.

The initial coach commitment research (Raedeke et al., 2000) examined the commitment of age-group swim coaches using benefits, costs, satisfaction, investments, social constraints, and alternative attractiveness as contributors to a coaches' commitment. Furthermore, Raedeke and colleagues (2000) successfully grouped their swim coaches in three theoretically supported clusters: attraction-based coaches, entrapped coaches, and coaches with low levels of commitment. Coaches who are committed for enjoyment-based reasons should demonstrate high levels of commitment (Raedeke et al., 2000). Using the social constraints factor added to previous sport commitment research (Scanlan, Carpenter, Schmidt, et al., 1993) the commitment perspective suggested that social constraints "may serve as a source of entrapment-based commitment and keep individuals involved even if their attraction to coaching is

diminishing” (Raedeke, 2004, p. 335). Entrapped coaches are usually committed in the sense that they want to maintain involvement in coaching, however they may not demonstrate a strong desire to do so (Raedeke et al., 2000). Coaches with low levels of commitment are the most likely candidates for burnout and for leaving the profession. Typically these coaches demonstrate low levels of commitment because they do not want to be involved nor do they feel that they have to continue in their career as a coach (Raedeke et al., 2000). To date, commitment research has focused on understanding the various predictors of commitment (Raedeke et al., 2002), and while that is important, the present study seeks to examine whether or not coach commitment may be a predictor of coaching efficacy.

Using a cluster analysis, Raedeke and colleagues (2000) found that the swim coaches were uniquely committed for attraction reasons, entrapment reasons, and a third group demonstrated relatively low commitment. Findings indicated that coaches with attraction-based commitment were highly satisfied with their current positions, and they perceived high benefits and low costs from their coaching career. The second cluster of coaches committed for attraction-based reasons exhibited a different set of characteristics than the attraction-committed coaches. This group reported lower than average scores for benefits of coaching and satisfaction with coaching, and they also reported the costs of coaching to be higher than average. Furthermore, these coaches demonstrated higher investment, higher social constraints, or a combination of both of those factors, which was interpreted as being *comparatively entrapped*. The third cluster reported lower satisfaction and fewer benefits from coaching relative to the other two groups. In

addition, this group had lower investment scores, reported that coaching alternatives were more attractive, and perceived fewer social constraints compared to other coaches.

Raedeke (1997) also used this clustering technique to examine the commitment of age-group swimmers. Findings in Raedeke and colleagues (2000) with coaches mirrored that of Raedeke (1997) with athletes in that the comparatively entrapped profile of coaches demonstrated similar characteristics (i.e. high investments, social constraints). However, entrapped coaches reported average alternatives (Raedeke et al., 2000). To date, research on commitment has yet to reveal a connection between a lack of attractive alternatives and characteristics of entrapment (Raedeke, 1997; Raedeke et al., 2000). With both swimmers and age group swim coaches findings did suggest that coaches and athletes who are feeling obligated to participate are more likely candidates for burnout in their sport.

The limited exploration of coaching commitment can be found with two additional studies with age-group swim coaches. The first study involved a comparison of commitment between current and former swim coaches (Raedeke et al., 2002), and the second involved a one-year follow-up study of Raedeke and colleagues initial coach commitment and burnout study (Raedeke, 2004). In the comparison with current and former coaches, Raedeke and colleagues found satisfaction and investments as related to commitment, collectively explaining 65% of the variance in commitment. However, alternative options and social constraints were not related to commitment, contradicting their hypothesis. Significant differences were revealed between current and former coaches. For example, current coaches reported higher social constraints and investments, while former coaches reported higher levels of attractiveness to alternatives.

Indications from coaching commitment research (Raedeke, 2004; Raedeke et al., 2000; Raedeke et al., 2002) are that more research is needed to understand the relationships between commitment and burnout. While a profile of attracted coaches and entrapped coaches has been supported, findings on coach commitment indicate that this commitment model may predict psychological variables among coaches better than it predicts behavioral outcomes (Raedeke et al., 2002). The narrow exploration of coach commitment has been limited to research on coach burnout, and has been limited to age group swim coaches.

5Cs of Coaching Efficacy

The 5Cs of coaching efficacy was developed as part of an initiative to develop better players and coaches in English soccer (Harwood, 2008). Building from the conceptual framework of coaching efficacy (Feltz et al., 1999) and the emerging research surrounding positive youth development (i.e., Conroy & Coatsworth, 2006; Lerner, Fisher, & Weinberg, 2000) the 5Cs of coaching efficacy (Harwood, 2008) were established with a dual purpose. As part of an intervention program, the first purpose of the 5Cs was to introduce youth soccer coaches to the concepts of shaping psychological and interpersonal characteristics in their athletes in a beneficial way. The second purpose was to enhance a coach's efficacy in stimulating positive responses, both psychologically and interpersonally in players.

Recently, different suggestions have emerged in sport psychology literature that recommend various ways with which to have a larger impact in player development. For example, the way a coach communicates with athletes has been a topic of considerable interest as different methods of communication may influence a young athlete's

psychosocial development (Gould et al., 2007). Previous research, much of which is grounded in coach effectiveness training or using the CBAS, has found that athletes that are more satisfied with their teammates, exhibit higher levels of motivation, demonstrate lower levels of anxiety, and have lower attrition rates when they play for coaches who provide more positive reinforcement (Barnett, Smoll, & Smith, 1992; Gould et al., 2007; Smith, Smoll, & Curtis, 1979; Smoll, Smith, Barnett, & Everett, 1993; Smith, Smoll, & Barnett, 1995).

These positive characteristics have led both practitioners and researchers to more closely examine, and value, sport programs that incorporate aspects of what is now called positive youth development (e.g., Conroy & Coatsworth, 2006; Gould et al., 2007; Harwood, 2008; Lerner et al., 2000). This has led to conceptual models outside of sport such as the 6 Cs of positive youth development: competence, character, connection, confidence, caring, and contribution (Lerner et al., 2000); the 6 Cs of developing momentum in football [soccer]: commitment, cohesion, communication, concentration, control, and confidence (Higham, Harwood, & Cale, 2005); as well as a similar conceptual model in sport, the 5Cs of football [soccer]: commitment, communication, concentration, control, and confidence (Harwood, 2005). In order to bring these characteristics, consistent with positive youth development, to coaches more effectively, the 5Cs of Coaching Efficacy intervention program was developed (Harwood, 2008).

According to Harwood (2008), these five terms connected with the 5Cs were reflective of key motivational, self-regulatory, and interpersonal attributes that have previously been at the root of successful interventions in sport (i.e., Thelwell, Greenlees, & Weston, 2008). Furthermore, while the 5Cs were developed specifically for an

intervention with soccer coaches, the 5Cs were selected because they represented important concepts concerning internal development assets in children (Benson, 1997), important aspects of achievement-goal theories in sport (i.e., Elliot, 1999; Nicholls, 1989), and important concepts in youth sport (i.e., Gould et al., 2007; Holt & Dunn, 2004).

Each of the 5Cs are well supported as separate important constructs with empirical and anecdotal evidence in both sport psychology and coaching literature. Initial results of the intervention program showed that coaches report greater confidence for each of the 5Cs and athletes also have more positive psychological and interpersonal responses as the program moves along (Harwood, 2008). While the 5Cs intervention program has demonstrated success in increasing coach efficacy in addition to positive affective responses from athletes, ability to bridge social-psychological theory and practical coaching behaviors are one reason that makes further research on the 5Cs important. The focus of this research lies

In the belief that the developmental-psychological role of the coach is greater than merely shaping an optimal motivational climate (Ames, 1992). Beyond helping to optimize motivation and perception of competence in his or her athletes, a coach's intentional establishment of a wide psychological-skill climate is perhaps a responsibility to be encouraged (Harwood, 2008, pp. 130-131).

5Cs of Coaching Efficacy: Commitment

The first variable in the 5Cs, commitment, was based upon the theoretical principles of self-determination theory (Deci & Ryan, 1985) and achievement-goal theories (i.e., Elliot, 1999; Nicholls, 1989). Harwood (2008) described the key player attributes and competencies associated with commitment as being intrinsically motivated,

having task/mastery goals, developing approach goals, and demonstrating motivated behaviors (e.g., effort, persistence). As a result examples of goals for coaches in the intervention were to provide better skill-specific feedback and reinforcement, encourage persistence in their athletes after mistakes, and getting players to try new skills in a ‘no’ fear climate.

Beyond the previously discussed academic literature on commitment involving the SCM (e.g., Scanlan, Carpenter, Schmidt, et al., 1993; Weiss et al., 2010), coaching commitment (e.g., Raedeke et al., 2000, 2002), and other examinations of sport commitment (e.g., Weiss & Weiss, 2006), coaches have valued this construct for some time. Other coaching literature has explained that a coach’s commitment will influence athlete commitment (Janssen & Dale, 2002). Successful coaches such as Mike Krzyzewski (2000) consider “commitment” to be a fundamental principle of what they are trying to develop in their players. Further evidence of the importance of commitment in athletes can be found throughout the coaching and sport psychology literature (e.g., Martens, 1987) and is considered by some to be so important that “commitment is one of the most important factors in [team/athlete] success” (Janssen & Dale, 2002, p. 105). As a coaching value, commitment has been considered synonymous with resilience (Bradley, 1998), passion (Janssen & Dale, 2002), and a total concentrated effort (Martens, 2012). As a result of the frequent empirical and anecdotal support of this construct, commitment is clearly a relevant construct to consider in an examination of coach values.

5Cs of Coaching Efficacy: Communication

The second variable in the 5Cs, communication, was based upon the theoretical principles of interpersonal communication: contextual and developmental issues (DeVito,

1986; Gouran et al., 1994). Harwood (2008) described the key player attributes and competencies associated with communication as praising and encouraging peers, being a good listener, acknowledging others, learning how to receive positioning instructions, giving feedback, and positive non-verbal behavior. As a result, example goals in the intervention were to help coaches demonstrate better verbal and nonverbal communication skills and reinforcing players who send information and acknowledge and/or receive feedback from others.

Communication is widely viewed as essential in relation to the skill development of athletes and is reflective of consistent and credible coaches (Janssen & Dale, 2002; Martens, 2012). Communication between coaches and players is a critical component to athlete development and suggestions for effective communication include open and direct communication (Janssen & Dale, 2002), meeting with players individually (Curran, 2007), and encouraging athletes to ask questions (Mageau & Vallerand, 2003). Other coaching guides suggest being honest with your athletes, avoiding humiliation, encouraging player interaction, and instructing athletes without dictating (Wooten & Wooten, 2013). The latter of which is consistent with results from a seminal research article on successful coaching, which revealed the high percentage of instruction John Wooden provided his athletes at UCLA (Tharp & Gallimore, 1976). In addition, some successful coaches believe that communication skills are just as important as technical skills (e.g., Krzyzewski, 2000).

The development of communication skills is important to effective coaches because many coaches understand that great communication involves much more than two people sending and receiving messages from one another. The quality of the

communication process has a clear impact on the thoughts, feelings, actions, and performance of one or more of the athletes involved (Higham et al., 2005). Positive communication, in the form of good listening skills, asking questions, and/or engaging in respectful conversations can provide an optimal environment in which athletes can demonstrate critical-thinking, decision-making skills, and ultimately learn more. As a result of the common inclusion of this variable in sport psychology and coaching literature, in addition to anecdotal support from current and past coaches, communication is an important and relevant variable to consider in an examination of coach values.

5Cs of Coaching Efficacy: Concentration

The third variable in the 5Cs, concentration, was based upon Nideffer and Sharpe's (1978), attentional control principles. Harwood (2008) described the key player attributes and competencies associated with concentration as the ability to pay attention to broad or narrow task-relevant cues, maintain appropriate attentional focus in the midst of distractions, fatigue, and in general adversity, and the ability to switch attentional styles. As a result, example goals in the intervention included implementing drills to practice focusing on different task related cues, incorporating the use of distractions, and the positive reinforcement of players who display appropriate attention in various environments (i.e., practices, games).

Concentration has been defined as "the ability to sustain one's attention on the relevant cues and not be distracted by all the other stimuli in that situation or by one's own thoughts" (Martens, 2012, p. 217). Like commitment and communication, concentration is an important variable investigated on its' own in the sport psychology literature. Much of the literature is based upon the tenet that an appropriate attention-

style exists for each activity (e.g., broad or narrow, external or internal) and that every athlete is challenged to match their attentional demands with the nature of their environment (Nideffer & Sharpe, 1976). Further examination of attention and concentration has established that attentional process during performance can influence behaviors, biological responses, and ultimately performance (Boutcher, 2008).

Anecdotally, coaches have made claims that support empirical evidence of the importance of concentration for their athletes. For example, every team and every athlete must make a conscious decision to uphold the most important values – cooperation, love of the game, hard work, and total concentration (Riley, 1994). Similarly, Coach Krzyzewski (2000) believes that focusing on the task at hand had been an important attribute of his teams' past successes.

5Cs of Coaching Efficacy: Control

The fourth variable in the 5Cs, control, was based upon various mental and physical arousal regulation techniques, including, but not limited to breathing, self-talk, and mental rehearsal. Harwood (2008) described the key player attributes and competencies associated with control to be emotional awareness, having both relaxing and energizing routines, demonstrating positive body language and/or self-talk, and demonstrating a quick self or peer recovery from errors. As a result, example goals in the intervention included providing both “good” and “bad” demonstrations of player self-control, reinforcement for quick recovery and a positive response to making mistakes, and allowing players to display their emotions in drills in order to aid in player self-awareness.

Control, or self-control as it is often referred to, is related to the previous variable concentration. While concentration can be viewed as mental focus, control refers to the regulation of one's behaviors in the face of success or adversity. Maintaining a sense of control can be found in sport psychology research related to the investigation of the relationships between peak performance, peak athletic experience, and flow (Jackson & Kimiecik, 2008). Furthermore, demonstrating self-awareness (Martens, 2012), maintaining routines (Cotterill, 2010), demonstrating positive body language and/or self-talk (Hardy, Gammage, & Hall, 2001), and demonstrating a quick recovery from errors (Thompson, 2010) all lead to positive outcomes for athletes (i.e., higher self-confidence, better performance). The latter of which reflects a widely held belief that players who are constantly looking over their shoulder after mistakes will perform less effectively. However, while this may be a widely believed concept, in intercollegiate athletics, many coaches seem to remove players from games or matches at the first sign of an error, whether they value this concept or not.

5Cs of Coaching Efficacy: Confidence

The fifth variable in the 5Cs, confidence, was based upon Self-Efficacy Theory (Bandura, 1977), the use of progressive goal setting, verbal persuasion, and modeling (Higham et al., 2005). Harwood (2008) describes the key player attributes and competencies associated with confidence to include having no fear of mistakes, accepting challenging goals, and internalizing accomplishments. As a result, example goals in the intervention included allowing players to copy or pretend to display actions of confidence and confident players, peer acknowledgement of achievement, and encouraging persistent behaviors.

“Self-confidence is the belief that one has the internal resources, particularly abilities, to achieve success” (Vealey & Chase, 2008. p. 66). Stemming from Bandura’s (1977, 1986, 1997) self-efficacy theory the study of self-confidence in sport has led to numerous lines of research including those associated with sport confidence, movement confidence, collective efficacy, coaching efficacy, and performance expectancy (see Vealey and Chase (2008) for a complete review). In addition to the proliferation of examinations of self-confidence in sport, coaches too have continually referenced the importance of confidence for athletes (i.e., Riley, 1994). Successful coaches like University of Arizona softball coach Mike Candrea have said that as much as 90% of sport performance is about confidence (Janssen & Dale, 2002). Furthermore, developing self-confident athlete has been found to positively affect performance outcomes, mediates anxiety, and greater levels of confidence positively influences achievement choices, effort, and persistence (Vealey & Chase, 2008). As a result, there is consistent support to include confidence as the fifth construct in Harwood’s 5Cs model. Furthermore, it seems apparent that both empirical and anecdotal evidence supports the notion that effective coaches might value the development of confident athletes.

While the results of the original 5Cs intervention program were mixed, the 5Cs intervention program has retained credibility for potentially serving as a framework for developing efficacy in youth sport coaches (Lauer & Dieffenbach, 2013). Among the four coaches who completed all stages of the original intervention program, three of the four demonstrated significant increases in efficacy domains in which they started off with either low or moderate levels of efficacy (Harwood, 2008). One drawback of this program was that coaches seemed reluctant to incorporate more advanced strategies that

were provided in the program. One potential explanation that Harwood presented for this was the potential lack in education and experience with mental skills training, which would allow these youth soccer coaches to be more comfortable attempting to use widely accepted psychological coaching tools such as imagery.

A key stimulus for this work lay in the belief that the developmental-psychological role of the coach is greater than merely shaping an optimal motivational climate for his or her players (Ames, 1992). Beyond helping to optimize motivation and perceptions of competence in his or her athletes, a coach's intentional establishment of a wider psychological-skill climate is perhaps a responsibility to be encouraged (Harwood, 2008, pp. 130-131).

Effective coaches use psychological tools beyond the creation of a positive motivational climate as they pursue maximal athlete-development and both athlete and team success. As a result, when considering the strong social-psychological framework provided within the 5Cs, the importance for effective coaches to do more than create an optimal motivational climate for their athletes, and that the original youth sport coaches had improved levels of efficacy, perhaps this model would be appropriately used in a slightly different context. Instead of using the 5Cs as the framework for an intervention, this model may be a strong indicator of coaching values with higher-level coaches (i.e., intercollegiate coaches) in terms of teaching commitment, communication, concentration, control, and confidence in their athletes.

Despite the proliferation of research on commitment, communication, concentration, control, and confidence within the sport psychology and coaching literature bases, these constructs have yet to be examined specifically as coach values. Furthermore, despite the acceptance of the 5Cs of coaching efficacy intervention program (Harwood, 2008) these five social-psychological variables have yet to be examined as

possible predictors of coaching efficacy when combined with other variables outside of Harwood's intervention program.

Coaching Efficacy

The framework of coaching effectiveness, and how each of the variables in the present study fit into Horn's (2008) coaching effectiveness model, are each critical components to understand. However, the focus of this present research is to closely examine Box 4 in the heuristic model (see Figure 1) to predict coaching efficacy, one of the most proximal antecedents of coaching behaviors (Feltz et al., 1999). Coaching efficacy (Feltz et al.) has been an important focus within social psychological and coaching research since its development. The coaching efficacy model posits that coaching efficacy impacts coach behavior, player/team satisfaction, player/team performance, and player/team efficacy (Feltz et al.). Before coaching efficacy was developed, and in the time since, many more studies have aimed to determine the stimuli of athlete performance as opposed to focusing on coaching efficacy or performance. According to Horn's (2008) model of coaching effectiveness, coach behaviors are highly influential with regard to athlete performance. Knowing that athlete self-efficacy also influences athlete performance, it stands to reason that coaching efficacy would predict coaching behaviors as well (Chase, Feltz, Hayashi, & Hepler, 2005). Connecting the dots, and staying within Horn's (2008) coaching effectiveness heuristic model, coaching efficacy through its influence on coaching behaviors, also potentially influences athlete performance. This can occur either directly in the coaching efficacy model, or indirectly through coach behaviors as in Horn's (2008) heuristic model.

Despite what is known about the importance of coaches in sport, there is comparatively little known about the sources of coaching efficacy (Chase et al., 2005),

even though much of the coaching efficacy research has focused on the importance of coaches with regard to athlete and team performance (Kavussanu, Boardley, Jutkiewicz, Vincent, & Ring, 2008). Feltz suggested that sources of coaching efficacy include prior success, coaching experience/preparation, perceived skill of athletes, and school/community support (Feltz et al., 1999), and research has supported each of these links (Feltz et al., 1999; Vealey & Chase, 2008). Additional sources such as a coach's sport playing experience (Feltz et al., 2009) and perceived ability of opponents (Chase, Lirgg, & Feltz, 1997) have also been found to relate to coaching efficacy. Social support, in particular, has been found to have a greater influence on coaching efficacy for female coaches (Myers et al., 2005). Several other studies have demonstrated that coach education and interventions designed to influence coaching efficacy have been successful (Harwood, 2008; Malete & Feltz, 2000).

According to Chase and colleagues (2005), coaches identified the development of their athletes, their own coaching development, their own leadership skills, knowledge and preparation, and athlete support as additional sources of coaching confidence. While there is increasing knowledge about sources of coaching efficacy, future research should include additional clarification and addition of sources of coaching efficacy (Marback, Short, Short, & Sullivan, 2005), to which the present research may contribute. Furthermore, a number of the previously established sources of coaching efficacy refer to demographic variables such as coaching experience. While these are important to examine and understand, research that explores multiple sources including other theoretically based constructs (i.e., coaching goals, beliefs, and values) has yet to be considered.

In the last ten years several research lines have emerged within the examination of coaching efficacy including examining the outcomes of coaching efficacy. Outcomes of coaching efficacy, as seen in Figure 4, have consistently been supported in the literature (Feltz, Hepler, Roman, & Paiement, 2009). For example, in the seminal article on coaching efficacy, Feltz and colleagues found coaching efficacy to be a predictor of coaching behaviors, athlete satisfaction, and current success. Other research has also found that coaching efficacy is a significant predictor of winning percentage, coaching behavior, and team satisfaction (Myers et al., 2005). In other research, Kent and Sullivan (2003) found general coaching efficacy to be a strong predictor of affective and normative commitment in intercollegiate coaches. Furthermore, affective commitment was related to motivation efficacy, game strategy efficacy, and character efficacy, while normative commitment was related to motivation and character efficacies.

Also using a sample of intercollegiate coaches, Sullivan and Kent (2003) examined coaching efficacy as a predictor of leadership style, within a framework of coaching effectiveness. Using the MML (Chelladurai, 1978; 1990), findings suggest that training and instruction and positive feedback were both predicted by motivation and technique efficacies. This was explained in that coaches who were more confident in their roles as motivators and teachers engaged in higher levels of training and instruction as well as provided higher levels of positive feedback (Sullivan & Kent). Other research revealed that effective coaches demonstrate higher levels of training and instruction (e.g., Becker & Wrisberg, 2008; Tharp & Gallimore, 1976) and positive feedback as well (i.e., Mageau & Vallerand, 2003). This connection between coaching efficacy and coach

effectiveness supports the need for additional coaching efficacy research within that framework.

Each of the four coaching efficacy variables, motivation efficacy, game strategy efficacy, technique efficacy, and character building efficacy, have been examined as predictors of team efficacy and player efficacy (Vargas-Tonsing, Warners, & Feltz, 2003). Results of this research showed that coaching efficacy was a significant predictor of team efficacy, of which ME and CBE were the strongest predictors of team efficacy.

The second important line of study within coaching efficacy research is fairly common to emerging theories in the social sciences, which entails testing and retesting the validity of both the model and its corresponding instrument(s), in this case the Coaching Efficacy Scale (CES). Some of these examinations have included assessment of the validity of the rating scale categories (Myers, Feltz, & Wolfe, 2008), examination of the items (Myers, Wolfe, Feltz, & Penfield, 2006), testing the reliability and validity in cross-cultural and linguistic context (Tsorbatzoudis, Daroglou, Zahariadis, & Grouios, 2003), suggesting modifications to the conceptual model (Myers, Feltz, et al., 2011), and developing a specialized version of the CES for high school coaches (Myers, Feltz, Chase, Reckase, & Hancock, 2008). Despite the intense scrutiny, the CES has continually maintained reliability and validity in measuring coaching efficacy.

The consistent support of the coaching efficacy model has occurred within a variety of sport contexts, which has increased the popularity and use of this model in recent research. The diversity of studies has included research in youth sport (i.e., Sullivan et al., 2012), high school sports (i.e., Feltz et al., 1999; Myers et al., 2011), with junior national teams (Yang, 2011), intercollegiate athletics (i.e., Marback et al., 2005;

Sullivan & Kent, 2003), and even with professional coaches (Tsorbatzoudis et al., 2003). Lastly, Myers and colleagues (2011) tested and developed a revised model of the CES specific to high school teams. Their examination suggests that differences in coaching efficacy are relevant to explore on different age/talent levels of sport. This reflects the expansion of the original model as it was designed for high school coaches, because Feltz and colleagues (1999) believed that this was the level at which coaching efficacy had the greatest impact on coaching effectiveness. As a result, less is known about the confidence of coaches at higher levels of athletics.

Much of the research has also focused on team sports, in part due to the original focus of the items on the CES (Myers, Feltz, et al., 2011). The resulting body of research includes research with volleyball coaches (Vargas-Tonsing et al., 2003), football coaches (Short & Short, 2004), basketball coaches (Feltz et al., 1999; Yang, 2011), soccer coaches and athletes (Harwood, 2008; Malete, Chow, & Feltz, 2013), and with rugby players (Boardley, Kavussanu, & Ring, 2008). A number of other studies have examined coaching efficacy and/or coach effectiveness with a variety of sports, with all or most of the participant's coaches and/or athletes of team sports (e.g., Feltz, et al., 2009; Malete & Feltz, 2000; Vargas-Tonsing et al., 2008).

The initial focus of the CES items and the subsequent research focus on team sports is logical when considering items such as “build team cohesion.” However, coaches in individual sports also maintain levels of coaching efficacy, yet it is unknown how individual sport coaches might report their efficacy differently. Furthermore, empirical data does not exist implying which coaches of which sports, individual, team, or otherwise may report coaching efficacy differently. While a football coach and a

tennis coach may have different levels of efficacy with regard to building cohesion, a comparable difference may also occur between a tennis coach and a track & field coach (two individual sports). Similarly Myers, Feltz, Chase et al., 2008 explain,

Sports where the head coach has an opportunity to intervene during competition, such as basketball versus cross country running, were selected because some of the items [in the CES] imply this type of opportunity (e.g., “make critical decisions during competitions) (p. 1062)

The position that basketball coaches and cross country running coaches may answer questions about game strategy differently are not without merit. However, within team sports such as basketball, football, baseball, and soccer, head coaches have varying abilities to make critical decisions during competition that might encourage them to answer the questions differently as well. Because each sport includes different strategies, a different structure of the coach-athlete relationship, and different rules about how coaches can impact athlete performance, limiting research on coaching efficacy to team sports may only be for convenience and consistency more so than anything else. To date, the assumption within coaching efficacy research has been that the sport coached does not affect the way coaches answer CES items (Myers et al., 2006), and several multisport studies have used both team and individual sport coaches without differentiating or comparing their responses (i.e. Kent & Sullivan, 2003; Sullivan et al., 2012). Although the coaching efficacy differences have not been examined closely between different types of sports the research base supports the use of both individual and team sport coaches within the same research.

While coaching efficacy has grown in depth and breadth over the last decade and a half, there are many considerations related to coaching efficacy that are yet to be understood. Most of the early research on coaching efficacy involved smaller sample

sizes of coaches. Only recently has research been published with larger sample sizes, which have resulted in more power in the statistical analysis (Malete et al., 2013; Myers, Feltz et al., 2011). In addition, while some findings have suggested that there is no difference in coaching efficacy according to gender (Myers, Feltz, Chase, et al., 2008; Myers, Feltz et al., 2011), uncertainty remains with how gender affects efficacy (Myers, Feltz et al., 2011). Even with the booming research on coaching efficacy, understanding coaching efficacy and how different factors may affect efficacy across various sport levels remains largely unknown.

Assistant Coach Research in Coaching Efficacy

Among the components that are largely unknown about coaching efficacy, and as is the case with individual sport coaches, assistant coaches have not been a focus of research within the framework of coaching efficacy. Although assistant coaches have yet to be a major focal point of research, two coaching efficacy studies have used assistant coaches as participants (Marback et al., 2005; Myers, Feltz, & Wolfe, 2008). In both of those studies, assistant coaches and head coaches were grouped together without any examination of differences between the groups. In a study of coaches at the intercollegiate levels, of which nearly half were assistant coaches, female coaches demonstrated significantly lower GSE than for male coaches (Marback et al., 2005). Furthermore, Marback and colleagues found that coaching efficacy and coaching competence (Barber, 1998) were correlated. One of the future research recommendations was to examine outcomes of coaching efficacy and indicates that coach's efficacy in certain areas might relate to certain outcomes (i.e., "a coach who is efficacious in teaching skills might lead to better instruction and ultimately increased learning on the

part of the athletes” Marback et al., 2005, p. 32). An underlying suggestion in the aforementioned research (Marback et al., 2005) implies that understanding more about the characteristics of assistant coaches could be beneficial in influence certain athlete outcomes.

Outside the realm of coaching efficacy, assistant coaches have been given little attention within coaching science research (Gilbert & Trudel, 2004a; Rathwell et al., 2014). Before 2001, less than 8% of all coaching research studies included assistant coaches as participants (Gilbert & Trudel, 2004a). While this number may have increased slightly, as seen with the two coaching efficacy articles (Marback et al., 2005; Myers, Feltz, & Wolfe, 2008) assistant coaches were not deliberately examined, but rather included as a part of the larger sample of coaches in those studies.

In addition to the previously discussed articles on head coaching intentions (i.e. Cunningham et al., 2003; Sagas et al., 2006) other studies with assistant coaches have examined mentor dyads with intercollegiate female assistants (Narcotta et al., 2009) and why female coaches leave collegiate coaching (Kamphoff, 2010). Furthermore, among other recent studies that identified assistant coaches as participants (i.e., Bennie & O’Connor, 2010; Krane & Barber, 2005; Zakrajsek, Martin, & Zizzi, 2011), none could be found that appeared to focus their research on the actions, beliefs, or values of assistant coaches. With the extensive roles that assistant coaches execute on a daily basis, particularly in higher levels of sport, the notion that assistant coaches play a role in the development of their athletes (Rathwell et al., 2014), and that assistant coaches play important roles in problem solving and game strategy (Gilbert & Trudel, 2001), and the

void of literature examining aspects of assistant coaches' coaching, the study of assistant coaches "provides a tremendous area for future research" (Gilbert & Trudel, 2004a, p. 396).

CHAPTER III

METHODOLOGY

The current study utilized survey research methods to examine the predictors of coaching efficacy within the Horn's (2008) framework of coach effectiveness. This chapter includes a description of the methodology used in the completed research process. Procedures for the process, which included the use of a pilot study to examine the reliability and validity of a measure for coaching values, and the research design are presented as well.

Participants

Just over 1500 NCAA Division I ($n = 854$) and Division III ($n = 682$) intercollegiate assistant coaches received invitations to participate in a survey during the 2014-15 season. Coaches ($N = 740$) participated (48.2% response rate) and after removing incomplete surveys and outliers, 630 surveys were usable. These coaches represented a variety of sports including basketball ($n = 122$), soccer ($n = 82$), volleyball ($n = 75$), football ($n = 63$), track & field ($n = 48$), swimming & diving ($n = 45$), and softball ($n = 31$). Tables 1 and 2 depict the entire list of sports whose coaches were represented in this study in each division. This sample was predominantly male ($n = 368$; 58.4%), predominantly Caucasian ($n = 536$; 85.1%), and had an average age of 32.89 years ($SD = 9.58$). The majority of these coaches had received their Bachelor's Degree

($n = 347$; 55.1%), while most of the rest continued their education ultimately earning Master's Degrees, ($n = 262$; 41.6%). Participants among this diverse geographic sample included coaches from more than 130 different DI & DIII institutions, more than 50 athletics conferences from the Atlantic Coast Conference to the Minnesota Intercollegiate Athletic Conference to the Western Athletic Conference. Assistant coaches had on average 8.8 years of coaching experience (range = 1-53 years, $SD = 7.83$ years), and 72% of the coaches highest playing experience was at the college level (DIII: $n = 165$; DII: $n = 54$, DI: $n = 212$; NAIA: $n = 22$).

Assistant coaches participated from a wide range of DI and DIII schools across the country. DI schools whose coaches contributed included large prominent universities, mid-sized universities, and regional state schools. A similarly diverse group of coaches from DIII institutions also happened to be included in this study. The DIII assistant coaches hailed from large research universities, small state schools, and a wide variety of smaller liberal arts colleges.

Table 1

Division I participation according to sport in this study

NCAA Division I Sports	
Baseball	Rowing
Basketball	Sand Volleyball
Cross Country	Soccer
Equestrian	Softball
Fencing	Swimming & Diving
Field Hockey	Tennis
Football	Track & Field
Golf	Volleyball
Gymnastics	Water Polo
Ice Hockey	Wrestling
Lacrosse	

Table 2

Division III participation according to sport in this study

NCAA Division III Sports	
Baseball	Soccer
Basketball	Softball
Cross Country	Squash
Field Hockey	Swimming & Diving
Football	Tennis
Golf	Track & Field
Gymnastics	Volleyball
Ice Hockey	Water Polo
Lacrosse	Wrestling
Rowing	

Measures

A questionnaire was used in this study that included measures of coach commitment, intentions to become a head coach, coaching values, and coaching efficacy. Table 3 includes a complete list of instruments included in this study. The measures for each of the constructs included in this study are described in detail below.

Coaching Commitment

Raedeke and colleagues (2000) designed a measure of commitment to more closely examine the consideration that influences coaches' feelings toward commitment to coaching. In this study, Raedeke's measure was used, and this measure includes six subscales of commitment: coaching benefits, coaching costs, satisfaction with coaching, attractiveness of alternatives, investments in coaching, and social constraints. Mean scores were calculated for each of the satisfaction, attractiveness of alternatives, investments, and social constraints subscales. The measurement of coaching commitment in intercollegiate athletics can be traced to a study with age-group swim

coaches (Raedeke et al., 2000) that combined aspects of the investment model of commitment (Rusbult, 1980a, 1983, 1988) and the SCM (Scanlan, Carpenter, et al., 1993). A complete list of the coaching commitment items used in this study can be found in Appendix B.

Benefits associated with coaching. Benefits were measured using a general benefit scale. Benefits and costs were previously used by Raedeke and colleagues (2000) and were created based upon criteria established in past coaching research (Kelley, 1994; Weiss & Stevens, 1993). Benefits were defined as “the positive aspects of coaching that make coaching attractive and rewarding” (Raedeke et al., 2000, p. 90). These items were modified from Raedeke and colleagues’ (2002) scale in order to be appropriate for intercollegiate assistant coaches. In this study coaches were given a prompt based upon Raedeke and colleagues’ (2002) nineteen specific benefit items, which sought to familiarize the respondents with the concept of coaching benefits before answering the general benefit items. This prompt read:

Many coaches consider benefits involved with coaching to include: the opportunity to continue in athletics, enjoyment of teaching skills and working with athletes, winning, being a positive role model, & being a part of building a successful program...Keeping these in mind, please respond to/rate the following items...

Three general benefit questions were included: (1) “All things considered, to what extent are there benefits associated with coaching?” (2) “In general, to what extent do you find coaching rewarding?” and (3) “How do the benefits of coaching compare to the benefits found in other careers?” (Raedeke et al., 2000). The general benefit items were assessed on a 5-point Likert-type scale, with 1 representing “Not at all” and 5 representing “Very much so” for questions 1 and 2. The third benefit question was set up

with a 1 representing “Much less in coaching” while a 5 represented “Much greater in coaching.” The general benefit questions were totaled and averaged to create a mean benefit score for each coach, which led to a single benefit value that was used in the subsequent statistical analysis. In past research (Raedeke et al., 2002) it was reported that this method resulted in valid and reliable measures of both benefits and costs.

Costs associated with coaching. The costs associated with coaching were measured using a scale to examine the general costs associated with coaching. The costs associated with coaching were defined as “the negative aspects of coaching that make coaching unattractive and include the things that you do not like about coaching” (Raedeke et al., 2000, p. 90). These items were modified from Raedeke and colleagues’ (2002) scale in order to include appropriate language for intercollegiate assistant coaches of all sports. In this study coaches were given a prompt based upon Raedeke and colleagues’ (2002) previously used specific cost items, the purpose of which was to familiarize the respondents with the concept of coaching costs before answering the any of the general cost items. This prompt read:

Many coaches consider **costs** involved with coaching to include: having a heavy workload, poor financial compensation, a lack of support and/or recognition, a lack of professional development opportunities, & a significant time commitment to coaching...Keeping these in mind, please respond to/rate the following items...

Three general cost questions were included: (1) “All things considered, to what extent are there unpleasant things associated with coaching?” (2) “In general, to what extent are there ‘costs’ associated with coaching?” and (3) “How do the costs of coaching compare to the costs found in other careers?” (Raedeke et al., 2000). The three general cost items were assessed on a 5-point Likert-type scale, with 1 representing “Not at all”

and 5 representing “Very much so” for questions 1 and 2. The third cost question was set up with a 1 representing “Much less in coaching” while a 5 represented “Much greater in coaching.” Combining the overall perceived cost score for each respondent occurred by creating the total mean score from the answers to these three questions.

Satisfaction with coaching. This subscale consisted of five questions as previously used by Raedeke and colleagues (2000) with age group swim coaches. Examples of the five questions are: “All things considered, how satisfied are you with coaching?” and “Knowing what you know now, if you had to decide all over again, would you coach?” Previous research (Raedeke et al., 2002) has reported acceptable intrascale reliability ($\alpha = 0.81$) for this subscale.

Investments in coaching. This subscale included four questions to measure each coach’s perceived investment in coaching. Investments were defined to the respondents as “any of the resources you invest in coaching.” Possible investments include such things as time (e.g., planning practices, calling/spending time with recruits, attending games/meets/events, attending meetings, and watching film), energy, emotional involvement, and money you invest in coaching.” Examples of the four questions are: “In general, how much time do you put into coaching?” and “How do your coaching investments compare to what most people invest into their jobs?” Previous intrascale reliabilities for this subscale have been reported including, $\alpha = 0.83$ (Raedeke et al., 2002), and $\alpha = 0.84$ (Raedeke et al., 2000).

Attractiveness of alternatives. Three items were used to examine coaches’ perceptions of attractive alternatives. These questions are: “All things considered, how attractive are your alternative career options to coaching?” “In general, how do your

career alternatives compare to coaching?” and “How do your alternative career options compare to how you would ideally like to spend your time?” Previously acceptable intrascale reliabilities for this subscale include, $\alpha = 0.77$ (Raedeke et al., 2002), and $\alpha = 0.78$ (Raedeke et al., 2000).

Social constraints. In order to measure social constraints, four questions developed by Raedeke and colleagues (2000) were used. Examples of these questions include: “I feel like I would let other people down if I stopped coaching,” and “It would be hard for me to leave coaching because I like being known as a coach.” Previous research (Raedeke et al., 2002) has reported acceptable intrascale reliability ($\alpha = 0.71$).

Intent to become a Head Coach

A single scale or direct measure of intent to become a head coach was used in this study based upon similar direct measures used in previous research on college head-coaching intentions (Cunningham et al., 2003; Sagas et al., 2006). The first two questions included in this measure were previously used in research on assistant coaches and their career intentions and have demonstrated internal consistency (Cronbach’s $\alpha = 0.91$; Cunningham et al., 2003). These two questions were originally derived from Sagas’ (2000) research and were designed to examine a coach’s pursuit of a head coaching position (Cunningham et al., 2003). The items are: “How much desire do you have to become a head coach?” and “How likely is it that you will search and apply for a head coaching position during your coaching career?” The two questions were modified to be specific to collegiate coaches and were measured on a 7-point Likert-type scale. The first item was measured from 1 “no desire” to 7 “much desire”, and the second item was measured on a similar scale from 1 “not likely” to 7 “very likely”.

In addition to these two questions, six additional questions were included from the 16-item measure developed and implemented by Sagas et al. (2006). Items include assessing each assistant coaches' desire to become a head coach, how much each coach feels that he/she would enjoy being a head coach, how wise they feel becoming a head coach would be, how beneficial being a head coach might be, and how rewarding they feel becoming a head coach would be. These items were examined using the following stem: "My pursuing a head collegiate coaching position in the near future would be..." For measurement consistency they were also measured on a 7-point Likert-type scale following the example previously used (Sagas et al., 2006).

Modified Coaching Confidence Questionnaire

The 5Cs of coaching efficacy was developed as part of an intervention program for soccer coaches in Great Britain (Harwood, 2008). Building from the conceptual framework of coaching efficacy (Feltz et al., 1999) and the emerging research applying positive youth development in the sport domain (i.e., Conroy & Coatsworth, 2006) the 5Cs of coaching efficacy (Harwood, 2008) were established to achieve two goals. The 5Cs of coaching efficacy (commitment, communication, concentration, control, and confidence) were established to (1) gauge the confidence that youth soccer coaches had in shaping psychological and (2) to help coaches develop the interpersonal skills of their athletes.

In the present research, a pilot study was conducted to test the reliability and validity of a revised version of the Coaching Confidence Questionnaire (CCQ; Harwood, 2008), the Modified Coaching Confidence Questionnaire (MCCQ). The original CCQ consisted of three items for each of the 5Cs. In an effort to improve the CCQ, 10

additional items were created based upon the theoretical foundation reported by Harwood (2008). In order to assess the revised version of the CCQ, the twenty-five-item MCCQ was pilot tested (Appendix A) with a convenience sample of more than 200 high school coaches of a variety of sports across the state of Colorado. The sample size greater than 200 exceeded the preferred pilot sample size of at least 100 or five times the number of items being piloted (Hair, Black, Babin, Anderson, & Tatham, 2006), which in this case was 125. In addition, the sample size surpassed the minimum accepted sample size to run a confirmatory factor analysis on the five subscales (Tabachnick & Fidell, 2013).

The 5Cs measure (MCCQ) was used to examine assistant coaches' value for five previously established criteria: commitment, communication, concentration, control, and confidence (Harwood, 2008), and was initially patterned similar to the Coaching Efficacy Scale (CES; Feltz, et al., 1999). Each coach responded to the stem question, "How much confidence do you possess in employing behaviors or strategies that actively help players to...?" Each item was assessed on a 10-point Likert-type scale where 1 was "*not at all confident*" and 10 was "*extremely confident*." The revised coaching confidence questionnaire included five items for each of the 5Cs variables. Examples of the items are as follows: "...showing elevated levels of effort" (commitment) "...ask questions of a coach about a drill or skill" (communication) and "...bringing a presence to training that exudes confidence" (confidence). A complete list of items can be found in Appendix D.

Coaching Efficacy

The Coaching Efficacy Scale (CES; Feltz et al., 1999) was used to measure four dependent variables in this study: motivation efficacy (ME), game strategy efficacy (GSE), technique efficacy (TE), and character building efficacy (CBE). In addition,

physical conditioning efficacy (PCE) was measured using items from the revised Coaching Efficacy Scale for High School Teams (CES II-HST) which was developed by Myers and colleagues (2008). Previous use of the CES indicated scale reliability and the factor structure has also been supported, in part due to the strength of the theoretical coaching efficacy model (Myers, Wolfe, & Feltz, 2005). Other researchers have found potential differences in the way that youth sport coaches and high school coaches respond to the CES (Penfield, Myers, & Wolfe, 2008), and potential differences in the way that high school and intercollegiate coaches (Myers et al., 2006) respond to the CES as well.

While the CES II-HST (Myers, Feltz, Chase, et al., 2008) was not developed for use with collegiate assistant coaches, it is the only measure currently available to measure coaching efficacy beyond the youth sport level. Furthermore, the CES II-HST has demonstrated reliability and validity in previous research samples (Myers, Feltz, Chase, et al., 2008; Myers, Feltz, & Chase, 2011). However, the CES II-HST was revised for high school coaches, and as such previous researchers have suggested that until other versions of the CES are created, all research being conducted with non-high school coach samples should use the CES (Myers, Feltz, Chase, et al., 2008). As a result, the 24-item CES was used and three items from the CES-HST II to measure PCE were utilized in this study, for a combined 27-item version of the CES (see Appendix B – Section D for a complete list). Mean scores were calculated for the five coaching efficacy subscales for use in subsequent analyses. Each of the specific coaching efficacy variables are described in the following section.

Motivation Efficacy (ME). ME is defined as the confidence a coach has in his or her ability to affect the psychological mood and skills of his or her athletes (Feltz et al., 1999) and was measured with seven items. These items were measured on a 10-point Likert-type scale from 1 “not at all confident” to 10 “extremely confident.” Each item was prefaced with the following stem, “In relation to the team (or athletes) that you are currently coaching, how confident are you in your ability to...” This scale includes items such as “motivate your athletes,” and “help your athletes to not become overly confident in their ability to perform when they are performing well.” Previous research using ME has reported acceptable internal consistencies for this subscale with different levels of coaches such as high school, $\alpha = .90$ (Feltz et al., 1999), intercollegiate, $\alpha = .87$ (Myers et al., 2005), and in specific sport samples (i.e., volleyball coaches $\alpha = .88$, Vargas-Tonsing et al., 2003).

Game strategy efficacy (GSE). GSE is defined as the confidence a coach has in his or her ability to lead during competition (Feltz et al., 1999), and was measured with seven items. The GSE items were measured on a 10-point Likert-type scale from 1 “not at all confident” to 10 “extremely confident.” Each item was prefaced with the following stem, “In relation to the team (or athletes) that you are currently coaching, how confident are you in your ability to...” The seven GSE items include various prompts such as “devise strategies that maximize the positive effects of your team’s strengths during competition” and “make effective strategic decisions in pressure situations during competition.” Previously reported internal consistency values for GSE have ranged from 0.87 (Feltz et al., 1999) to 0.96 (Kowalski & Kooiman, 2013).

Technique efficacy (TE). TE is defined as the confidence a coach has in his or her ability to use his or her instructional and diagnostic skills during practices (Myers, Feltz, Chase, et al., 2008) and was measured with six items. These items were measured on a 10-point Likert-type scale from 1 “not at all confident” to 10 “extremely confident.” Each item was prefaced with the following instructions, “In relation to the team (or athletes) that you are currently coaching, how confident are you in your ability to...” Example sample items for TE include “teach athletes the complex technical skills of your sport during practices” and “teach athletes appropriate basic technique during practices.” Internal consistency values for TE have ranged from 0.84 (Myers et al., 2005) to 0.94 (Kowalski & Kooiman, 2013).

Character building efficacy (CBE). CBE is the confidence a coach has in his or her ability to positively influence the character development of his or her athletes through sport (Myers, Feltz, Chase, et al., 2008) and was measured with four items. These items were measured on a 10-point Likert-type scale from 1 “not at all confident” to 10 “extremely confident.” Each item was prefaced with the following stem, “In relation to the team (or athletes) that you are currently coaching, how confident are you in your ability to...” Examples of the four items include “effectively instill an attitude of respect for others in your athletes” and “positively influence the character development of your athletes.” Previous research has supported the reliability of this measure with Cronbach’s reliability values ranging from 0.87 (Myers et al., 2005) to 0.92 (Kowalski & Kooiman, 2013).

Physical conditioning efficacy (PCE). PCE is defined as the confidence a coach has in his or her ability to prepare his/her athletes physically for participation in his or her sport (Myers, Feltz, Chase, et al., 2008) and was measured with three items. In order to maintain consistency with the other four efficacy dimensions, PCE items were measured on a 10-point Likert-type scale from 1 “not at all confident” to 10 “extremely confident.” Each item was prefaced with the following stem, “In relation to the team (or athletes) that you are currently coaching, how confident are you in your ability to...” An example of the three items is “prepare an appropriate plan for your athletes’ off-season physical conditioning.” The PCE subscale has demonstrated acceptable Cronbach’s internal consistency (i.e., $\alpha = 0.82$; Myers, Chase, Pierce, & Martin, 2011).

Demographic Survey

Coaches were asked to complete a short demographic section at the beginning of the survey including questions about their age, sport currently coaching, race/ethnicity, and coaching experience (in years, including their current season). Coaches were also asked to report their highest level of playing experience in the sport they coach, the highest level of education completed, and the current level in which they coach the sport specified.

Playing experience was measured by asking assistant coaches to report their highest level of participation as an athlete in the sport that they are currently coaching. Examples for highest level of playing experience were provided for the coaches to choose from including: 1=high school, 2=community college, 3=NAIA, 4=DIII college, 5=DII college, 6=DI college, 7=professional, 8=other. Level of education was reported by the highest level of education that coaches completed. Resources provided included: 1=

High School degree, 2= Associates Degree (2-year college degree), 3= Bachelor's degree, 4= Master's Degree, 5 = Doctorate. Report of the intercollegiate level coaches currently coach was determined through the online process of survey implementation. Furthermore, for descriptive purposes only conference affiliation and institution were also tracked.

Table 3

Instruments in the study

Scale	Number of Factors	Number of Indicators	Possible Scale Range
Commitment	6	* Benefits = 3, Costs = 3, Satisfaction = 5, Investments in coaching = 4, Attractiveness of alternatives = 3, Social constraints = 4	Costs = 3-15 Benefits = 3-15 Satisfaction = 5-25 Investments = 4-20 Attractiveness of Alternatives = 3-15 Social Constraints = 4-20
Intent	1	N/A – single scale measure (approximately 5-10 items)	All items on a 7-point Likert-type scale
Modified Coaching Confidence Questionnaire	5	Commitment, Communication, Concentration, Control, & Confidence 5 each	Range for each scale 5-50
Coaching Efficacy Scale + PCE from CES II-HST	5	**ME = 7, GSE = 7, TE = 6, CBE = 4, PCE = 3	ME = 7-35 GSE = 7-35 TE = 6-30 CBE = 4-20 PCE = 3-15

*Note: Benefit and cost scores represent “general benefits” and “general costs”

**Note: ME = motivation efficacy, GSE = game strategy efficacy, TE = technique efficacy, CBE = character building efficacy, PCE = physical conditioning efficacy.

Procedures

Institutional Review Board Approval

Before embarking on any part of the research, Institutional Review Board (IRB) approval was received at the University of Northern Colorado. This research presented minimal risk to the participants completing the survey. All of the participants were adult sport coaches and this study did not involve any form of deception. Therefore, this study was submitted to the IRB under the category of exempt research. As is typical with online surveys in the social sciences, a precursor to the questionnaire included a clearly stated short introduction/purpose to the research which served as implied consent for coaches participating in this study. So long as the information provided was sufficient for the coaches to understand before completing the questionnaire, consent was implied as a result of the survey completion by this adult non-vulnerable population (Whitehead, 2007). All standard protocols (e.g., informed consent) in order to maintain the confidentiality of each participant were followed.

Recruitment. The first step in the recruitment of participants involved making informal contact with coaches and administrators from two NCAA divisions (I and III) with whom the investigator had prior professional contact. These coaches and administrators were asked to recommend assistant coaches who might be willing to participate in this research. An email list of potential participants was created as a result of this purposeful sampling method. In some cases, email addresses were provided directly by these contacts, and in other cases names were provided, which allowed email addresses to be identified on the internet through respective university coaching profiles.

After this initial list of assistant coaches and their emails was established, purposeful sampling took place in order to complete a target list of coaches that encompassed a variety of sports and included a similar number of potential respondents in each NCAA division (I and III). Specifically, this method allowed the potential for this sample to achieve greater representativeness or comparability – techniques used when the researcher wants to (a) select a purposeful sample that represents a broader group of cases, or (b) create the possibility for comparison between different groups within the study population (i.e., NCAA division, sport coached, etc.; Teddlie & Yu, 2007). While this method did not guarantee a random sample of coaches, or a probability sample of coaches, this method provided an opportunity for this study to be available to a wide variety of assistant coaches, to increase the representativeness of the sample (Dillman, Smyth, & Christian, 2009).

Once a list of assistant coaches has been completed, a three-email contact strategy was implemented (Dillman et al., 2009). First, a personalized email was sent to each coach requesting his/her participation in this study (see example in Appendix C). Each email was personalized in order to increase the potential response rate (Dillman et al., 2009). For those coaches whose names were received as a part of the snowball sampling procedures, a reference to the individual who suggested they be included in this research was provided. Providing the name of the individual connecting the researcher with the potential participant is important as it sought to establish a connection between the researcher and the respondent which can enhance the possibility of social exchange and ultimately improve the likelihood of a higher response rate (Dillman et al., 2009). It is important to note that in the case that a recommending coach or athletic director was a

current supervisor to an assistant coach, careful language was used only to indicate that the coach or A.D. thought that the assistant would either be interested in participating in this research and/or that he/she would be a good candidate for inclusion in this research. Following suggested best practices of survey research (Dillman) the Qualtrics survey link was included in the initial email, which provided participants with immediate access to the questionnaire.

Assistant coaches who completed the survey were also asked to provide their email address should they be interested in receiving a report of the results after the study was completed. None of the email addresses entered into Qualtrics were connected to the individual's survey which allowed for confidentiality to be maintained. More than one-third of the usable surveys ($n = 220$) were completed by coaches who were interested in receiving a copy of the results. A follow-up email was sent about seven days after the initial email to all coaches on the list who had not yet responded (see form email in Appendix C). The direct Qualtrics survey link was included in this second email as well. Before the second email was sent, all respondents who included their email address at the end of the survey were removed from the email list. Approximately seven days after the second email, a third and final email was sent to coaches who had yet to complete the survey (see form email in Appendix C).

Due to several factors, three waves of three-email survey invitations were sent out to approximately 500 coaches. The first wave was sent out at the end of the DIII and DI basketball seasons, and as a result all basketball coaches were excluded from the initial wave and more fall sport coaches (e.g., football, soccer, and volleyball) were included in the initial solicitation. The initial survey request also included a large percentage of

recommended coaches, through personal connections of the researcher. After a modest response initially a second wave of surveys was sent out in the middle of the three-week process for the first group. The second wave deliberately included more female and minority coaches, coaches of spring sports (e.g., baseball, softball, & track & field), and a number of basketball coaches whose season had recently come to a close.

The third and final wave of emails consisted of two separate, but equally important groups. After receiving IRB approval to include a new method of survey recruitment, the researcher contacted 26 administrative assistants at select DI ($n = 16$) and DIII ($n = 10$) institutions. The purpose of this contact was to offer a small reward to an athletic department AA, in this case a \$25 restaurant gift card, in the event he/she could help encourage/recruit at least 15 coaches from that schools' respective athletics department to complete this survey. Five AA's responded positively to this inquiry and were willing to assist in the recruitment of assistant coaches at their institution. These AA's were helpful in identifying coaches who would be good candidates for this study. Each of them were asked to make contact with the assistant coaches prior to my initial email to coaches in order to let the coaches know that this study was indeed a legitimate inquiry that might be worth a coach's time. AA's were instructed to avoid being coercive in their communication with their coaches. Within 24 hours of the initial contact from the AA, the first of the three emails was sent to each of the recommended coaches at that institution. The survey itself was identical to that of all other coaches, the only difference was that the consent letter identified that if 15 coaches at that particular school completed the survey, the AA (who was listed by name on the consent form) would receive a \$25 restaurant gift card. No reward or additional incentives were offered to these coaches.

The same three-email procedure was followed for coaches at these 5 schools. No additional instructions were given to AA's about additional communication with their coaches on behalf of this study. Only two of the five schools reached the 15 coach mark in order to reach the incentive.

The other part of the third wave involved additional purposeful sampling. This included more DI coaches, as at this point in the data collection DI responses were low. This wave also included a couple of additional lists from personal contacts who had been slow at responding to the researcher. This final list also included purposeful selection of sports with minimal participation (i.e. baseball, lacrosse, wrestling), both female and minority coaches, and additional spring sport coaches who were currently in season.

After examining the number of responses as the third email wave was nearing their third email, and having a few survey responses continue to trickle in from the initial wave of emails, a decision was made to send one additional email request including a hard deadline indicating when the survey would close. At that point, all coaches who had not completed the survey received a fourth and final email invitation at the same time, during the fourth week of the last group of coaches. Participants completing the survey had the opportunity to include their email address in the event that they were interested in receiving a report of the results upon completion of this study. This fourth and final email received great response and proved extremely useful in increasing the overall sample size in this study.

Online survey method. In the survey research milieu, online methods are starting to replace the more traditional face-to-face, paper survey methods (Alessi & Martin, 2010; Dillman et al., 2009; Granello & Wheaton, 2004). Researchers from a

variety of disciplines have identified the benefits of this new methodology (Dillman et al., 2009; Granello & Wheaton, 2004). Some of the advantages of using online survey methods include: lowered cost, reduced time spent collecting data, a more streamlined data entry process, greater convenience for participants, timeframe flexibility, more accurate data collection, easier access to large populations, an increased perception of anonymity for participants, and absence of researcher bias, and the flexibility to format an instrument in various ways (Daley, McDermott, McCormack Brown, & Kittleson, 2003; Frazier & Rohmund, 2007; Granello & Wheaton, 2004; Lonsdale, Hodge, & Rose, 2006; Van Selm & Jankowski, 2006; Ward, Clark, Zabriskie, & Morris, 2012). In addition, some researchers argue that participants are more honest when completing online surveys (Lefever, Dal, & Matthiasdottir, 2007; Ward et al., 2012).

The online method also involves reaching a particular target population. For example, online surveys can be extremely effective when attempting to reach a target population that includes individuals who frequently use the Internet (Van Selm & Jankowski, 2006). Furthermore, benefits of using online survey methods allow for the possibility to reach traditionally hard to reach populations such as younger demographics, more affluent groups, or geographically diverse populations (Frazier & Rohmund, 2007; Van Selm & Jankowski, 2006). Upon reaching one's target population, online survey approaches have the potential to increase the overall number of responses as well (Case & Yang, 2009). The data in this research were collected using Qualtrics, an online survey research methods tool through the University of Northern Colorado's research account. This method of data collection was appropriate given the target population for this study: intercollegiate coaches, familiar with technology and use of the internet and

email, and who use computers on a daily basis. Within a sport research domain, Olberding and Cobb (2007) concluded that there was enough evidence to suggest that, online methods are as good as traditional survey methods when there is evidence present to suggest that the target population utilizes computers and email on a regular basis.

Research Design

A cross-sectional survey research design was used in this study. The following variables were included: intentions to become a head coach, coaching commitment, the 5Cs of Coaching Efficacy, five dimensions of coaching efficacy, and NCAA level.

The first research question addressed the factorial validity and internal consistency of a new version of the Coaching Confidence Questionnaire. In order to assess this scale a confirmatory factor analysis was conducted and internal consistencies were calculated. Confirmatory factor analysis was conducted to verify the factor structure (Tabachnick & Fidell, 2013) of the 25 item instrument and the five proposed dimensions (commitment, communication, concentration, control, and confidence). Fit indices (i.e., CFI, NNI, RMSEA) were examined to determine the level of fit among the items for each of the 5Cs subscales and whether modifications are needed.

The second research question pertained to the characteristics of coaching commitment within the sample of assistant coaches in this study. In order to describe profiles of coaches, a cluster analysis was completed. In cluster analysis, group membership is unknown (Tabachnick & Fidell, 2013). This procedure groups the data in clusters based upon similar characteristics. In order to better understand coach commitment, cluster analysis was used to merge coaches into distinct groups based upon the six theoretically-based commitment antecedents and predictors (i.e., benefits, costs,

investments, attractiveness of alternatives, satisfaction, and social constraints). A nonhierarchical *k*-means cluster analysis was used in this study. Cluster centroids were created and the relative distance from the centroids determined group affiliation based on similar characteristics. After clusters were established, a profile of each of the groups was created to describe the members of each of the clusters.

The third research question involved an examination of the relationships among coaching goals, beliefs, and values and the various dimensions of coaching efficacy. Canonical correlation analysis is appropriate when there are sets of predictor and outcome variables and the relationships between them are unknown (Tabachnick & Fidell, 2013). In this research the predictor variables included intent to become a head coach (goals), commitment (beliefs), the 5Cs of coaching efficacy, and the previously mentioned demographic variables, and the outcome variables were the five coaching efficacy dimensions. Canonical correlation is also useful when the underlying dimensions representing the combination of dependent and independent variables are unknown (Tabachnick & Fidell, 2013). In this study, no prior research existed to suggest a way that head coaching intentions, coaching commitment, and the coaching values might predict various dimensions of coaching efficacy. Interpretation of the canonical correlation included examining Wilks' lambda values, and also used canonical loadings and communality coefficients to determine which variables contributed to the solution.

Data Analysis

Descriptive Data Analysis

Descriptive statistics in the form of frequencies, means, standard deviations, and correlations were calculated for all variables using SPSS 20.0. In addition the data collected were tested for normality by examining skewness and kurtosis values associated

with each of the variables. Unfortunately, there is not an agreed upon standard as to what values constitute non-normality. One example has suggested that a normally distributed response should have skewness and kurtosis values between ± 1 ; moderately non-normal data reveal skewness values ranging from ± 2.00 to 3.00 and kurtosis values between ± 5.00 and 21.00 ; and extreme non-normality can be seen with skewness values > 3.00 and kurtosis values > 21.00 (Byrne, 1998). Another standard for non-normality suggests that skew indexes greater than 3.0 are extremely skewed and kurtosis values between 8.0 and 20.0 can also be considered extreme (Kline, 1998). Testing for outliers also took place for each of the variables. One method of identifying univariate outliers involves using SPSS to calculate, and then visually identify extreme values that seem to be unattached to the rest of the distribution of values for each variable (Tabachnick & Fidell, 2013). Once descriptive statistics were completed, Cronbach's (1951) alpha of each construct and subscale were calculated to determine internal consistency of the measures on the current sample of coaches. Values at or above 0.70 were considered reliable at an acceptable level as suggested by Nunnally (1978).

Correlation Analysis

Simple Pearson's r correlations were calculated testing the relationships among each of the variables in this study. This analysis included correlations among age, education, coaching experience, playing experience, intent score, each of the commitment variables; each of the 5Cs variables (commitment, communication, concentration, control, and confidence and each of the five coaching efficacy variables (ME, GSE, TE, CBE, and PCE).

Confirmatory Factor Analysis (CFA)

An analysis for the pilot study was conducted using Lisrel 8.0 to complete a CFA in order to determine the factorial validity for the measure of intent and the five coaching value variables. The three original items for each of the 5Cs (Harwood, 2008) were combined with the two new items and tested for fit (see Appendix A for all 25 items). Acceptable model fit for a CFA includes any value exceeding 0.90 (Hu & Bentler, 1999). In order to assess model fit, CFI, NNI, and NFI values were calculated. Other methods to assess acceptable fit included a Chi-Squared test and a test of residuals. Acceptable model fit was identified as chi-squared probability greater than or equal to 0.05 (Suhr, 2006). Root Mean Square Error of Approximation (RMSEA) assessed the residuals in the model. RMSEA values range from 0 to 1, with a smaller RMSEA value indicating a better level of fit in the model (Suhr). A recognized standard for acceptable model fit when considering RMSEA values is 0.08 or less (Hu & Bentler, 1999). Each of the 5Cs remained a part of the subsequent analysis as all twenty-five items tested in the CFA for each of the items appeared valid, there was no need to consider dropping items or any concern about having at least three items in each of these scales, as is the minimum accepted threshold for number of items in a subscale (Raubenheimer, 2004).

Cluster Analysis

When attempting to organize a data set, cluster analysis is a statistical procedure used to group data when group membership is unknown (Tabachnick & Fidell, 2013). While there are a number of different algorithms in cluster analysis, they can generally be divided into hierarchical and nonhierarchical techniques. One of the primary differences

between these two higher order methods is that in nonhierarchical techniques the researcher is able to identify the number of clusters or number of seed points in which to begin (Johnson & Winchern, 2007).

Nonhierarchical cluster analysis was used in this study in part because nonhierarchical clustering is less influenced by outliers, the distance measure is used, and the confidence of nonhierarchical cluster analysis is improved when the research can designate initial clusters based upon initial seed points in past research (Hair, Anderson, Tatham, & Black, 1995; Raedeke, et al., 2000; Tabachnick & Fidell, 2013). Specifically, a nonhierarchical *k*-means cluster analysis was completed using the Quick Cluster function in SPSS.

Prior to conducting the analysis, all variables were standardized in the form of a z-score in order to allow for easier interpretation and in order to compare coaches' scores in relation to one another. As cluster analysis is particularly affected by outliers, all values that were ± 2.5 standard deviations from the mean were considered outliers and were removed from further analysis.

Cluster analysis is by nature an exploratory research method and as such, multiple clusters should be examined in order to find the number of clusters that best represents the data (Johnson & Winchern, 2007). For this cluster analysis 3, 4, and 5 cluster solutions were all considered before a decision was made about the cluster that represented the best solution. In selection of the cluster solution that best fit the data, three specific strategies were used in order to determine the best choice in which to proceed. First the number of participants in each cluster was examined. While more evenly distributed cluster samples were ideal, in this study solutions with the largest

cluster two or three times larger than the smaller cluster were avoided if possible. This was considered in order to maximize the potential for similar sized clusters to compare in the interpretation and analysis of these clusters. Secondly, the meaningfulness of the variables were considered. Mean z-score values of ± 0.8 were considered very high/low, or important contributors to the cluster; ± 0.5 were considered high/low, and also relatively important contributors to the cluster; and ± 0.3 values were considered moderately high/low contributors to the cluster solution. For all six commitment subscales, these standards were used with cluster solutions with a greater number of mean z score values ± 0.5 considered more powerful solutions; which is consistent with previously completed cluster analyses in sport and exercise science (i.e. Raedeke, 2004; Weiss, Ebbeck, & Horn, 1997). Lastly, cluster solutions were examined with regard to the logical nature of the solution. Using prior knowledge of coaching and sport commitment, the research carefully examined various cluster solutions based upon this subjective criterion. The final cluster solution was selected based upon a combination of these three factors, without weighing one as deliberately more important than any other. MANOVAs were also run to assess the differences between the clusters.

Canonical Correlation Analysis

A canonical correlation was computed to assess the relationships and the strength of the relationships among predictor variables (i.e., intentions, coaching commitment) and the outcome variables (five dimensions of coaching efficacy). The canonical correlations were interpreted with two primary goals. The first of these goals was to identify variables that contribute to the model tested. Before this was done, the overall significance of the canonical correlation was determined. Only if the overall model was

significant was the strength of relationships examined. In the event that the correlation was significant, the relationships among predictor and criterion variable sets were examined, initially by testing the model, and subsequently examining each significant canonical variate. This examination was completed using the Wilks' Lambda test statistic for the model, with $p < 0.05$ rejecting the null hypothesis that there is no relationship between the variable sets. Using Wilks' Lambda, the more generalizable of the four test statistics (Sherry & Henson, 2005), the overall effect size of the model was also considered ($1 - \lambda = \text{overall effect}$). Outliers are particularly important in canonical correlation (Tabachnick & Fidell, 2013), and as a result outliers were removed prior to the analysis.

Structure coefficients greater than 0.30 were identified for each model, which represents a level that has been accepted in previous factor analyses (Sherry & Henson, 2005). Pairs with structure coefficients in the canonical correlation below 0.30 were not interpreted as they represented less than 10% of the additional variance in the model (Tabachnick & Fidell, 2013), although lower coefficients still have the potential to be insightful. The squared structure coefficient explained the strength of relationship on each model, while the communality coefficient explained the overall usefulness of each variable within the model (Sherry & Henson, 2005). The communality coefficient was particularly important in determining which predictor variables were or were not contributing to the model. Canonical loadings, or loading matrices, which are matrices of correlations between variables and canonical coefficients, were also used to interpret the

canonical variates (Tabachnick & Fidell, 2013). This process provided an opportunity to identify variable combinations that had more important relationships within the significant canonical roots.

CHAPTER IV

UTILIZING THE 5CS OF COACHING EFFICACY TO MEASURE COACHING VALUES IN INTERCOLLEGIATE COACHES

Abstract

What a coach values is an important contributor to the behaviors he or she exhibits with athletes. As such, effective coaches are influenced by their values, yet there are few if any measures with which to empirically test coaching value dimensions. Using the foundation of coaching efficacy (Feltz et al, 1999) and the 5Cs of Coaching Efficacy program (Harwood, 2008), the Modified Coaching Confidence Questionnaire (MCCQ) was designed to measure a coach's valuing of positive psychological principles and the development of interpersonal skills in his/her athletes. Examinations at three different athletic levels (high school, NCAA Division III, and NCAA Division I) were conducted in order to test the psychometric properties of the MCCQ. Using the MCCQ, scores were established for each of the 5Cs: commitment, communication, concentration, control, and confidence. Each of the subscales demonstrated acceptable reliability across the three different athletic levels. Confirmatory factor analysis was conducted and provided support for the factorial validity of the instrument. The results indicate that the MCCQ can be used to measure coach values and this may allow for greater ease in which effective coaches can be examined and understood.

Keywords: Coaching efficacy, coaching values, NCAA Division III, NCAA Division I, positive psychology, positive coaching, assistant coaches

Coaching involves many different components, and in order to be effective, successful management and balance of these components is crucial. As we learn more about the intricacies of athletic sport coaching, it becomes increasingly apparent that the job of a coach is complex (Abraham & Collins, 2011; Miller, Lutz, & Fredenburg, 2012; Washington & Reade, 2013). Coaches maintain a wide variety of roles including: motivator, communicator, leader, teacher, facilitator, planner, communicator, mentor, supporter (Martens, 1987), strategist, and character builder (Carter & Bloom, 2009). In addition, coaches are responsible for developing athletes' mental, physical, technical, and tactical abilities (Becker, 2009). Coaching involves juggling a variety of roles and responsibilities, all of which are intended to enhance athlete development, team and individual performance, and the overall athletic experience (Martens, 2012). Coaches who are more confident in their ability to perform these many roles may have a more positive impact on the athlete experience.

In intercollegiate athletics, coaches assume additional roles including: recruiter, program figurehead, university representative, spokesperson, and fundraiser. Coaches of athletes playing at intercollegiate levels are expected to be knowledgeable, not just in technical and tactical areas of their sports, but also with regard to strength and conditioning, psychological aspects of coaching, event scheduling, and a host of other tasks that allow athletes to perform at their highest levels (Washington & Reade, 2013).

The nature of coaching involves juggling the aforementioned roles and duties, but in American culture it involves much more than “changing hats” throughout the day. With the development of interscholastic and intercollegiate sports in the U.S., a sport model has emerged in which a coach is responsible for, and has the opportunity to develop, athletes’ character (Coakley, 1994, 2009). One could even argue that there is no other social milieu in the U.S. in which character and life lessons can be taught like they can be through sport. This perspective suggests that being successful as a coach involves more than winning, in that it also carries expectations about having a positive impact on athletes’ personal development. Recently, this perspective has given way to coaching campaigns such as positive youth development within sport (e.g., Conroy & Coatsworth 2006; Côté, Deakin, & Fraser-Thomas, 2011; Gould, Collins, Lauer, & Chung, 2007), intervention programs such as the 5Cs coaching efficacy program (Harwood, 2008), and an emergence of national and international coaching organizations such as the Positive Coaching Alliance (Thompson, 2010). Furthermore, an increasing amount of coaching research has included the development of character in athletes as a common goal (e.g., Gould et al., 2007; Shields & Bredemeier, 2011) and even as a characteristic of being a more effective coach (e.g., Feltz, Chase, Moritz, & Sullivan, 1999). In intercollegiate athletics, coaches have described success in terms of the character they saw develop in their athletes (Nichols, 2011) and anecdotal evidence from coaches supports the idea that character development is a part of effective coaching as well (Janssen & Dale, 2002; Krzyzewski, 2000).

While the general tenets of coaching effectiveness are consistent at all stages of sport, there are variations within sporting levels that are of relevance to coaching practices in various athletic environments. For example at the intercollegiate athletic level in the United States there are three primary divisions: I, II, and III. Generally speaking the following information represents important distinctions according to these levels. Division I is the division with athletic scholarships, while Division III can be characterized as non-scholarship, and Division II is a hybrid of DI and DIII. The scholarship and non-scholarship versions of intercollegiate athletics provide diverse milieus in which different sports are contested. The environment in Division I is increasingly commercialized, with a business-like feel, that often flirts with an ambiguous line between amateur and professional sport. This high pressure, businesslike environment, propels many coaches to demand more from their athletes, exercise additional control over their daily lives, and to maintain expectations tied to the scholarship each athlete is given. Unlike DI scholarship athletes, at the DIII level, athletes participate without the financial reward and correspondingly are often motivated to perform as a result of a deep passion for their sport. At the same time, DIII athletes have less significant ties to the sport, which often leads to high rates of attrition due to the desire to participate in other activities as part of their college experience. For these and other reasons, coaches face different challenges when working with DI versus DIII athletes, and it may lead coaches at these different levels to value the development of different player attributes.

5Cs of Coaching Efficacy

Regardless of coaching level, greater coaching efficacy remains a goal of an effective college coach. The 5Cs of Coaching Efficacy were established as part of an initiative to develop better players and coaches in English youth soccer (Harwood, 2008). The 5Cs of Coaching Efficacy refer to the development of positive psychological factors and interpersonal skills in ones' athletes and are commitment, communication, concentration, control, and confidence (Harwood, 2008). According to Harwood (2008), the five components connected with the 5Cs were reflective of key motivational, self-regulatory, and interpersonal attributes that have previously been foundational elements of successful interventions in sport (i.e., Thelwell, Greenlees, & Weston, 2008). Furthermore, while the 5Cs were created specifically for evaluation of an intervention with soccer coaches, the 5Cs were selected because they represent important concepts associated with internal development of assets in children (Benson, 1997), important aspects of achievement goal theories in sport (i.e., Elliot, 1999; Nicholls, 1989), and relevant concepts in youth sport (i.e., Gould et al., 2007; Holt & Dunn, 2004).

Building from the conceptual framework of coaching efficacy (Feltz et al., 1999) and the emerging research surrounding positive youth development (i.e., Conroy & Coatsworth, 2006; Lerner, Fisher, & Weinberg, 2000), the 5Cs of coaching efficacy (Harwood, 2008) were established with a dual purpose. As part of the intervention program, the first purpose of the 5Cs was to introduce youth soccer coaches to the concepts of shaping psychological and interpersonal characteristics in their athletes in a beneficial way. The second purpose was to enhance a coach's efficacy in stimulating positive responses, both psychologically and interpersonally in players.

Within the sport psychology literature, different suggestions have emerged about various ways with which to have a larger impact in player development. For example, the way a coach communicates with athletes has been a topic of considerable interest as different methods of communication may influence a young athlete's psychosocial development (Gould et al., 2007). Previous research, much of which is grounded in coach effectiveness training or using the Coaching Behavior Assessment System (Smith, Smoll, & Hunt, 1977), has revealed that athletes that are more satisfied with their teammates, exhibit higher levels of motivation, demonstrate lower levels of anxiety, and have lower attrition rates when they play for coaches who provide more positive reinforcement (Barnett, Smoll, & Smith, 1992; Gould et al., 2007; Smith, Smoll, & Curtis, 1979; Smoll, Smith, Barnett, & Everett, 1993; Smith, Smoll, & Barnett, 1995).

Positive outcomes in athletes such as increased commitment, higher levels of confidence, and better communication skills have led both practitioners and researchers to more closely examine sport programs that incorporate orientations that are intended to develop these positive youth development outcomes (e.g., Conroy & Coatsworth, 2006; Gould et al., 2007; Harwood, 2008; Lerner et al., 2000). The conceptual model of positive youth development has led to conceptual models outside of the sport context such as the 6 Cs of positive youth development: competence, character, connection, confidence, caring, and contribution (Lerner et al., 2000); the 6 Cs of developing momentum in football [soccer]: commitment, cohesion, communication, concentration, control, and confidence (Higham, Harwood, & Cale, 2005); as well as a similar conceptual model in sport, the 5Cs of football [soccer]: commitment, communication, concentration, control, and confidence (Harwood, 2005). In order to bring these

characteristics, consistent with positive youth development, to coaches, in order to increase their effectiveness, the 5Cs of coaching efficacy intervention program was developed (Harwood, 2008).

Each of the 5Cs is supported as an important construct with unique empirical and anecdotal evidence in both sport psychology and coaching literature. Initial results of the intervention program showed that coaches reported greater confidence for each of the 5Cs and athletes also have more positive psychological and interpersonal responses over time within the program (Harwood, 2008). While the 5Cs intervention program has demonstrated success in increasing coach efficacy in addition to positive affective responses from athletes, this research is of particular importance as it bridges social-psychological theory and practical coaching behaviors. The focus of this research lies

in the belief that the developmental-psychological role of the coach is greater than merely shaping an optimal motivational climate (Ames, 1992). Beyond helping to optimize motivation and perception of competence in his or her athletes, a coach's intentional establishment of a wide psychological-skill climate is perhaps a responsibility to be encouraged (Harwood, 2008, pp. 130-131).

The 5Cs include outcomes that coach educators, researchers, and coaches themselves have indicated are critical parts of being an effective coach. Furthermore, Smoll and Smith's (2006) Coaching Effectiveness Training (CET) was a driving force behind the creation of the 5Cs (Harwood, 2008), thus positioning the 5Cs as appropriate constructs to serve as the basis of examining coaching values within an effective coaching framework. In addition, each of the 5Cs: commitment, communication, concentration, control, and confidence were established and are already connected to core theories of motivation and principles related to effective coaching.

In the initial 5Cs intervention program, commitment is based upon Self-Determination Theory (Deci & Ryan, 1985) and Achievement-Goal Theories (Elliot 1999; Nicholls, 1989). The second C, communication, is structured around core principles of interpersonal communication and contextual and developmental issues (DeVito 1986; Gouran, Wiethoff, & Doegler, 1994). Facilitating the development of concentration skills is based upon attentional control principles (Nideffer & Sharpe, 1978). The fourth C, control, is developed through understanding and implementing mental and physical arousal regulation techniques (Harwood, 2008). Lastly, confidence is based upon self-efficacy theory (Bandura, 1986), and also uses progressive goal setting techniques, verbal persuasion, and role modeling (Harwood, 2008). Measuring these variables and providing instruction and feedback towards the 5Cs has allowed interventions to take place that measure how much each coach values these five positive psychological and interpersonal constructs, and has allowed sport psychology consultants an opportunity to influence a coach's confidence in utilizing these social-psychological dimensions to increase their coaching effectiveness. With an inherent emphasis on the value a coach places on positive psychology and the development of interpersonal skills in athletes, the 5Cs coaching efficacy program appears to be a logical framework to simulate coach values within Horn's (2008) model of coaching effectiveness. In order to establish a clear understanding of the 5Cs as a framework to examine coach values, each of the 5Cs is explored in greater detail below.

Commitment

With regard to the first component in the 5Cs, commitment, Harwood (2008) described the key player attributes and competencies associated with commitment as being intrinsically motivated, having task/mastery goals, developing approach goals, and demonstrating motivated behaviors (e.g., effort, persistence). As a result examples of goals for coaches in the intervention were to provide better skill-specific feedback and reinforcement, encourage persistence in their athletes after mistakes, and getting players to try new skills in a ‘no’ fear climate.

The study of commitment as an important variable in the coach-athlete environment is not a new area of interest. Previous sport commitment literature includes various academic studies using the Sport Commitment Model (i.e., Scanlan, Carpenter, Schmidt, et al., 1993; Weiss et al., 2010), research on coaching commitment (i.e., Raedeke et al., 2000, 2002), and other examinations of sport commitment (i.e., Weiss & Weiss, 2006). Other coaching literature suggests that a coach’s commitment will impact athlete commitment (Janssen & Dale, 2002). Successful coaches such as Mike Krzyzewski (2000) consider “commitment” to be a fundamental principle of what they are trying to develop in their players. Further evidence of the importance of commitment in athletes can be found throughout the coaching and sport psychology literature (i.e., Martens, 1987) and is considered by some to be so important that “commitment is one of the most important factors in [team/athlete] success” (Janssen & Dale, 2002, p. 105). As a coaching value, commitment has been considered to be synonymous with resilience (Bradley, 1998), passion (Janssen & Dale, 2002), and a total concentrated effort

(Martens, 2012). As a result of the frequent empirical and anecdotal support of this construct, commitment is clearly a relevant construct to consider in an examination of coach values.

Communication

Harwood (2008) described the key player attributes and competencies associated with the second component of the 5Cs, communication, as praising and encouraging peers, being a good listener, acknowledging others, learning how to receive positioning instructions, giving feedback, and positive non-verbal behavior. As a result, example goals in the intervention were to help coaches demonstrate better verbal and nonverbal communication skills and reinforcing players who send information and acknowledge and/or receive feedback from others.

Communication is widely viewed as essential in relation to the skill development of athletes and is reflective of consistent and credible coaches (Janssen & Dale, 2002; Martens, 2012). Communication between coaches and players is a critical component to athlete development and suggestions for effective communication include open and direct communication (Janssen & Dale, 2002), meeting with players individually (Curran, 2007), and encourage athletes to ask questions (Mageau & Vallerand, 2003). Other coaching guides suggest being honest with your athletes, avoiding humiliation, encouraging player interaction, and instructing athletes without dictating (Wooten & Wooten, 2013). The latter of which is consistent with results from seminal research on successful coaching, which revealed the high percentage of instruction John Wooden provided athletes at UCLA (Tharp & Gallimore, 1976). In addition, some successful

coaches believe that communication skills are just as important as technical skills (i.e., Krzyzewski, 2000).

The development of communication skills is important to effective coaches because many coaches understand that great communication involves much more than people sending and receiving messages from one another. The quality of the communication process has a clear impact on the thoughts, feelings, actions, and performance of one or more of the athletes involved (Higham et al., 2005). Positive communication, in the form of good listening skills, asking questions, and/or engaging in respectful conversations can provide an optimal environment in which athletes can demonstrate critical-thinking, decision-making skills, and ultimately learn more. As a result of the common inclusion of this component in sport psychology and coaching literature, in addition to anecdotal support from current and past coaches, communication is an important and relevant variable to consider in any examination of coach values.

Concentration

Harwood (2008) described the key player attributes and competencies associated with concentration as the ability to pay attention to broad or narrow task-relevant cues, maintain appropriate attentional focus in the midst of distractions, fatigue and adverse situations, and the ability to switch attentional styles. As a result, sample goals in the intervention included implementing drills to practice focusing on different task related cues, incorporating the use of distractions, and the positive reinforcement of players who display appropriate attention in various environments (i.e., practices, games). . Further

examination of attention and concentration has established that attentional processes during performance can influence behaviors, biological responses, and ultimately performance (Boutcher, 2008).

Concentration has been defined as “the ability to sustain one’s attention on the relevant cues and not be distracted by all the other stimuli in that situation or by one’s own thoughts” (Martens, 2012, p. 217). Like commitment and communication, concentration is an important variable that has been investigated independent of other variables in the sport psychology literature. Anecdotally, coaches have made claims that support empirical evidence of the importance of concentration for their athletes. For example, every team and every athlete must make a conscious decision to uphold the most important values – cooperation, love of the game, hard work, and total concentration (Riley, 1994). Similarly, Mike Krzyzewski (2000) believes that focusing on the task at hand had been an important attribute of his teams’ past successes.

Control

The fourth component in the 5Cs, control, is based upon various mental and physical arousal regulation techniques, including, but not limited to breathing, self-talk, and mental rehearsal. Harwood (2008) described the key player attributes and competencies associated with control to be emotional awareness, having both relaxing and energizing routines (i.e., pre-performance rehearsal), demonstrating positive body language and/or self-talk, and demonstrating a quick self or peer recovery from errors. Examples of goals in the 5Cs intervention included providing both “good” and “bad”

demonstrations of player self-control, reinforcement for quick recovery and a positive response to making mistakes, and allowing players to display their emotions in drills in order to aid in player self-awareness.

Control, or self-control as it is often referred to, is related to the previous component concentration. While concentration can be viewed as mental focus, control refers to the regulation of one's behaviors in the face of success or adversity. Maintaining a sense of control can be found in sport psychology research related to the investigation of the relationships between peak performance, peak athletic experience, and flow (Jackson & Kimiecik, 2008). Furthermore, demonstrating self-awareness (Martens, 2012), maintaining routines (e.g., Cotterill, 2010), demonstrating positive body language and/or self-talk (e.g., Hardy, Gammage, & Hall, 2001), and demonstrating a quick recovery from errors (e.g., Thompson, 2010) all lead to positive outcomes for athletes (i.e., higher self-confidence, better performance). The latter of which reflects a widely held belief that players who are constantly looking over their shoulder after mistakes will perform less effectively. However, while this may be a widely believed concept, in intercollegiate athletics, many coaches seem to remove players from games or matches at the first sign of an error, whether they value this concept or not.

Confidence

For the fifth component in the 5Cs, confidence, Harwood (2008) described the key player attributes and competencies associated with confidence to include having no fear of mistakes, accepting challenging goals, and internalizing accomplishments.

Example goals in the intervention included allowing players to copy or pretend to demonstrate the actions of confidence and/or confident players, peer acknowledgement of achievement, and encouraging persistent behaviors.

Self-confidence is developed when an individual believes that he/she has internal resources and specific abilities that will allow him/her to succeed (Vealey & Chase, 2008). Stemming from Bandura's (1977, 1986, 1997) Self-Efficacy Theory, the study of self-confidence in sport has led to numerous lines of research including those associated with sport confidence, movement confidence, collective efficacy, coaching efficacy, and performance expectancy (see Vealey & Chase, 2008 for a complete review). In addition to the proliferation of examinations of self-confidence in sport, coaches have also continually referenced the importance of confidence for athletes (i.e., Riley, 1994). Furthermore, developing self-confident athletes has been found to positively affect performance outcomes, mediates anxiety, and greater levels of confidence positively influences achievement choices, effort, and persistence (Vealey & Chase, 2008). As a result, there is consistent support to include confidence as the fifth component in Harwood's 5Cs model. Furthermore, it seems apparent that both empirical and anecdotal evidence supports the notion that effective coaches might value the development of confident athletes.

Purpose of the Study

The 5Cs of coaching efficacy program was developed with the purpose of measuring and positively influencing a coach's value in developing interpersonal skills in his/her athletes and including elements of positive psychology in his/her coaching (Harwood, 2008). The 5Cs intervention program has retained credibility for potentially

serving as a framework for developing efficacy in youth sport coaches (Lauer & Dieffenbach, 2013). The focus on teaching coaches how to develop communication skills, commitment in their athletes, concentration, self-control, and confidence provide an interesting opportunity to more closely examine each of these as measurable coaching values. As seen in the 5Cs program, coaches who implement these components of coaching can have a positive effect on the motivational climate, but also on the resulting personal and sport-related development.

Effective coaches use psychological tools beyond the creation of a positive motivational climate as they pursue maximal athlete-development and both athlete and team success. Understanding that effective coaches do more than create an optimal motivational climate, and that the original youth sport coaches had improved levels of efficacy (Harwood, 2008), the 5Cs provides a strong social-psychological framework to examine coaching values beyond the previous use in an intervention. Instead of using the 5Cs as the framework for an intervention, the model examined in this study, may be a strong indicator of coaching values with coaches at higher levels of sport (i.e., intercollegiate coaches) in terms of teaching commitment, communication, concentration, control, and confidence to their athletes.

Despite the proliferation of research on commitment, communication, concentration, control, and confidence within the sport psychology and coaching literature bases, these components have yet to be examined specifically as coach values. Furthermore, despite the acceptance of the 5Cs of coaching efficacy intervention program (Harwood, 2008) these five social-psychological variables have yet to be examined as possible predictors of coaching efficacy when combined with other variables outside of

Harwood's intervention program. As an important contributor to the overall coaching effectiveness model (Horn, 2008), coaching values are relevant to understand in order for coaches to more positively influence team and athlete performance. While the 5Cs intervention program has proved to be effective (Harwood, 2008), to date there is not a valid and reliable instrument with which to examine a coach's value on the development of these five social-psychological variables.

The purpose of this study was to examine the psychometric properties, specifically reliability and validity, of the Modified Coaching Confidence Questionnaire (MCCQ; based upon the 5Cs of Coaching Efficacy – Harwood, 2008). Determination of the viability of this new instrument to measure a coach's value on positive psychological factors and the development of interpersonal skills with athletes of various levels was specifically sought. The guiding research question for this study was: Is the MCCQ a valid and reliable tool with which to measure coach values? Specifically, this study examined whether or not there was invariance of the MCCQ instrument across the three athletic/coaching levels (high school, NCAA DI, and NCAA DIII).

Methods

This study involved two separate phases of investigation. The purpose of the first phase was to conduct a pilot test on the 25-item Modified Coaching Confidence Questionnaire. The purpose for the second phase of analysis was to test the 25-item Modified Coaching Confidence Questionnaire with two larger samples of NCAA assistant coaches at Division I and Division III levels. Psychometric properties that were examined included internal consistency, face validity, and factor analyses (i.e., factorial validity, crossloading).

Phase 1: Pilot Study Participants

Two hundred and fourteen high school sports coaches from 22 different Colorado high schools were the participants for the pilot study. After removing missing data and surveys for satisficing, specifically non-differentiation (Krosnick, 1991), 209 usable surveys remained. Participating coaches in this phase of the study had a mean age of 40.94 years ($SD = 12.13$). A majority of these experienced high school coaches (range = 1-40 years, $M = 12.14$ years, $SD = 9.70$ years) played their sport at the college level ($n = 112$), while others reported playing the sport they coached through high school ($n = 58$), and a small number of coaches played as high as the semi-professional/international ($n = 6$) or professional levels ($n = 8$). A variety of sports were represented by these coaches including basketball ($n = 45$), track and field ($n = 32$), football ($n = 28$), baseball ($n = 18$), soccer ($n = 15$), volleyball ($n = 14$), and wrestling ($n = 14$). This sample was predominantly male ($n = 155$; 74.9%), predominantly Caucasian ($n = 174$; 84.1%), and was highly educated (Master's Degree, $n = 88$; Bachelor's Degree, $n = 86$; High School, $n = 19$; Associate's Degree, $n = 10$; Doctorate, $n = 4$). Participants were both current head (57%) and assistant (43%) coaches.

Phase 2 Participants: NCAA Division III Coaches

Six hundred and eighty-two NCAA Division III assistant coaches were surveyed during the 2014-15 season. Three hundred and five coaches participated (44.7% response rate) and after removing missing data, outliers, and surveys for satisficing (Krosnick, 1991), 301 surveys were usable. These coaches represented a variety of sports including football ($n = 47$), basketball ($n = 47$), soccer ($n = 33$), volleyball ($n = 24$), track and field ($n = 23$), swimming and diving ($n = 22$), and lacrosse ($n = 22$). This sample was

predominantly male ($n = 184$; 61.7%), predominantly Caucasian ($n = 266$; 89.3%), and had an average age of 31.98 years ($SD = 10.78$). The majority of these coaches had received their Bachelor's degree ($n = 165$; 55.4%), while most of the rest had received a Master's degree, $n = 119$; 39.9%). Participants among this diverse geographic sample included coaches from more than 50 different Division III institutions, more than 25 athletics conferences from the AMCC to UAA, and from each of the Division III regions (i.e. 7 regions for baseball, men's and women's basketball). Coaches had on average 7.7 years of coaching experience (range = 1-53 years, $SD = 7.9$ years), and 78.5% of the coaches' highest playing experience was at the college level (DIII: $n = 145$; DII: $n = 27$, DI: $n = 53$; NAIA: $n = 9$).

Phase 2 Participants: NCAA Division I Coaches

Eight hundred and fifty-four NCAA Division I assistant coaches were surveyed during the 2014-15 season. Three hundred and sixty coaches participated (42.2% response rate) and after removing missing data, outliers, and surveys for satisficing (Krosnick, 1991), 351 surveys were usable. These coaches represented a variety of sports including basketball ($n = 78$), soccer ($n = 52$), volleyball ($n = 48$), track and field ($n = 28$), and swimming and diving ($n = 22$). This sample included a majority of male coaches ($n = 201$; 57.3%), who were predominantly Caucasian ($n = 285$; 81.2%), and had an average age of 34.12 years ($SD = 10.78$). With regard to their reported highest level of education, the majority of these coaches had received their Bachelor's Degree ($n = 192$; 54.7%), while most of the rest had received a Master's Degree, $n = 152$; 43.3%). Participants in this geographically diverse sample included coaches from 88 different Division I institutions, more than 25 athletics conferences from the ACC to the Mid-

American to the WAC, and in 36 different states. The coaches in this sample had on average 10.14 years of coaching experience (range = 1-40 years, SD = 7.9 years). In addition, nearly half of the coaches reported their highest level of sport playing experience to be at the Division I level ($n = 166$; 47.3%). Seventy-one coaches reported having been professional athletes in their sport (20.2%), while 65 others played at a different intercollegiate level (DIII: $n = 21$; DII: $n = 30$, NAIA: $n = 14$).

Phase 1: High School Coach Pilot Study Measure

Fifteen of the items on the pilot instrument were taken directly from the Coaching Confidence Questionnaire (CCQ: Harwood, 2008). Then, using the CCQ and Harwood's (2008) and several corresponding intervention examples as a guide, ten additional new items were created. These items were created to provide a more robust assessment of each of the 5Cs, and also to provide additional items to examine while maintaining parsimonious and theoretically sound scales. In completing the 25-item MCCQ pilot study, coaches were asked to reply to the stem, "How much confidence do you possess in employing the behaviors or strategies that actively help players to..." on a ten-point Likert scale with 1 = *not at all confident* and 10 = *extremely confident*. In addition participants were asked a number of demographic questions including age, sport coached, education, gender, race/ethnicity, and both coaching and playing experience.

The 15-item Coaching Confidence Questionnaire (Harwood, 2008) was used, and ten additional items were created based upon the theoretical and practical guidelines used in the initial soccer intervention program (Harwood, 2008). The resulting 25-item MCCQ included five subscales (commitment, communication, concentration, control, and confidence), each of which included five items (three each from the CCQ, and two

newly constructed items). Each of the 25 items was preceded by the stem “How much confidence to you possess in employing the behaviors or strategies to actively help players to...? A sample item from the commitment subscale of the CCQ was “...showing elevated levels of effort,” while a newly created item was, “...demonstrate consistent high levels of effort over the course of the season.” For the confidence subscale one of the items from the CCQ was “...bringing a presence to training that exudes confidence,” and one of the new items added for the confidence subscale was, “...maintain confidence in their performance despite any previous mistakes they have made.” A complete list of new and previously used items for each of the five MCCQ subscales can be found in Table 4.

Prior to moving forward with the pilot study data collection, face validity for the 25-item MCCQ was assessed. The ten new items and the 15 original items from the CCQ were given to one former coach for the purpose of organizing the items into their respective categories (commitment, communication, concentration, confidence, and control). With limited instruction, the former coach accurately placed each of the ten new MCCQ items into the appropriate categories thus providing support for the face validity of the instrument.

Phase 2: Intercollegiate Athletic Coach Measure

In completing the 25-item MCCQ coaches in both intercollegiate groups (DIII and DI) were asked to reply to the stem, “How much confidence do you possess in employing the behaviors or strategies that actively help players to...” on a ten-point Likert scale with 1 = *not at all confident* and 10 = *extremely confident*. In addition participants were asked a number of demographic questions assessing age, sport coached,

education, gender, race/ethnicity, and both coaching and playing experience. Coaches were not privy to the factor structure of the MCCQ either before or during their completion of this survey.

All 25 items from the pilot study with high school coaches were included. After examining the pilot study results, an option of “N/A” was added to two of the items: “...want the ball/puck/racquet (etc.) with no fear of mistakes,” and “...avoid worrying about reacting to officials calls/decisions as they are out of your athletes’ control.” This was because numerous high school coaches, primarily in individual sports, skipped these questions and wrote in “N/A” on their own, or answered the question with less consistency. It appeared that the question was skipped by some coaches because in track and field for example, there really is not a situation where runners often are faced with having to deal with an officials’ call during their competition. If an 800-meter runner were disqualified by an official, he/she likely would not even know about that decision until after the race. Similarly, “wanting the racquet” with no fear of mistakes could have been construed as irrelevant by a tennis coach who is going to play someone in #1 singles regardless of whether or not that player “wants” the racquet. Some coaches may have perceived this item to be assumed as an obvious part of their sport.

Phase 1: High School Coaches Pilot Study Procedure

After University of Northern Colorado Institutional Review Board approval was acquired, initial contact was made with athletic directors and select high school coaches at 25 high schools in Colorado about potential coach participation. After coordinating with athletic directors (ADs) and coaches, about half of the schools had coaches meetings where the lead researcher administered the surveys directly in person. The second

portion of surveys was distributed by a contact person at each high school, usually by the AD, and participants were provided a survey packet to complete and return to an individual designated by the AD or other onsite contact. ADs were given instructions about the procedures and protocols of this study and most surveys were collected and returned within two weeks after their initial distribution. All coaches were provided with a cover sheet explaining the purpose of the study, a no signature consent form, and a two-page survey. All surveys were collected during the spring of 2015.

Phase 2: Intercollegiate Athletic Coach Procedures

After receiving the necessary ethics board approval from University of Northern Colorado, the researcher used both purposeful and convenience sampling to identify potential participants. An email list of potential participants was created using previous coaching contacts. In addition a number of athletic directors were contacted in order to gain their support in sending the online survey link to their assistant coaches. Convenience sampling was employed by reaching out to coaches in an athletic conference in which the lead researcher had previously coached and at a number of Division III schools where coaches and/or administrators with prior connections to the lead researcher were employed.

After this initial list of assistant coaches and their emails was established, purposeful sampling took place in order to complete a target list of coaches that encompassed a variety of sports and included a varied demographic representation. While this method did not guarantee a random sample of coaches, or a probability sample of coaches, this method attempted to provide an opportunity for this study to be available to a wide variety of assistant coaches, and to increase the representativeness of the

sample (Dillman, Smyth, & Christian, 2009). As the response rate was unknown initially, three different waves of emails were sent to Division III coaches, with 150-250 coaches in each round of requests.

Once the list of assistant coaches was compiled, a three-email contact strategy was implemented (Dillman et al., 2009). First, a personalized email was sent to each coach requesting his/her participation in this study. For those coaches whose names were received as a part of the snowball sampling procedures, a reference to the individual who suggested they be included in this research was provided. It is important to note that in all cases careful language was used indicating that the coach or A.D. thought that the assistant would either be interested in participating in this research and/or that he/she would be a good candidate for inclusion in this research. Following suggested best practices of survey research (Dillman) the Qualtrics survey link was included in the initial email, which gave participants immediate access to the questionnaire.

A follow-up email was sent about seven days after the initial email to all coaches on the list who had not yet responded; this email also included the survey link.

Approximately seven days after the second email, a third email was sent to coaches who had yet to complete the survey. Finally, all groups of coaches who had not completed the survey received a fourth and final email invitation at the same time, during the fourth week of the last group of coaches. Participants completing the survey had the opportunity to include their email address in the event that they were interested in receiving a report of the results upon completion of this study.

Phase 1: High School Coaches Pilot Study Data Analysis and Results

Initial reliability analysis using Cronbach's (1951) alpha statistic for each of the five subscales demonstrated that the subscales were internally consistent: commitment ($\alpha = .82$), communication ($\alpha = .80$), concentration ($\alpha = .83$), control ($\alpha = .81$), and confidence ($\alpha = .80$). Confirmatory factor analysis (CFA) was used to test the factor structure of the MCCQ to determine its factorial validity for use in measuring coach values on these five dimensions. In this pilot study with high school coaches, the model achieved an acceptable fit to the data as reflected by a variety of fit indices: Satorra-Bentler χ^2 (265) = 556.69, Satorra-Bentler $\chi^2/df = 2.10$, RMSEA = .073, and SRMR = 0.062. The fit indices also demonstrated acceptable fit: CFI = .98, NFI = .96, and NNFI = .98. Factor loadings (see Table 4) provided strong support for this model as well. There were no cross loading items in this data set nor were there any items loading at levels below 0.61.

Consideration of the various fit indices, the strong factor loadings, and the lack of cross loadings led to the conclusion that the CFA indicated good fit for the full 25-item model. There were two items that a number of coaches skipped or wrote comments about on their surveys. These included: "...want the ball/puck/racquet (etc.) with no fear of mistakes", and "...avoid worrying about or reacting to officials calls/decisions as they are out of your athletes' control." Closer analysis of these items revealed that coaches who skipped the items were exclusively from individual sport coaches such as track and field or swimming and diving. One coach actually wrote in "N/A" and in the margin included a note that stated he did not think reacting to officials' calls applied in his sport. Since the CCQ was developed based upon the Coaching Efficacy Scale (CES; Feltz, et al,

1999), this was a logical response. Although the CES has been used with both team sports (e.g., Feltz, et al., 1999; Short & Short, 2004; Yang, 2011) and with individual and team sports together (Kent & Sullivan, 2003; Sullivan et al., 2012), its initial language was developed with team sports in mind (Feltz, et al., 1999; Myers, Feltz, et al., 2011). However, as this item inconsistency occurred in Phase 1 of this instrument analysis, and because the CFA statistically supported a full 25-item model both of the items in question were retained. With regard to these items in Phase two with college coaches a decision was made to include “N/A” as a potential response for these two items only.

Descriptive statistics revealed that the high school coaches reported overall group mean scores that ranged from 7.92 – 8.34 for the 5Cs subscales. These means were lower than those obtained for the other two groups, Division III and Division I coaches. The highest mean score reported in the high school coach sample was for communication (8.34), while their lowest mean score came in their valuing concentration (7.92).

Intercollegiate Athletic Coach Data Analysis and Results: NCAA Division III

Division III coaches reported mean scores for each of the 5Cs subscales between 8.26-8.56 (see Table 6) reflecting high values on each dimension. In the case of four of the five components, the Division III coaches had the highest overall mean score (all but confidence, which was essentially the same as the Division I sample). Initial reliability analysis using Cronbach’s (1951) alpha statistics for each of the subscales demonstrated that the subscales were acceptable: commitment ($\alpha = .89$), communication ($\alpha = .87$), concentration ($\alpha = .91$), control ($\alpha = .82$), and confidence ($\alpha = .85$). CFA was used to examine the factor structure of the MCCQ to determine its factorial validity. The Robust Maximum Likelihood (RML) estimation method was used which yields more accurate

standard errors, chi-squared values, and fit indices when the data set is not normally distributed (Bentler & Wu, 2002). The Division III model achieved an acceptable fit to the data, Satorra-Bentler $\chi^2 (265) = 734.4$, Satorra-Bentler $\chi^2/df = 2.77$, RMSEA = .077, and SRMR = 0.047. The fit indices demonstrated acceptable fit, CFI = .99, NFI = .98, and NNFI = .98. Factor loadings were acceptable (see Table 4), and supported the 25-item model.

Intercollegiate Athletic Coach Data Analysis and Results: NCAA Division I

NCAA Division I coaches reported mean scores for each of the 5Cs components between 8.21-8.49 (see Table 5). These Division I coaches reported slightly higher mean values towards teaching their athletes commitment, concentration, and confidence as compared to all three levels combined. Division I coaches reported an overall mean score for each of the subscales that was similar to that of Division III coaches. Internal consistency analysis using Cronbach's (1951) alpha statistics for each of the 5Cs was acceptable for each subscale: commitment ($\alpha = .88$), communication ($\alpha = .86$), concentration ($\alpha = .87$), control ($\alpha = .83$), and confidence ($\alpha = .82$). CFA was used to test the factor structure of the MCCQ to determine its factorial validity. The RML estimation method was used which yields more accurate standard errors, chi-squared values, and fit indices when the data set is not normally distributed (Bentler & Wu, 2002). The model achieved an acceptable fit to the data for the Division I coaches, Satorra-Bentler $\chi^2 (265) = 833.72$, Satorra-Bentler $\chi^2/df = 3.15$, RMSEA = .078, and SRMR = 0.047. The fit indices also demonstrated acceptable fit, CFI = .99, NFI = .98, and NNFI = .98. Factor loadings were acceptable (see Table 4), and supported the 25-item model.

Table 4

Factor Loadings of Modified Coaching Confidence Questionnaire items Used to Measure Coach Values

Subscale/Item	Item Order	Factor Loading - High School	Factor Loading - Division III	Factor Loading - Division I
Commitment				
*Show elevated levels of effort	1	0.69	0.81	0.70
Demonstrate consistent high levels of effort over the course of the season	5	0.71	0.81	0.85
*Persist at skills in the face of mistakes or failure	10	0.75	0.83	0.86
Show interest in working hard the day after a game/match/meet regardless of the outcome	12	0.67	0.80	0.82
*Show interest and engagement in mastery with no avoidance of difficult skills	18	0.76	0.80	0.79
Communication				
*Ask questions of coach about a drill or a skill	2	0.61	0.72	0.66
Provide positive encouragement and feedback to their teammates	9	0.72	0.78	0.77
Listen to, acknowledge, and implement technical feedback from coaches	13	0.74	0.83	0.89
*Share information with coach and accept feedback	14	0.72	0.81	0.81

Table 4, continued

Subscale/Item	Item Order	Factor Loading - High School	Factor Loading - Division III	Factor Loading - Division I
*Encourage, praise, and instruct teammates clearly and confidently	19	0.70	0.80	0.76
Concentration				
*Stay focused on key components of a drill without being distracted	6	0.64	0.83	0.75
Maintain their focus in the midst of adversity	11	0.78	0.86	0.84
*Listen to instructions attentively and maintain eye contact	15	0.65	0.81	0.74
Maintain their focus when they are physically and/or mentally fatigued	22	0.78	0.86	0.85
*Help others to refocus quickly, indicating an organizational focus	23	0.80	0.89	0.85
Control				
Exhibit responsible actions towards opponents, teammates, and coaches after successes and failures	4	0.64	0.75	0.75
*Recover quickly after mistakes without a negative reaction or emotion	7	0.74	0.75	0.77
*Maintain high positive body language to all events and consistency throughout	16	0.74	0.82	0.77
Avoid worrying about or reacting to officials calls/decisions as they are out of your athletes control	21	0.64	0.65	0.64

Table 4, continued

Subscale/Item	Item Order	Factor Loading - High School	Factor Loading - Division III	Factor Loading - Division I
*Avoid arguing or blaming teammates alongside negative emotions	24	0.75	0.77	0.80
Confidence				
Maintain confidence in their performance despite any previous mistakes they have made	3	0.65	0.75	0.73
*Want the ball/puck/racquet (etc.) with no fear of mistakes	8	0.71	0.78	0.72
*Bring a presence to training that exudes confidence	17	0.76	0.84	0.83
Pursue challenging individual and team goals	20	0.62	0.80	0.78
*Maintain a positive approach to the session/practice indicative of a genuine belief	25	0.70	0.81	0.83
Note. * Designates the 15 original items on the Coaching Confidence Questionnaire (Harwood, 2008).				

Table 5

Fit indices for each of the three coaching samples: high school, NCAA Division III, and NCAA Division I

Sample	N	RMSEA	NNFI	CFI	Chi-Sq/df
High School	209	0.073	0.98	0.98	2.10
Division III	301	0.077	0.98	0.99	2.77
Division I	351	0.078	0.98	0.99	3.15

Note. RMSEA = root-mean-square error of approximation; NNFI = nonnormed fit index; CFI = comparative fit index.

Table 6

Mean scores for each of the 5Cs, according to coaching level/sample

Mean Scores for the 5Cs (Coaching Values)					
Coaching Group	Commitment	Communication	Concentration	Control	Confidence
High School (n = 209)	8.06	8.34	7.92	8.11	8.22
Division III (n = 301)	8.37	8.56	8.26	8.31	8.38
Division I (n = 351)	8.35	8.49	8.21	8.21	8.39
Overall (N = 861)	8.29	8.48	8.16	8.22	8.35

Discussion

The present study examined the psychometric properties of the Modified Coaching Confidence Questionnaire based upon the 5Cs Coaching Efficacy program (Harwood, 2008). In two phases, Harwood's 5Cs model was used in order to assess the value that coaches reportedly place on five dimensions of athlete-coach interaction. Phase One involved the collection of data from high school coaches, while Phase Two

involved examining the coaching values of NCAA Division I and Division III assistant coaches. After examination of the psychometric properties of the MCCQ in the pilot study with high school coaches and the two samples of NCAA intercollegiate coaches, the five-factor structure of the model was supported. In all three samples, the five items for each of the five factors loaded exclusively on the anticipated variable. These findings suggest that the 25-item model did represent coaches' value orientations along these five dimensions. The reliability and validity indices obtained in this diverse sport sample suggest that the MCCQ can be used across various sport contexts.

The original CCQ was developed as part of an intervention program that had a dual purpose. First to help coaches get acquainted with the idea of shaping interpersonal skills and various psychological qualities in their players; and secondly to increase a coach's efficacy in eliciting positive psychological and interpersonal behaviors from his/her athletes (Harwood, 2008). The results of this study indicate that the MCCQ was supported, and that the new instrument could be used in future coaching intervention programs. In addition, the results from the factor analysis provide initial support for the expectation that the MCCQ can be used as an empirical measurement tool to assess levels of a coach's value in developing commitment, communication skills, concentration, control, and confidence in his/her players. This suggests that using this instrument may be helpful in future examination of coach values as predictors of variables such as coaching efficacy or various coaching behaviors.

Descriptive results of the MCCQ across all three samples, and a wide variety of sports, demonstrated that high school, Division III, and Division I coaches are confident in their abilities to teach and develop interpersonal skills and positive psychological

characteristics in the athletes that they coach. The mean scores that in almost all cases were above 8.0, on a scale of 1 to 10 (with 1 representing low confidence and 10 representing a high level of confidence), support a previously recognized notion that coaches at higher levels are generally very confident (Feltz et al., 1999). The fact that high school coaches reported slightly lower levels of confidence with regard to developing communication, commitment, concentration, control, and confidence in their athletes is likely due to the fact that nearly all high school coaches do not perceive coaching to be their full-time job. This appears logical across domains, as it would make sense that two groups of full-time coaches would be slightly more confident than a group of part-time coaches.

Conclusions

The results of the psychometric analysis support the use of the MCCQ as a measurement tool to examine a coach's value of the development of the 5Cs (communication, commitment, concentration, control, and confidence). While this research and the initial 5Cs of coaching efficacy intervention (Harwood, 2008) were developed in accordance with established social psychological theory and current knowledge about effective coaching practices, the interpersonal skills and the positive psychological characteristics that were measured in the MCCQ may not constitute an exhaustive list of skills and characteristics that coaches value in relation to these dimensions. As such, future studies could examine additional characteristics and skills that may also serve as important coach values to examine in current and future coaches.

CHAPTER V

PATTERNS OF COACHING COMMITMENT AMONG INTERCOLLEGIATE ASSISTANT COACHES

Abstract

In a sport context, commitment can be viewed as a critical component of motivation and a contributor to athletic success, yet commitment to coaching has been infrequently researched. The relationships among six aspects of coaching commitment: coaching benefits, coaching costs, satisfaction with coaching, coaching investments, attractiveness of alternatives, and social constraints in coaching were examined in this study. Intercollegiate assistant coaches from a variety of sports coaching in either NCAA Division I or Division III (N=630) completed a survey regarding their coaching commitment. A cluster analysis uncovered four distinct profiles of coaching commitment: (1) low commitment to coaching, (2) entrapped coaches, (3) coaches whose commitment reflected their strength of identity with the coaching role, and (4) enjoyment-based commitment to coaching. MANOVA revealed differences among cluster membership based upon coaching experience, sex, and division. Examination of cluster member characteristics suggests that additional psychological characteristics may be important when attempting to predict coaching commitment among intercollegiate assistant coaches.

Keywords: commitment, coaching, NCAA Division I intercollegiate sport, NCAA Division III intercollegiate sport

Understanding the sources of commitment, and the profiles of highly committed individuals in sport, is something that administrators, coaches, and athletes have been aspiring to grasp for generations. While many individuals in sport would agree that commitment is both a critical component of motivation and a contributor to athletic success, commitment to coaching, has been infrequently researched. However, examination of commitment in various academic domains has taken place for more than half a century (e.g. Becker, 1960). Different definitions have emerged for this social psychological construct including an individual's tendency towards completing a particular task (Boyst, 2009). Commitment has also been defined as an explanation of individual persistence in a task (Becker, 1960) or in a relationship (Kelley, 1983). More simply, commitment pertains to whether an individual feels that s/he wants to be involved in something, or whether s/he feels like being involved in that activity is required (Johnson, 1982). During the pursuit of understanding commitment as a psychological process, commitment theories such as interdependence/social exchange theory (Kelley & Thibaut, 1978; Thibaut & Kelley, 1959) and Rusbult's (1980a, 1980b, 1983) investment model were developed.

The investment model of commitment asserts that job satisfaction should be greater than the extent to which a position offers high rewards and relatively low costs (Rusbult & Farrell, 1983). Results from previous research framed in this investment model have consistently supported the expectation that job satisfaction is associated with increased rewards and lower costs (Rusbult & Farrell, 1983; van Dam, 2005) and job

commitment is related to increased rewards, lower costs, increased investments, and negatively with alternative opportunities (Cini & Harden Fritz, 1996; Martinez-Inigo, 2000; Rusbult & Farrell, 1983; van Dam, 2005). While the investment model has most often been used to examine commitment in relationships between individuals, it has also been used to examine brand commitment in business research (Geyer, Dotson, & King, 1991), predict college student commitment (Cini & Harden Fritz, 1996), and examine employee attitudes towards job changes in the medical field (van Dam, 2005). As a result, the investment model has provided a framework to examine commitment in other domains, such as sport.

Commitment in Sport

The first systematic examination of commitment in sport came with the development of the Sport Commitment Model (SCM; Scanlan, Carpenter, Schmidt, et al., 1993). The model was developed using social exchange theory (Kelley & Thibaut, 1978; Thibaut & Kelley, 1959) and the investment model (Rusbult, 1980a, 1980b, 1983) as guiding perspectives. Scanlan and colleagues were originally inspired to examine sport enjoyment (or satisfaction) as a psychological motive for sport participation (Weiss & Amorose, 2008). Early studies of enjoyment (e.g. Scanlan, Carpenter, Lobel, & Simons, 1993; Scanlan & Lewthwaite, 1986; Stein & Scanlan, 1992) identified that positive social interactions, recognition by others with regard to competence, mastery, and effort, and positive social interactions were important determinants of sport enjoyment (Weiss & Amorose, 2008). Scanlan and colleagues framed this model around the importance that sport enjoyment contributes to commitment (Scanlan & Simons, 1992).

Building from the investment model foundation, the original SCM included five constructs: sport enjoyment, involvement alternatives, personal investments, social constraints, and involvement opportunities. These five factors were all hypothesized to influence participation and persistence, or sport commitment, for an individual (Scanlan, Carpenter, Schmidt, et al., 1993; Scanlan, Simons, et al., 1993). Although the SCM was originally designed to examine commitment among athletes of various ages, groups, and demographics, initial attention using the SCM was primarily in youth sport (Scanlan, Carpenter, Schmidt, et al., 1993; Scanlan, Simons, et al., 1993; Carpenter, 1992). Subsequently, other levels of sport have been studied including intercollegiate athletes (Casper & Andrew, 2008), elite international athletes (Scanlan, Russell, Beals, & Scanlan, 2003), and adult athletes (Casper, Gray, & Babkes Stellino, 2007).

Coaching Commitment

In addition to athlete commitment using the SCM, several studies have focused on the examination of coaches' commitment to their profession (Raedeke, 2004; Raedeke et al., 2000; Raedeke et al., 2002). Within the sport management literature the development of commitment for male and female coaches has been studied (Turner, 2008), and organizational commitment has also become a topic of interest (Cunningham & Sagas, 2004; Turner & Chelladurai, 2005). Two studies have been conducted to examine coach burnout (Raedeke, 2004; Raedeke et al., 2000), and another carefully considered commitment as it related to coaches' choice to continue, or discontinue, their coaching career (Raedeke et al., 2002). Raedeke and colleagues' commitment perspective is similar to the SCM, and based upon Rusbult's (1980a, 1983, 1988) investment model, around satisfaction, or enjoyment, and combined with the various costs and benefits of

involvement. In addition, using Rusbult's (1980a, 1983, 1988) investment model, coaching commitment includes the importance of investments in an activity and the attractiveness of alternative options as well. According to this model, the more an individual has invested and the less attractive any alternative options, the higher an individuals' commitment.

The investment model describes more than whether an individual is committed, or not, but also attempts to differentiate between individuals who stay committed, for positive or negative reasons (Rusbult, 1980a; 1983). Positive reasons that individuals stay committed have been termed 'attraction-based' reasons, while negative reasons for commitment have been viewed as 'entrapped' reasons. This approach to commitment was originally applied in a sport context (Schmidt & Stein, 1991) with the understanding that individuals would continue sport participation for attraction reasons if they perceived benefits, enjoyment, and investments to be high, and at the same time, costs and attractiveness of alternatives to be low (Weiss & Amorose, 2008). Schmidt and Stein (1991) described entrapment to involve individuals who were committed, but felt that continued participation involved low rewards, enjoyment, and few alternatives; and both high costs and high investments were also present. Raedeke (1997) found similar characteristics of commitment in swimmers, and the profiles of attraction and entrapment-based commitment have been supported in competitive gymnasts (Weiss & Weiss, 2003) and in coaches as well (Raedeke et al., 2000). Identifying profiles of commitment has occurred using various clustering analysis techniques to categorize, or group, athletes and coaches based upon various commitment subscales (Raedeke et al., 2000).

Cluster analysis is a tool that can be used to better understand characteristics of coaching commitment. Specifically, cluster analysis is used to identify and make sense of subgroups within a larger data set that have important, yet previously unknown relationships, between a set of variables (Burns & Burns, 2008). The initial published coaching commitment study in the sport psychology knowledge base (Raedeke et al., 2000) examined the commitment of age-group swim coaches using various aspects of coaches' commitment as variables: benefits, costs, satisfaction, investments, social constraints, and alternative attractiveness. Through the use of cluster analysis, Raedeke and colleagues (2000) were able to identify three theoretically supported profiles of swim coaches: attraction-based coaches, entrapped coaches, and coaches with low levels of commitment. Raedeke et al (2000) relied on previous findings within athlete commitment studies (Raedeke, 1997; Schmidt & Stein, 1991) to explain that coaches with high levels of enjoyment in coaching should demonstrate higher levels of commitment. In the same way, Schmidt and Stein (1991) characterized athletes with factors indicating low commitment to be likely candidates to dropout of sport. Raedeke and colleagues (2000) used previous commitment research to create a hypothesized description for enjoyment-based commitment, entrapment, and low commitment, applicable to both athletes and coaches.

Raedeke and colleagues' (2000) pivotal study on coach commitment revealed that swim coaches were committed for attraction reasons, entrapment reasons, and a third group demonstrated relatively low commitment. Findings indicated that coaches with attraction-based commitment were highly satisfied with their current positions, and they perceived high benefits and low costs from their coaching career. The second cluster of

coaches committed for attraction-based reasons exhibited a different set of characteristics than the attraction-committed coaches. This group reported lower than average perceptions of the benefits of coaching and satisfaction with coaching, and they also reported the costs of coaching to be higher than the average for their peers in the study. Furthermore, these coaches perceived greater investment, greater social constraints, which can be viewed as a factor contributing to a continuation in coaching, or a combination of these factors, which was interpreted as being *comparatively entrapped*. Entrapped coaches have been characterized as committed in the sense that they want to maintain involvement in coaching, however they may not demonstrate a strong desire to do so (Raedeke et al., 2000). The third cluster included coaches who reported lower satisfaction and fewer benefits from coaching relative to the other two groups. In addition, this group had lower investment scores, reported that coaching alternatives were more attractive, and perceived fewer social constraints compared to other coaches in the sample. Coaches with low levels of commitment are the most likely candidates for burnout and for leaving the profession (Raedeke et al., 2000). Typically these coaches demonstrated low levels of commitment because they did not want to be involved nor did they feel that they had to continue in their career as a coach (Raedeke et al., 2000).

To date, commitment research has focused on understanding the various predictors of commitment (Raedeke et al., 2002). When coaching commitment has been examined in the sport management literature most of the previous research has considered the level at which individuals are committed, to whom they are committed, and the result or consequences of that commitment (Turner, 2008). Despite an increase in understanding coaching commitment, there remains a lack of knowledge as to what

characteristics are present in more or less committed coaches. This void in the sport management literature extends with regard to the determinants of commitment as well (Turner, 2008).

Raedeke (1997) also used this clustering technique to examine the commitment of age-group swimmers. He found that athletes can continue involvement because they want to remain involved, or they may remain involved because they feel as though they have to be involved (i.e. entrapped). Within the early coach commitment research (Raedeke et al., 2000), the profiles of comparatively entrapped coaches mirrored that of swimmers, in that coaches also reported high investments and high social constraints. However, entrapped coaches reported average alternatives (Raedeke et al., 2000). To date, research on commitment has yet to reveal a connection between a lack of attractive alternatives and characteristics of entrapment (Raedeke, 1997; Raedeke et al., 2000). With both swimmers and age group swim coaches, findings suggested that coaches and athletes who are feeling obligated to participate are more likely candidates for burnout in their sport.

The limited exploration of coaching commitment can be found with two additional studies with age-group swim coaches. The first study involved a comparison of commitment between current and former swim coaches (Raedeke et al., 2002), and the second involved a one-year follow-up study of Raedeke and colleagues' initial coach commitment and burnout study (Raedeke, 2004). In the comparison with current and former coaches, Raedeke and colleagues found satisfaction and investments as related to commitment, collectively explaining 65% of the variance in commitment. However, alternative options and social constraints were not related to commitment, contradicting

their hypothesis. Significant differences were revealed between current and former coaches. For example, current coaches reported higher social constraints and investments, while former coaches reported higher levels of attractiveness to alternatives.

Raedeke and colleagues (Raedeke, 2004; Raedeke et al., 2000; Raedeke et al., 2002) have argued that more research is needed to understand the relationships between commitment and burnout. While a profile of attracted coaches and entrapped coaches has been supported, findings on coach commitment indicate that this commitment model may predict psychological variables among coaches better than it predicts behavioral outcomes (Raedeke et al., 2002). Although coaching commitment has been examined, the narrow exploration of coach commitment has been limited to research on coach burnout (Raedeke et al., 2000), how commitment develops (Turner, 2008), and occupational commitment and turnover in general (Cunningham & Sagas, 2004; Raedeke et al., 2002; Turner & Chelladurai, 2005).

Purpose of the Study

The purpose of the present study was to explore potential profiles of coach commitment with intercollegiate assistant coaches across a variety of sports. Along with this purpose, additional knowledge with regard to determining characteristics of more, or less, committed coaches was sought. The specific research question was: which characteristics of assistant coaches best explain coaching commitment? As assistant coaches at the intercollegiate level are relatively unstudied and coaching commitment is a concept that has only briefly been examined, this study was intended to contribute additional insight into the characteristics of commitment for intercollegiate assistant coaches. The pursuit of additional knowledge with regard to coaching commitment in

this population of assistant coaches could prove to be beneficial in coach education, professional development for coaches, and developing a better understanding of the characteristics of commitment in this important population of understudied coaches in the United States.

Method

Participants

The participants for this study were 630 NCAA Division I and Division III assistant coaches who were involved in a larger study that examined coaching intentions, coaching commitment, coaching values, and coaching efficacy. After removing univariate outliers, 615 coaches were included in the analysis for the current study. This sample of intercollegiate assistant coaches represented 21 different sports including basketball ($n = 119$), soccer ($n = 80$), volleyball ($n = 73$), football ($n = 62$), and track & field ($n = 47$). The average age was 32.87 years and this coaching sample reported having an average of just less than 9 years of coaching experience. Both male ($n = 360$) and female ($n = 255$) coaches participated in this study. The overwhelming majority of these coaches had been intercollegiate athletes themselves at either the DI ($n = 209$), DII ($n = 52$), or DIII ($n = 163$) levels. Eighty-two additional coaches reported their highest level of playing experience to be the professional level in their sport. This coaching sample was overwhelmingly white (84.9%) and reported high levels of education, with 96.9% reporting having finished their academic careers with either a bachelor's degree ($n = 339$) or master's degree ($n = 257$).

Measures

Commitment. Raedeke and colleagues (2000) designed a measure of commitment to assess coaches' commitment characteristics. The measurement of coaching commitment in intercollegiate athletics can be traced to a study with age-group swim coaches (Raedeke et al., 2000) that combined aspects of the investment model of commitment (Rusbult, 1980a, 1983, 1988) and the SCM (Scanlan, Carpenter, et al., 1993). In this study, Raedeke's measure was used, and this included six subscales of commitment: coaching benefits, coaching costs, satisfaction with coaching, attractiveness of alternatives, investments in coaching, and social constraints.

Benefits associated with coaching. Benefits were measured using a general benefit scale. Benefits and costs were previously used by Raedeke and colleagues (2000) and were created based upon criteria established in past coaching research (Kelley, 1994; Weiss & Stevens, 1993). Benefits were defined as "the positive aspects of coaching that make coaching attractive and rewarding" (Raedeke et al., 2000, p. 90). These items were modified from Raedeke and colleagues' (2002) scale in order to be appropriate for intercollegiate assistant coaches. In this study coaches were given a prompt based upon Raedeke and colleagues' (2002) nineteen specific benefit items, which sought to familiarize the respondents with the concept of coaching benefits before answering the general benefit items. This prompt read:

Many coaches consider benefits involved with coaching to include: the opportunity to continue in athletics, enjoyment of teaching skills and working with athletes, winning, being a positive role model, & being a part of building a successful program...Keeping these in mind, please respond to/rate the following items...

Three general benefit questions were included: (1) “All things considered, to what extent are there benefits associated with coaching?” (2) “In general, to what extent do you find coaching rewarding?” and (3) “How do the benefits of coaching compare to the benefits found in other careers?” (Raedeke et al., 2000). The general benefit items were assessed on a 5-point Likert-type scale, with 1 representing “Not at all” and 5 representing “Very much so” for questions 1 and 2. The third benefit question was set up with a 1 representing “Much less in coaching” while a 5 represented “Much greater in coaching.” The general benefit questions were totaled and averaged to create a mean benefit score for each coach, which led to a single benefit value that was used in the subsequent statistical analysis. Past research (Raedeke et al., 2002) reported that this method resulted in valid and reliable measures of both benefits and costs.

Costs associated with coaching. The costs associated with coaching were measured using a subscale to examine the general costs associated with coaching. The costs associated with coaching were defined as “the negative aspects of coaching that make coaching unattractive and include the things that you do not like about coaching” (Raedeke et al., 2000, p. 90). These items were modified from Raedeke and colleagues’ (2002) subscale in order to include appropriate language for intercollegiate assistant coaches of all sports. In this study, coaches were given a prompt based upon Raedeke and colleagues’ (2002) previously used specific cost items, the purpose of which was to familiarize the respondents with the concept of coaching costs before answering the any of the general cost items. This prompt read:

Many coaches consider costs involved with coaching to include: having a heavy workload, poor financial compensation, a lack of support and/or recognition, a lack of professional development opportunities, & a significant time commitment to coaching...Keeping these in mind, please respond to/rate the following items...

Three general cost questions were included: (1) “All things considered, to what extent are there unpleasant things associated with coaching?” (2) “In general, to what extent are there ‘costs’ associated with coaching?” and (3) “How do the costs of coaching compare to the costs found in other careers?” (Raedeke et al., 2000). The three general cost items were assessed on a 5-point Likert-type scale, with 1 representing “Not at all” and 5 representing “Very much so” for questions 1 and 2. The third cost question was set up with a 1 representing “Much less in coaching” while a 5 represented “Much greater in coaching.” Combining the overall perceived cost score for each respondent occurred by creating the total mean score from the answers to these three questions.

Satisfaction with coaching. This subscale consisted of five questions as previously used by Raedeke and colleagues (2000) with age group swim coaches. Examples of the five questions are: “All things considered, how satisfied are you with coaching?” and “Knowing what you know now, if you had to decide all over again, would you coach?” Previous research (Raedeke et al., 2002) has reported acceptable intrascale reliability ($\alpha = 0.81$) for this subscale.

Investments in coaching. This subscale included four questions to measure each coach’s perceived investment in coaching. Investments were defined to the respondents as “any of the resources you invest in coaching.” Possible investments include such things as time (e.g., planning practices, calling/spending time with recruits, attending games/meets/events, attending meetings, and watching film), energy, emotional

involvement, and money you invest in coaching.” Examples of the four questions are: “In general, how much time do you put into coaching?” and “How do your coaching investments compare to what most people invest into their jobs?” Previous intrascale reliabilities for this subscale have been reported including, $\alpha = 0.83$ (Raedeke et al., 2002), and $\alpha = 0.84$ (Raedeke et al., 2000).

Attractiveness of alternatives. Three items were used to examine coaches’ perceptions of attractive alternatives. These questions are: “All things considered, how attractive are your alternative career options to coaching?” “In general, how do your career alternatives compare to coaching?” and “How do your alternative career options compare to how you would ideally like to spend your time?” Previously acceptable intrascale reliabilities for this subscale include, $\alpha = 0.77$ (Raedeke et al., 2002), and $\alpha = 0.78$ (Raedeke et al., 2000).

Social constraints. In order to measure social constraints, four questions developed by Raedeke and colleagues (2000) were used. Examples of these questions include: “I feel like I would let other people down if I stopped coaching,” and “It would be hard for me to leave coaching because I like being known as a coach.” Previous research (Raedeke et al., 2002) has reported acceptable intrascale reliability ($\alpha = 0.71$).

Procedures

Ethics board approval from the University of Northern Colorado was granted prior to the initiation of this research. Upon receipt of this approval both purposeful and convenience sampling were employed in order to gain a large sample of intercollegiate coaches. Using prior coaching contacts, the lead researcher created an initial list of potential participants and a handful of individuals within intercollegiate athletics (i.e.

athletics directors and head coaches) were asked for the names of coaches who might be willing to participate. Additional convenience sampling was implemented to target coaches from the previous athletic conference in which the researcher had coached, the current athletic conference in which the researcher was a student, and at various NCAA institutions where members of the researchers' professional coaching network were currently employed. Each coach whose name emerged through this method was sent an online survey link.

The second part the of recruitment process involved purposeful sampling methods to identify a list of coaches who could add diversity to this sample in terms of gender, race, age, geographic location, and/or sport coached. This second sampling method was used in order to add a greater variety of coaches to this research and attempt to increase the representativeness of this sample (Dillman, Smyth, & Christian, 2009).

After a complete list of potential study participants was compiled, an email strategy reflecting previously accepted three-email strategy was used (Dillman et al., 2009). The first personalized email was sent to each coach asking for their participation in this brief survey. For each coach whose name was identified during the initial snowball-like sampling procedure, their email did include a non-coercive reference to the individual who identified them as a possible candidate for this study. The Qualtrics survey link was included directly in this initial email in order to make the ease of participation as convenient as possible. Approximately one-week later a second personalized follow-up email was sent to those who had not already participated. This was followed by a second follow-up email invitation approximately a week after the second email. At the end of the process a final "last chance" email was sent to coaches

who had not already completed the online survey. As a limited reward for participation, each coach was given the opportunity to include their email address if they were interested in a copy of the results at the culmination of the project. The approximate response rate from the individualized and personalized contact approach was 74 percent.

Research Design

In order to identify common commitment profiles among assistant coaches in this study a cluster analysis was used. The variables that were considered to be of greatest relevance to the commitment profiles were coaches' perceived benefits, costs, satisfaction, investments, attractiveness of alternatives, and social constraints. If common commitment profiles were identified through cluster analysis then the profiles were to be compared in relation to education, age, experience in the sport, and role (head coach or assistant coach).

Data Analysis

When attempting to organize a data set, cluster analysis is a statistical procedure used to group data when group membership is unknown (Tabachnick & Fidell, 2013). Furthermore, cluster analysis is used to explore common links or characteristics within emergent cluster profiles. Research questions that would be appropriate include: examination of variations in individuals (i.e. coaches, athletes) based upon certain independent variables; exploration of descriptive characteristics of groups of coaches, or other groups of individuals; or whether distinct profiles of coaches, or others, be identified and explained as a result of a combination of predictor variables. While there are a number of different algorithms in cluster analysis, they can generally be divided into hierarchical and nonhierarchical techniques. One of the primary differences between

these two higher order methods is that in nonhierarchical techniques the researcher is able to identify the number of clusters or number of seed points in which to begin (Johnson & Wichern, 2007).

Nonhierarchical cluster analysis was used in this study in part because nonhierarchical clustering is less influenced by outliers, the distance measure is used, and the confidence of nonhierarchical cluster analysis is improved when the research can designate initial clusters based upon initial seed points in past research (Hair, Anderson, Tatham, & Black, 1995; Raedeke, et al., 2000; Tabachnick & Fidell, 2013). Specifically, a nonhierarchical *k*-means cluster analysis was completed using the Quick Cluster function in SPSS.

Prior to conducting the analysis, all variables were standardized in the form of a z-score in order to allow for easier interpretation. As cluster analysis is particularly affected by outliers, all values that were ± 2.5 standard deviations from the mean were considered outliers and were removed from further analysis.

Cluster analysis is, by nature, an exploratory research method and as such multiple clusters should be examined in order to find the number of clusters that best represent the data (Johnson & Wichern, 2007). For this cluster analysis three, four, and five cluster solutions were all considered before a decision was made about the cluster that represented the best solution. In selecting the cluster solution that best fit the data, three specific strategies were used in order to determine the best choice in which to proceed. First the number of participants in each cluster was examined. While more evenly distributed cluster samples were ideal, in this study solutions with the largest cluster two or three times larger than the smaller cluster were avoided if possible. This

was considered in order to maximize the potential for similar sized clusters to compare in the interpretation and analysis of these clusters. Secondly, the meaningfulness of the variables was considered. Mean z-score values of ± 0.8 were considered very high/low, or important contributors to the cluster; ± 0.5 were considered high/low, and also relatively important contributors to the cluster; and ± 0.3 values were considered moderately high/low contributors to the cluster solution. For all six commitment subscales, these standards were used with cluster solutions with a greater number of mean z score values ± 0.5 considered more powerful solutions; which is consistent with previously completed cluster analyses in sport and exercise science (i.e. Raedeke, 2004; Weiss, Ebbeck, & Horn, 1997). Lastly, cluster solutions were examined with regard to the logical nature of the solution. Using prior knowledge of coaching and sport commitment, the research carefully examined various cluster solutions based upon this subjective criterion. The final cluster solution was selected based upon a combination of these three factors, without weighing one as deliberately more important than any other. MANOVAs were run as a follow-up analysis to assess the differences between the clusters according to demographic variables such as gender, race/ethnicity, sport coached, coaching experience, age, and playing experience.

Results

Prior to the analysis of descriptive or cluster statistics, each of the subscales used in this study were examined for internal consistency. Two of the determinants of commitment had alpha coefficients below Nunnally's (1978) accepted standard of 0.70, benefits ($\alpha = .64$) and attractiveness of alternatives ($\alpha = .49$). The attractiveness of alternatives subscale was too low to be kept in this study, and as such it was removed

from the cluster analysis. Due to the exploratory nature of this study, and previous level of internal consistency (Raedeke et al., 2002), the benefits subscale, however, was included in the cluster analysis for the present study. The other four commitment subscales demonstrated acceptable levels of internal consistency within this sample.

Descriptive Analyses

Of the 615 intercollegiate assistant coaches that participated in this study during the spring of 2015, 54.6% ($n = 336$) were NCAA Division I coaches and 45.4% ($n = 279$) were coaches in NCAA Division III. The coaching experience of these assistant coaches ranged from one to 53 years and the mean experience was 8.84 years. Just over 10% of the sample reported having been a collegiate head coach in the past ($n = 79$), so most of the participants had yet to direct a college program. The mean age reported by this coaching sample was 32.87 years. The majority of the coaches identified themselves as assistant coaches ($n = 448$; 73%), while other assistant roles included associate head coaches ($n = 63$), graduate assistants ($n = 24$), recruiting coordinators ($n = 22$), and directors of operations ($n = 20$). The coaching sample included a majority of males ($n = 360$; 59%) and was predominantly white/Caucasian ($n = 522$; 85%), both of which reflect the current demographics among college coaches in the United States. With regard to education completed, more than half of the coaches reported having finished their bachelor's degrees ($n = 339$), while most of the rest of the sample reported having finished their master's degree ($n = 257$). Less than 2% of the sample reported not having a bachelor's degree, and less than 2% of the sample reported having completed a doctoral degree. The sport playing experience was far more varied than education with one-third ($n = 209$) of the coaches reporting having ended their playing careers as DI athletes.

Additionally, more than one-fourth of the coaches were D3 athletes ($n = 163$), and 82 coaches reported playing their sport professionally after college. Other levels of playing experience were also reported including at the following levels: D2 ($n = 52$), other (including international/Olympic competition; $n = 41$), and high school ($n = 39$).

Table 7 provides the descriptive statistics and the correlations among the six difference commitment variables in this study. Using a five-point Likert-type scale with “1” representing a low response and a “5” representing high response, this sample of coaches reported high perceptions of the benefits of coaching ($M = 4.47$) as well as a high level of investment in coaching ($M = 4.42$). Much lower was the report of social constraints being a barrier to coaching ($M = 2.09$). Also as depicted in Table 7, strong correlations among commitment variables were common in this sample.

Table 7

Descriptive statistics, correlations and alpha coefficients for the six commitment variables

	Benefits	Costs	Satisfaction	Investments	Attractive-ness of Alternatives	Social Constraints
Benefits	0.64					
Costs	-.015**	.71				
Satisfaction	0.55**	-.32**	.78			
Investments	.20**	.14**	.08*	.72		
Attractiveness of Alternatives	-.09*	.08	-.09*	-.07	.49	
Social Constraints	.05	.10**	-.01	.11**	.11**	.78
Mean	4.47	3.42	4.19	4.42	3.05	2.89
SD	0.48	0.79	0.59	0.48	0.80	1.05

** . Correlation is significant at the 0.01 level (2-tailed).

* . Correlation is significant at the 0.05 level (2-tailed).

Cluster Analysis

A cluster analysis was conducted with two purposes: first, to identify distinct profiles or identifiable subgroups of intercollegiate assistant coaches with regard to sources of coaching commitment; and second to examine the emergent profiles based on variations in age, coaching experience, playing experience, education, race, sex, sport coached, or based on the five commitment variables used to calculate the cluster (coaching benefits, costs, satisfaction with coaching, investments in coaching, and social constraints involved with coaching). Before initiating the non-hierarchical cluster analysis, using the Quick Cluster function in SPSS, the six commitment variables were standardized with z-scores in order to conduct the analysis. The resulting cluster analysis identified four distinct coaching subgroups who varied based upon the six commitment variables. Table 8 shows the mean z-score comparison for each of the six commitment variables used in the cluster analysis. For the purposes of interpretation a mean z-score of ± 0.8 was used as a benchmark for very high or very low, values at or exceeding ± 0.50 were considered high, and values at or exceeding ± 0.30 were considered moderately contributing to the cluster results.

Table 8

Mean Z Score Comparison for Six Commitment Variables According to Cluster

Cluster		Benefits	Costs	Satisfaction	Investments	Social Constraints
1 – Low Commitment	M	-0.86	-0.14	-0.71	-1.14	-0.14
	N	115	115	115	115	115
	SD	0.59	0.90	0.56	0.73	0.92
2 - Entrapped	M	-0.26	0.84	-0.75	0.63	-0.18
	N	151	151	151	151	151
	SD	0.89	0.76	0.67	0.68	0.93
3 – High Social Constraints	M	<i>0.46</i>	0.15	<i>0.48</i>	<i>0.33</i>	1.05
	N	157	157	157	157	157
	SD	0.56	0.83	0.52	0.69	1.03
4 – High Satisfaction	M	0.54	-0.75	0.75	-0.03	-0.63
	N	192	192	192	192	192
	SD	0.84	0.74	0.69	0.71	0.88
Total	M	0.06	-0.01	0.04	0.02	0.00
	N	615	615	615	615	615
	SD	0.90	1.00	0.94	0.96	1.00

*Note: **Bold/italics** represents Very High contribution to the cluster (+/- 0.8); **Bold** represents High/Low contribution (+/- 0.5); *Italics* represents a moderate contribution to the cluster (+/- 0.3)*

Profiles of cluster groups. Cluster 1 ($n = 115$) consisted of coaches who reported very low investments in coaching and very low perceived benefit to coaching. Furthermore, Cluster 1 coaches were represented by feelings of low satisfaction with coaching, which contributed to the identification of this cluster as a low commitment group. Cluster 2 ($n = 151$) revealed a group of coaches who appeared to be comparatively entrapped in coaching. As such, Cluster 2 coaches reported feeling that coaching had very high costs, while also perceiving low satisfaction with coaching, yet highly invested in coaching as a career. Cluster 3 ($n = 157$) consisted of coaches who perceived coaching to involve very high social constraints. This cluster also was moderately satisfied with coaching, believed coaching to have some benefits, and at the

same time felt that they were moderately invested in coaching as a career. Cluster 4 ($n = 192$) identified a group of coaches with high satisfaction with coaching. The largest and final cluster also perceived low costs associated with coaching, low social constraints, and high benefits as well. Table 9 compares the determinants of commitment as contributors to each of the four clusters in this solution.

Table 9

Important Contributing Factors to Coaching Clusters

	Cluster 1: Low Commitment	Cluster 2: Entrapped	Cluster 3: Identify as Coaches	Cluster 4: High Commitment
Important Contributions to Cluster Formation	Very Low Investment	Very High Cost	Very High Social Constraints	High Satisfaction
	Very Low Benefit	Low Satisfaction	Moderate Satisfaction	Low Cost
	Very Low Satisfaction	High Investment	Moderate Benefits	Low Social Constraints
			Moderate Investments	High Benefits

Cluster group differences. The variability present in the four aforementioned clusters indicates that four distinct groups of intercollegiate assistant coaches were identified with regard to their coaching commitment. The cluster centers revealed in this analysis present both similarities and differences between clusters worth reporting. The first initial result worth noting is the difference between Clusters 1 and 4. Within the five commitment variables Clusters 1 and 4 reported very different results. Cluster 4 reported high benefits and high satisfaction, while just the opposite was found with Cluster 1 which reported very low benefits and low satisfaction with coaching. Cluster 4 coaches reported low costs, while in Cluster 1 cost was not a contributing factor to identification

of the cluster. Similarly having low investments in coaching was a significant contributor to Cluster 1, but not at all to Cluster 4. As a result, cluster 1 was named high commitment coaches, while Cluster 1 was termed low commitment coaches.

The two clusters that demonstrated the most similarities were the low commitment coaches (Cluster 1) and the entrapped coaches (Cluster 2). Both of these groups of coaches reported having low satisfaction with coaching. In addition, neither of these two groups felt that there were real benefits in coaching. Yet, even within these somewhat similar groups, there were two very different perspectives with regard to their investments in coaching. The low commitment cluster reported having very low investments, while the comparatively entrapped group reported high levels of investment in coaching.

The low commitment cluster is noteworthy in that this group of coaches had the highest percentage of female coaches when compared to the other three clusters. Cluster 1 also had the least amount of coaching experience (7.77 years) and this was reflected in the types of assistant coaches in this cluster. Unlike the other three groups, only 4% of the coaches were associate head coaches, and nearly 20% of the coaches in this group were not paid full-time assistants (i.e. graduate assistants, director of operations, volunteer assistants). In terms of sport representation, volleyball coaches were the most frequent sport coach in this group, with more than 18% of the cluster being a volleyball coaches. Most importantly within the low commitment cluster, Division III coaches were present far more frequently than DI coaches. Sixty percent of the coaches in this cluster were D3 coaches and that was between 15-23% higher than each of the other groups. In addition, 38% of the coaches in this group peaked as an athlete in DIII. All other clusters

had more former DI athletes than any other group, and the next largest percentage of DIII athletes appeared in Cluster 3 (25.5%).

Cluster 2, the entrapped coaches, had several distinguishing characteristics. First, it was the most educated cluster, with more than half of the coaches in this group having reported completed master's degrees. All other clusters had a majority of coaches with only a bachelor's degree and clusters 1 and 3 had 60% at that level of education. Cluster 2 also had the largest percentage of coaches from any one sport. More than 25% of the coaches in this cluster were basketball coaches, and this number represented more than one-third of the basketball coaches in this entire sample. Basketball coaches were also more than twice as frequent as any other group of sport coaches in this cluster (i.e., soccer and volleyball had 11.9% each).

Cluster 3 was characterized differently from the other three clusters in that the cluster emerged as the result of one very important variable: high social constraints. While all other clusters had at least three variables ± 0.50 , for cluster 3 high social constraints was the only one. As social constraints involve feeling pressure to remain in coaching because others (i.e., players, family, friends) consider a coach's identity to be consistent with his/her career, this cluster was aptly coined the "identify as a coach" cluster. This cluster stood out as having several descriptive differences worth noting. First, 68.2% of the coaches in this cluster were male coaches; no other cluster included more than 58% male coaches. Secondly, the average age of this cluster was 34.02 years. This too was greater than any of the other three clusters. Consistent with age, this cluster had the most experienced coaches ($M = 10.29$ years, $SD = 9.45$), which was more than a year and a half longer than the mean from any other group. Cluster 3 also consisted of

the least educated group of coaches, with almost two-thirds of the coaches only having bachelor's degrees, and with no coaches having advanced past their master's degree. Lastly, with regard to sport, basketball and football coaches were the most frequent coaches in this group, with more than one-third of the football coaches in this sample present in this cluster.

Cluster differences according to demographic variables. In the examination of cluster differences according to the demographic variables, a one-way MANOVA revealed significant differences for the dependent variables in the overall model, Wilks' $\lambda = .92$, $F(21, 615) = 2.37$, $p < .000$. Results indicated that there were significant differences within the clusters ($p < .05$) for division, $F(3, 615) = 4.73$, $p = .003$, sex, $F(3, 615) = 3.22$, $p = .022$, and coaching experience, $F(3, 615) = 2.74$, $p = .043$. Post hoc analyses revealed that the low commitment cluster had significantly different division membership when compared to each of the other three clusters individually. With respect to sex, the low commitment cluster was significantly different than only the cluster of coaches who identify as coaches. And the low commitment cluster also demonstrated significant differences with the group of coaches who identify as coaches for coaching experience. There were no other significant differences revealed as a result of the MANOVA analysis.

Discussion

The level of a coach's commitment is impacted by a combination of factors. Similar to sport commitment, some of these factors include the perceived benefits and costs of coaching, a coach's satisfaction with coaching, perceived level of investment in coaching, and the social constraints involved with coaching. Although research

specifically examining coaching commitment has been limited, Raedeke and colleagues (2000) presented a theoretically based blueprint to suggest three different types of commitment: enjoyment-based, entrapment, and low commitment. The results in this study are consistent with the previously hypothesized determinants of commitment (for a complete comparison see Table 10).

Cluster 1 demonstrates characteristics evident in previous research on coaching commitment (Raedeke et al., 2000, Raedeke, 2004) in that low satisfaction and low benefits were present. Logically, coaches who are not enjoying what they do and see very little benefit in being a coach could certainly be perceived to have low levels of commitment. Sagas and Batista (2001) also found that job satisfaction for intercollegiate coaches played an important role in leaving the profession, and as Cluster 1 reported very low satisfaction with coaching, this group of coaches would be much more likely than the other three clusters to leave coaching altogether, thus supporting their low commitment.

In further support of this finding, Cluster 1 in this study included the largest amount (nearly 20%) of coaches who did not indicate that they were full-time assistant coaches according to their title, which also logically would be expected within a lower commitment group. The fact that this group also indicated that they considered themselves to have very low investment in coaching only strengthens the rationale behind determining this group to have the lowest commitment level of the four clusters.

Table 10

Hypothesized Profiles (Raedeke et al., 2000) Compared to the Results in the Present Study

	Hypothesized Low Commitment	Study Results Cluster 1	Hypothesized Entrapped	Study Results Cluster 2	Hypothesized Enjoyment- Based	Study Results Cluster 4
Benefits	low	very low	low	low*	high	high
Costs	high		high	very high	low	low
Satisfaction	low	very low	low	low	high	high
Investments	low	very low	high	high	high	
Social Constraints	low		high		?	low
Commitment Level	low		moderate		high	

*cluster 2 benefit z-score was -.26, rounding towards being a moderate contributor to the cluster; all blank spaces indicate values that were not contributing factors to the cluster solution $-.30 < x < .30$.

Interestingly, this group also had the highest percentage of female coaches, which suggests that female coaches may have lower levels of commitment to coaching. While this finding may not be generalizable with all female assistant coaches, it could be seen as consistent with previous research that has examined why female coaches are leaving careers in college athletics (Kamphoff, 2010). Cunningham and Sagas (2003) found that female coaches actually intended to leave coaching careers earlier than men, which is consistent with finding more females in the low commitment group.

Similar to low commitment cluster, the entrapped cluster in this study had feelings of low satisfaction with coaching. The feeling of being entrapped in coaching occurs when a coach feels less satisfaction or enjoyment with coaching, together with decreasing benefits and increasing costs (Raedeke, 2004). Coaches begin feeling entrapped when their attraction to coaching is decreasing, but they remain in coaching because they feel as though they have to be a coach (Raedeke, 2004). Schmidt and Stein (1991) previously described entrapment to involve a lack of positive pulls, but nonpositive pushes. This pattern describes Cluster 2 as they perceived a high cost, low satisfaction, and high investment in coaching. As seen in Table 10, the consist profile with hypothesized characteristics of entrapped coaches, and previous results examining coaching commitment (Raedeke, 2004; Raedeke et al, 2000) provide further support to the notion that intercollegiate athletics is filled with coaches who have strong feelings of entrapment. This reflects long hours traveling, recruiting, and training athletes that is consistent with expectations in both DI and DIII athletics. Having more than 25% of this cluster represented by basketball coaches is logical in that basketball is one of the longest

seasons with teams considered in season for as many as 6 or 7 months of the year and during the bulk of both fall and spring semesters.

Also consistent with previous commitment research (Raedeke et al, 2000), the characteristics of the high commitment group revealed strong perceived benefits with coaching, low costs involved with coaching, and a high degree of satisfaction with coaching. The diverse number of sport coaches represented in this sample indicates that coaches with enjoyment-based commitment can be found in all intercollegiate sports. In this relatively large cluster ($n = 192$), over half of the coaches had played in the sport they coached at the DI, international, or professional level.

While the low commitment, entrapped, and high commitment clusters closely reflected previous notions about patterns of coaching commitment, Cluster 3 in this study presents a new perspective to consider within coaching commitment. Coined the “Identify as Coaches” cluster, this group of coaches ($n = 157$) perceived a high level of social constraints that has previously played an important role in sport commitment (Scanlan, Carpenter, Schmidt et al., 1993). The importance of social constraints suggests that this cluster of coaches feels as if they would be letting others down if they were no longer a coach. The strength or importance of this variable insinuates that what others think is playing a major role in their coaching commitment. As a result, it would seem that similar to the entrapped cluster these coaches feel stuck in place as a coach; this is consistent with the hypothesized entrapment profile seen in Table 10.

Unlike the entrapped cluster, the coaches who identify themselves as coaches had z-score values that revealed enjoyment and perceived benefits to coaching. These characteristics are more consistent with coaches who are committed to coaching for

enjoyment-based reasons (Cluster 4). The unique profile that this suggests is supported by the descriptive results present in this study. This cluster had the most coaching experience, and while coaching experience only differed from Cluster 3 to Cluster 1, one might expect an older more experienced cluster to feel stuck as opposed to a cluster with a younger profile.

Finding that members of the “identify as coaches” cluster were more than twice as likely to be men is also an interesting outcome of this study. This suggests that coaches who have grown to believe that coaching is a part of who they are as a person are primarily male. Previous research with intercollegiate assistant coaches revealed that male assistant coaches had higher levels of coaching self-efficacy and a stronger desire to become head coaches, while female coaches were more likely to leave the coaching profession sooner than male coaches (Cunningham, Sagas, & Ashley, 2001). Supposing that greater efficacy and a desire to continue in intercollegiate athletics as a head coach are characteristics of individuals whose identity is formed around being a coach, it is reasonable to understand that more coaches in this cluster would be male as opposed to female.

Conclusions and Future Directions

The purpose of the present study was to examine characteristics of coaching commitment according to various descriptive variables among intercollegiate assistant coaches. The exploration of profiles led to four distinct clusters and some interesting findings with regard to division, sex, and coaching experience. Three of the four emergent clusters also aligned closely with previous coaching commitment hypothesis and results. While these findings provide additional contributions to the knowledge and

understanding of coaching commitment, perhaps even more valuable is what this study did not find. Between the low commitment, entrapped, strongly identified coaches, and high commitment clusters, there were no statistical differences for playing experience, education, type of assistant coach, race/ethnicity, age, sport coached, or previous head coaching experience. Although there were several significant differences within division, sex, and coaching experience, these differences did not include all of the clusters for each variable.

The lack of significant cluster differences suggests that the determinants of coaching commitment are much greater than a group of demographic variables. The similar descriptive profiles between clusters indicates that commitment can be considered a much more personal or psychological idea. Furthermore, these findings suggest that identifying a coach who is committed to coaching is not likely to be done through the determination if someone was a former player, if a coach has previous head coaching experience, or based upon his/her age, race, or education.

Future research directions should examine some of these demographic characteristics and coaching commitment. For example, while level of education did not affect coaching commitment in this study, considering the quality or type of education might reveal more meaningful relationships with commitment upon further examination. Many coaches at the intercollegiate level get master's degrees as part of a graduate assistantship that often requires far more hours coaching than it does in serious pursuit of academic knowledge. It would be beneficial to explore whether coaching commitment differed based upon the academic experience of those individuals who achieve a master's

degree through the guise of a GA while they coach as opposed to those who received a master's degree to learn more about coaching.

Additional examinations of coaching commitment should explore differences across sports (i.e., team versus individual). Similarly, it would be beneficial to make other comparisons with regard to coaching commitment with coaches in fall versus winter sports, male versus female coaches, head versus assistant coaches, and with regard to race, age, and/or playing experience. Future directions should also include commitment variables as predictors of other social psychological variables such as coaching efficacy. To date, only a few social psychological variables have been examined with regard to coaching commitment, such as burnout, exhaustion (Raedeke et al., 2000), and the desire to leave the profession of coaching (Cunningham et al., 2001; Turner & Chelladurai, 2005). The results from this study suggest that commitment varies a great deal among intercollegiate assistant coaches. Some coaches enjoy being a coach and perceive there to be important benefits with a career in coaching. Other coaches have low enjoyment and perceive there to be high costs in coaching. Still others feel trapped in coaching due to investments, social constraints, or other reasons. Improving our understanding of coaching commitment at this high level of athletics may help head coaches and athletic directors hire coaches who are there for the right reasons and who are committed to the positive development of their athletes.

CHAPTER VI

USING COACHING VALUES, COACHING COMMITMENT, AND COACHING GOALS TO PREDICT COLLEGIATE ASSISTANT COACHES' COACHING EFFICACY

Abstract

The purpose of this study was to examine the multivariate relationships among coaching goals, coaching commitment, and coaching values with five dimensions of coaching efficacy (motivation, game strategy, technique, character building, and physical conditioning). Intercollegiate assistant coaches (N=601) from a variety of sports completed a survey regarding each of the aforementioned variables. MANOVA demonstrated differences between NCAA Division I coaches (n=327) and Division III coaches (n=274). Two separate 16-variable canonical correlations revealed significant relationships among coaching goals, commitment, and values with coaching efficacy in both the DI and DIII samples. Additionally each of the predictor variables was examined as a multivariate contributor to each dimension of coaching efficacy. Results support the importance of learning more about assistant coaches, coaching efficacy, and further examining coaching goals, commitment, and values as they relate to additional social-psychological variables.

Keywords: intercollegiate coaching, coaching effectiveness, 5Cs of coaching efficacy, coaching intentions

Coaching efficacy (Feltz, Chase, Moritz, & Sullivan, 1999) has been an important focus within social psychological and coaching research in the 21st century. The coaching efficacy model posits that coaching efficacy impacts coach behavior, player/team satisfaction, player/team performance, and player/team efficacy (Feltz et al., 1999). Feltz and colleagues (1999) suggested that sources of coaching efficacy include prior success, coaching experience/preparation, perceived skill of athletes, and school/community support and research has supported each of these links (Vealey & Chase, 2008). Additional sources of coaching efficacy such as a coach's sport playing experience (Feltz et al., 2009) and perceived ability of opponents (Chase, Lirgg, & Feltz, 1997) have also been established by extant research. Findings from several other studies have demonstrated that coach education and interventions designed to influence coaching efficacy have been successful (Harwood, 2008; Maleté & Feltz, 2000).

According to Chase and colleagues (2005), coaches identified the development of their athletes, their own coaching development, their own leadership skills, knowledge and preparation, and athlete support as additional sources of coaching confidence. Despite what is known about the importance of coaches in sport, there is comparatively little known about the sources of coaching efficacy (Chase et al., 2005), even though much of the coaching efficacy research has focused on the importance of coaches (Kavussanu, Boardley, Jutkiewicz, Vincent, & Ring, 2008). While there is increasing knowledge about sources of coaching efficacy, suggestions for future examinations on coaching efficacy from previous research have included clarifying and adding potential of sources of coaching efficacy (Marback, Short, Short, & Sullivan, 2005). Furthermore, a number of the empirically-based sources represent demographic variables such as

coaching experience. While these are important to examine and understand, research that explores multiple sources of coaching efficacy including other theoretically based constructs (i.e., coaching goals, beliefs, and values) has yet to be considered.

In the last ten years, several research lines have emerged within the examination of coaching efficacy that examine the outcomes of coaching efficacy. Outcomes of coaching efficacy (i.e., coaching behavior), have consistently been supported in the literature (Feltz, Hepler, Roman, & Paiement, 2009). For example, in the seminal article on coaching efficacy, Feltz and colleagues found coaching efficacy to be a predictor of coaching behaviors, athlete satisfaction, and current success. Other research has also found that coaching efficacy is a significant predictor of winning percentage, coaching behavior, and team satisfaction (Myers et al., 2005). In other research, Kent and Sullivan (2003) found general coaching efficacy to be a strong predictor of affective, and normative, commitment in intercollegiate coaches. Specifically with regard to the dimensions of coaching efficacy (motivation, game strategy, technique, and character building), affective commitment was related to motivation efficacy, game strategy efficacy, and character efficacy, while normative commitment was related to motivation and character building efficacies.

Each of the four coaching efficacy variables, motivation efficacy, game strategy efficacy, technique efficacy, and character building efficacy, have been examined as predictors of team efficacy and player efficacy (Vargas-Tonsing, Warners, & Feltz, 2003). Results of previous research indicated that coaching efficacy was a significant predictor of team efficacy, of which motivation efficacy and character building efficacy were the strongest predictors of team efficacy.

The coaching efficacy model has consistently been supported within a variety of sport contexts, which has increased the popularity and use of this model in recent research. The diversity of studies has included research in youth sport (i.e., Sullivan et al., 2012), high school sports (i.e., Feltz et al., 1999; Myers et al., 2011), with junior national teams (Yang, 2011), intercollegiate athletics (i.e., Marback et al., 2005; Sullivan & Kent, 2003), and even with professional coaches (Tsorbatzoudis et al., 2003). Lastly, Myers and colleagues (2011) tested and developed a revised model of the Coaching Efficacy Scale (CES) specific to high school teams. Their examination suggested that differences in coaching efficacy are relevant to explore in different age/talent levels of sport. This reflects the expansion of the original model as it was designed for high school coaches because Feltz and colleagues (1999) believed that this was the level at which coaching efficacy had the greatest impact on coaching effectiveness. As a result less is known about the confidence of coaches at higher levels of athletics.

Much of the coaching efficacy research has also focused on coaches in team sport contexts, in part due to the original emphasis of the items on the CES (Myers, Feltz, et al., 2011). The resulting body of research includes research with volleyball coaches (Vargas-Tonsing et al., 2003), football coaches (Short & Short, 2004), basketball coaches (Feltz et al., 1999; Yang, 2011), soccer coaches and athletes (Harwood, 2008; Malete, Chow, & Feltz, 2013), and with rugby players (Boardley, Kavussanu, & Ring, 2008). A number of other studies have examined coaching efficacy in a variety of sport contexts, with all or most of the participants' coaches and/or athletes of team sports (e.g., Feltz, et al., 2009; Malete & Feltz, 2000; Vargas-Tonsing et al., 2008). There have been several multisport studies that have used both team and individual sport coaches without

differentiating or comparing their responses (i.e., Kent & Sullivan, 2003; Sullivan et al., 2012). Because each sport includes unique strategies, a different structure of the coach-athlete relationship, and specific rules about how coaches can impact athlete performance, limiting research on coaching efficacy to team sports only may be for convenience and consistency more so than anything else. To date no empirical data exist to suggest that measurement of coaching efficacy will be adversely affected as a result of the sport an individual is coaching.

While understanding of coaching efficacy has grown in depth and breadth over the last decade and a half, there are many considerations related to the nature of coaching efficacy that are yet to be understood. Most of the early research on coaching efficacy involved smaller sample sizes of coaches. Only recently has research been published with larger sample sizes, which have resulted in more power in the statistical analysis (Malete et al., 2013; Myers, Feltz et al., 2011). Even with the increasing research on coaching efficacy, understanding coaching efficacy and how different factors may affect efficacy across various sport levels remains largely unknown.

Assistant Coaches' Coaching Efficacy

The lack of research on assistant coaches is reflective of the early stages of coaching science and the emphasis on coaching behaviors as well as the ease with which head coaches can be observed, surveyed, or examined (Gilbert & Trudel, 2004a). One of the reasons that assistant coaches are so important to study is that the coaching model in the United States of America typically requires one be an assistant coach prior to being a

head coach (Rathwell et al., 2014). This “apprenticeship model” (Denison, Mills, & Jones, 2013) suggests that research that will help identify characteristics of assistant coaches today, more will be understood about the head coaches of tomorrow.

Among the 40,000 current NCAA assistant coaches, there are not enough sports and positions for all of them to become head coaches (National Collegiate Athletic Association, 2014). And, because very little empirical data exist that investigates characteristics of assistant coaches there is little to suggest what might set some of these assistant coaches apart as better candidates to become head coaches in the future. As it stands, many assistant coaches are selected based upon their playing experience (Rathwell et al., 2014), their knowledge of a particular system, or as a consequence of opportunities opening up as a result of personal contacts.

Assistant coaches have not been a primary focus of research within the framework of coaching efficacy. Although assistant coaches have yet to be a major focal point of research in general, two coaching efficacy studies have included assistant coaches as participants (Marback et al., 2005; Myers, Feltz, & Wolfe, 2008). In both of those studies, assistant coaches and head coaches were grouped together without any examination of differences between the groups. In a study of coaches at the intercollegiate level, of which nearly half were assistant coaches, female coaches demonstrated significantly lower game strategy efficacy than for male coaches (Marback et al., 2005). Furthermore, Marback and colleagues found that coaching efficacy and coaching competence (Barber, 1998) were highly correlated to the extent that they were statistically redundant. One of their recommendations for future research was to examine outcomes of coaching efficacy and indicated that coach’s efficacy in certain areas might

relate to certain outcomes. While the present study did not examine outcomes, an underlying suggestion in the aforementioned research (Marback et al., 2005) implies that understanding more about the characteristics of assistant coaches could be beneficial in understanding the influence assistant coaches may have on certain athlete outcomes.

Outside the realm of coaching efficacy, assistant coaches have received little attention within coaching science research (Gilbert & Trudel, 2004a; Rathwell et al., 2014). Before 2001, less than 8% of all coaching research studies included assistant coaches as participants (Gilbert & Trudel, 2004a). While this number may have increased slightly, as seen with the two coaching efficacy articles (Marback et al., 2005; Myers, Feltz, & Wolfe, 2008), assistant coaches were not deliberately or specifically examined, but rather included as a part of the larger sample of coaches in those studies.

In addition to the previously discussed research/studies on head coaching intentions (i.e., Cunningham et al., 2003; Sagas et al., 2006) other studies with assistant coaches have focused on mentor dyads with intercollegiate female assistants (Narcotta et al., 2009) and why female coaches leave collegiate coaching (Kamphoff, 2010). Furthermore, among other recent studies that identified assistant coaches as participants (i.e., Bennie & O'Connor, 2010; Zakrajsek, Martin, & Zizzi, 2011), a void in the literature exists with regard to research on the behaviors, beliefs, or values of assistant coaches. With the extensive roles that assistant coaches execute on a daily basis, particularly in higher levels of sport, the void of literature examining aspects of assistant coaches' coaching, "provides a tremendous area for future research" (Gilbert & Trudel, 2004a, p. 396). Considering the notion that assistant coaches play a role in the development of their athletes (Rathwell et al., 2014), and that assistant coaches play

important roles in problem solving and game strategy (Gilbert & Trudel, 2001), the examination of coaching efficacy and predictors of said efficacy are relevant to explore among intercollegiate assistant coaches.

Variables Used to Predict Coaching Efficacy

As part of Horn's (2008) heuristic model of coaching effectiveness, coaches' expectancies, values, beliefs, and goals are all anticipated to explain coaches' behavior. Coaching efficacy has also been shown to lead directly to coach behaviors as well (i.e., Feltz et al., 1999). As a result, this study will examine coaching beliefs, in the form of coaching commitment, coaching values, using the 5Cs of coaching efficacy (Harwood, 2008), and coaching goals, in the form of assistant coaches' head coaching intentions, with various dimensions of coaching efficacy.

Coaching Commitment

Only a few studies have attempted to quantify and examine coaches' commitment to their profession (Raedeke, 2004; Raedeke et al., 2000; Raedeke et al., 2002) within a solid theoretical framework. Built around Rusbult's (1980a, 1983, 1988) investment model, and also using a similar structure to the Sport Commitment Model (Scanlan, Carpenter, Schmidt, et al., 1993), Raedeke and colleagues previously developed commitment perspective is based in part around satisfaction (or enjoyment), in conjunction with other commitment variables such as costs, benefits, and investments.

Raedeke et al., (2000) examined the commitment of age-group swim coaches using six commitment variables: benefits, costs, satisfaction, investments, social constraints, and alternative attractiveness as contributors to a coaches' commitment. One of the hypotheses in this study was that coaches who were committed for enjoyment-

based reasons could be expected to demonstrate comparatively higher levels of commitment (Raedeke et al., 2000). A profile of entrapped coaches emerged, which described a group of coaches who were likely to remain in coaching, but that did not demonstrate characteristics indicating that they wanted to remain in coaching (Raedeke et al., 2000). A third profile emerged and reflected coaches with low commitment. Not surprisingly, low levels of commitment included coaches who were most likely to leave the profession.

The limited exploration of coaching commitment has largely included research focused on understanding predictors of coaching commitment (Raedeke et al., 2002). Other examinations of coaching commitment have considered levels of coaching commitment, to whom coaches may be committed, and the result or consequences of that commitment (Turner, 2008). While coaching commitment has received slightly more attention in the sport management literature, there remains a void in the literature with regard to what characteristics can be seen in more, or less, committed coaches. This lack of evidence in the coaching research extends with regard to the determinants of coaching commitment as well (Turner, 2008). Furthermore, previous coaching commitment research (Raedeke, 2004; Raedeke et al., 2000; Raedeke et al., 2002) indicated that additional research is needed to understand the relationships between commitment and social psychological concepts such as burnout. Other outcomes that coaching commitment should be examined as a predictor of include coaching efficacy.

Coaching Values

Values can be defined as socially prescribed criteria by which individuals evaluate and make decisions about what is morally correct or not. Values can also be considered principles or standards by which an individual believes something is worthwhile or desirable (MacLean & Hamm, 2008). Within the sport domain, coaches are constantly making decisions about what skills to teach, which strategies to employ, and what to communicate with their players, all of which are individually conducted at least in part due to the values that each individual coach embraces. While the concept of what an individual values and how it might affect his/her behaviors is clear there has been limited attempts to isolate, define, and examine sport participation values (Lee, Whitehead, & Balchin, 2000) or coaching values in the sport psychology literature.

Examination and inclusion of values in sport psychology can be found throughout motivation-focused research using expectancy-value theory, injury/behavior studies using a variety of value-expectancy models (e.g., Ajzen, 1988; Rosenstock, Strecher, & Becker, 1988), and has even been identified as an antecedent of coaching behaviors within Horn's (2008) model of coaching effectiveness. Among the small handful of studies that have attempted to connect coaching values with behavior, Gilbert and Trudel (2001) identified self-reflection of coaches as an important component to coach learning and development. Mageau and Vallerand (2003) created an autonomy-supportive coaching model that suggests that valuing and implementing certain autonomy-supportive coaching methods (i.e., asking questions of your players), will increase athletes' self-determined motivation and may ultimately lead to positive performance outcomes. Horn (2008) included a brief review of other studies that have examined concepts like the decision-making of coaches,

critical thinking of coaches, and values such as self-reflection (i.e., Abraham & Collins, 1998; Streat, Senecal, Howlett, & Burgess, 1997).

As part of an intervention program with soccer players, Harwood (2008) attempted to identify coach values with regard to developing interpersonal skills and positive psychological characteristics in their athletes. As a result, the 5Cs of coaching efficacy were created to examine how confident coaches are in their ability to facilitate communication skills, commitment, concentration, control, and confidence in their athletes (Harwood, 2008). While measuring these five coaching values had previously been limited to within the 5Cs intervention program, Nichols (2015) examined the psychometric properties of the 5Cs as variables to measure each as a unique coaching value. Initial findings in this study indicate that each of the five 5Cs represented a unique value construct (i.e. communication), and using samples of high school and intercollegiate coaches, the 5Cs of coaching efficacy demonstrated psychometric properties to support their use in future studies.

Head Coaching Intentions

In addition to coaching values, coaching goals will also be examined as a potential predictor of coaching efficacy, and in the present study, coaching goals will refer to the head coaching intentions for each assistant coach. Using the framework of Theory of Planned Behavior (TPB; Ajzen, 1991), intentions have been, and continue to be, more widely examined in exercise contexts (i.e., Hoyt, Rhodes, Hausenblas, & Giacobbi, 2009; Raedeke, Focht, & Scales, 2007). Within a sport coaching context, TPB

has previously been used to study coaches' use of exercise as a punishment (Richardson, Rosenthal, & Burak, 2012) and to predict head coaching intentions of assistant coaches (Sagas et al., 2006).

Head coaching intentions have received limited research attention with the purpose of describing and understanding why some intercollegiate coaches persist in their careers and others do not (i.e., Cunningham et al., 2007; Cunningham & Sagas, 2004a). These examinations of intentions have primarily been within the framework of occupational turnover intent. Occupational turnover intent is a business model used to help understand why some individuals quit their jobs and why others persist. Previous research within the context of coaching has examined racial differences in occupational turnover intent (Cunningham & Sagas, 2004b) and the group diversity, commitment, and turnover intentions (Cunningham & Sagas, 2004a) among NCAA Division IA football coaches. Specifically, coaching staffs with greater racial/ethnic diversity reported higher interest/intentions in changing careers. Previously, black basketball coaches were found to have higher turnover intentions (i.e., not continuing in coaching) than white coaches (Cunningham, Sagas, & Ashley, 2001). In addition, Cunningham and Sagas (2004b) found that black football coaches perceived fewer opportunities for career advancement and were, in general, less satisfied with their careers. Previous findings support the idea that race/ethnicity still holds a relevant place in the intercollegiate sport context in connection to the career intentions of assistant football coaches (Cunningham & Sagas, 2004a).

Many demographic studies have focused on gender differences of intercollegiate coaches and head coaching intentions as well. These studies have found gender differences in coaching efficacy, desire to become head coach, and turnover intentions of assistant coaches of women's teams (Cunningham et al., 2003); that female coaches have lower career aspirations and higher turnover intentions than male coaches (Cunningham & Sagas, 2002); men have higher coaching self-efficacy and more positive outcome expectations than women (Cunningham et al., 2007), and that female coaches do not apply for head coaching positions as frequently as men (Sagas, Cunningham, & Ashley, 2000). While there is some knowledge about occupational turnover intent with regard to race and gender in intercollegiate coaches, intent has yet to be used as a predictor in Feltz's (1999) coaching efficacy model.

Only one study currently exists that has examined head coaching intentions directly within the framework of TPB (Sagas et al., 2006). The relationship between intent and confidence is an important and well-established connection. According to Ajzen (1991) if two individuals have equally strong intentions to accomplish a task, but one of those individuals is more confident in his/her abilities, the more confident person will be more likely to successfully complete the task. In a coaching context this suggests that if two coaches have the same head coaching aspirations (intent), the more confident coach will be more likely to follow through with his/her coaching goals. The importance of coaching confidence as it relates to behavioral intent is relevant in an intercollegiate sport coaching context because there is little research aimed at understanding the motivation of assistant coaches to obtain head coaching positions (e.g., Cunningham & Sagas, 2002; Sagas et al., 2000; Sagas et al., 2006).

Using a random sample of assistant coaches from NCAA Division I and III coaches in basketball, soccer, softball, and volleyball, Sagas and colleagues (2006) found that TPB was a useful model with which to predict head coaching intentions. Other findings from this study suggest that assistant coaches are often motivated to be head coaches in order to implement their own coaching philosophies and to further develop their own coaching skills. Furthermore, assistant coaches were not drawn towards being head coaches for external gratification (i.e., financial rewards, recognition).

Purpose

The purpose of this study was to explore the multivariate relationships between a group of predictor variables (coaching values, commitment, and goals) and the five dimensions of coaching efficacy (motivation, game strategy, technique, character building, and physical conditioning). Specifically, the relationships were examined between coaching goals, as defined in the present study as the strength of intentions to become a head coach, coaching commitment, as measured by a coach's reported commitment to his/her sport, the coaching values a coach demonstrates with regard to the development of positive psychological factors and the development of interpersonal skills (through the 5Cs of coaching efficacy), and five different dimensions of coaching efficacy: motivation, game strategy, technique, character building, and physical conditioning.

Justifying the need for this study, coaching efficacy will be examined with a larger sample with a population of coaches yet to be examined: intercollegiate assistant coaches. The purpose of this study also was to extend the use of the 5Cs of coaching efficacy as coaching value variables, which could be used in future empirical research in

order to examine relationships between values among different levels of coaches. Extending the knowledge on coaching commitment, by using commitment as a potential predictor of coaching efficacy was also a purpose in this study. While the present research is not concerned with specific TPB subscales to measure intent, the pioneering research involving TPB and NCAA Division I and III coaches (Sagas et al., 2006) will be used as a reference with which to measure the variable intent within the current model predicting coaching efficacy. This study will not be the first to examine head coaching intentions, however, it will expand on the exclusively gender-focused application previously published (Sagas et al., 2006) and will add to the relative dearth of literature that has incorporated TPB in the sport domain. Lastly, the present study will be the first to examine the relationships between coaching goals, commitment, and values, and coaching efficacy, the latter of which has been shown to directly predict coaching behaviors (e.g., Feltz et al., 1999).

Methods

Participants

NCAA assistant coaches ($N = 740$) participated (48.2% response rate) and after removing surveys for satisficing, missing data, and outliers, 601 surveys were usable. These assistant coaches represented a variety of sports including basketball ($n = 122$), soccer ($n = 82$), volleyball ($n = 75$), football ($n = 63$), track & field ($n = 48$), swimming & diving ($n = 45$), and softball ($n = 31$). This sample was predominantly male ($n = 368$; 58.4%), predominantly Caucasian ($n = 536$; 85.1%), and had an average age of 32.89 years ($SD = 9.58$). The highest degree for the majority of these coaches was a Bachelor's Degree ($n = 347$; 55.1%), while most of the rest of the coaches had also received a

Master's Degree, ($n = 262$; 41.6%). Participants among this diverse geographic sample included coaches from more than 130 different DI and DIII institutions, more than 50 athletics conferences from the Big Ten to NCAC to WCC. Coaches had on average 8.8 years of coaching experience (range = 1-53 years, $SD = 7.83$ years), and 72% of the coaches highest playing experience was at the college level (DIII: $n = 165$; DII: $n = 54$, DI: $n = 212$; NAIA: $n = 22$). After univariate outliers were removed from multiple predictor or efficacy variables there were 327 DI assistant coaches and 274 DIII assistant coaches in this study.

Measures

Measures in the present study were used to examine a set of predictor variables using coaching commitment, head coaching intentions, and the 5Cs (commitment, communication, concentration, control, and confidence) as coaching values. The outcome variable set included measuring the five dimensions of coaching efficacy (motivation, game strategy, technique, character building, and physical conditioning). Each of the measures is described in detail as follows.

Coaching commitment. Using characteristics of Rusbult's investment model of commitment (1980a, 1983, 1988) and the SCM (Scanlan, Carpenter, et al., 1993), Raedeke and colleagues (2000) designed a measure of commitment to examine the influences of coaches' feelings toward their commitment to coaching. The six subscales of commitment from Raedeke and colleagues (2000) measure were included: coaching benefits, coaching costs, satisfaction with coaching, attractiveness of alternatives, investments in coaching, and social constraints, and each item was measured on a 5-point Likert scale. Mean scores were calculated for each of the commitment subscales and

these scores were used in the subsequent analyses. Each of these commitment subscales has previously demonstrated acceptable levels of internal consistency, with alpha scores ranging from .71 - .84 (Raedeke et al., 2000; Raedeke et al., 2002). Slight modifications were made to subscale items in order to direct the items towards intercollegiate assistant coaches.

Benefits and costs associated with coaching. General benefits and general costs of coaching were each measured using a three-item scale originally developed by Raedeke and colleagues (2000). Benefits were defined as “the positive aspects of coaching that make coaching attractive and rewarding” (Raedeke et al., 2000, p. 90). While costs associated with coaching were defined as “the negative aspects of coaching that make coaching unattractive and include the things that you do not like about coaching” (Raedeke et al., 2000, p. 90). In this study assistant coaches were provided with a unique prompt for each of these subscales used to familiarize participants with the concept of coaching benefits and costs. These two prompts were created using previously created specific cost and benefit items (Raedeke et al., 2002). An example benefit question is: “All things considered, to what extent are there benefits associated with coaching?” (Raedeke et al., 2000). An example cost item is: “In general, to what extent are there ‘costs’ associated with coaching?” (Raedeke et al., 2000).

Other commitment subscales. Sixteen additional items were used to measure satisfaction with coaching (five items), investments in coaching (4 items), attractiveness of alternatives (3 items), and social constraints (4 items). Example items for these subscales include: “How does coaching compare to your conception of a real job?” (satisfaction), “How do your coaching investments compare to what most people invest

into their jobs?” (investments), “All things considered, how attractive are your alternative career options to coaching?” (attractiveness of alternatives), and “The people important to me expect me to coach.” (social constraints).

Head coach intentions. A single scale or direct measure of intent to become a head coach was used in this study based upon similar direct measures used in previous research on college head-coaching intentions (Cunningham et al., 2003; Sagas et al., 2006). Each of the intent questions were modified to be specific to collegiate coaches and were measured on a 7-point Likert scale. The first two questions included in this measure were previously used in research on assistant coaches and their career intentions and have demonstrated internal consistency (Cronbach’s $\alpha = 0.91$; Cunningham et al., 2003). These two questions were originally derived from Sagas’ (2000) research and were designed to examine a coach’s pursuit of, a head coaching position (Cunningham et al., 2003). The items are: “How much desire do you have to become a head coach?” and “How likely is it that you will search and apply for a head coaching position during your coaching career?”

In addition to these two questions, six additional questions were included from the 16-item measure developed and implemented by Sagas et al. (2006). Items include assessing each assistant coaches’ desire to become a head coach, how much each coach feels that he/she would enjoy being a head coach, how wise they feel becoming a head coach would be, how beneficial being a head coach might be, and how rewarding they feel becoming a head coach would be. These items were examined using the following stem: “My pursuing a head collegiate coaching position in the near future would be...”

Coaching values. The Modified Coaching Confidence Questionnaire (MCCQ: Nichols, 2015) was utilized to measure five independent variables in this study: coaching values with regard to commitment, communication, concentration, control, and confidence. Each of the 25 items were measured on using a 10-point Likert scale from 1 “not at all confident” to 10 “extremely confident.” Each item was prefaced with the following stem “How much confidence do you possess in employing the behaviors or strategies that actively help players to...” The MCCQ has previously indicated scale reliability and the factor structure has also been supported, in high school and intercollegiate coaches (Nichols, 2015). Mean scores were calculated for the five coaching value subscales for use in subsequent analyses.

Coaching efficacy. The Coaching Efficacy Scale (CES: Feltz et al., 1999) was used to measure four dependent variables in this study: motivation efficacy (ME), game strategy efficacy (GSE), technique efficacy (TE), and character building efficacy (CBE). In addition, physical conditioning efficacy (PCE) was measured using items developed by Myers and colleagues (2008). All 27 items were measured using a 10-point Likert scale from 1 “not at all confident” to 10 “extremely confident.” Each item was prefaced with the following stem, “In relation to the team (or athletes) that you are currently coaching, how confident are you in your ability to...” Previous use of the CES indicated scale reliability and the factor structure has also been supported, in part due to the strength of the theoretical coaching efficacy model (Myers, Wolfe, & Feltz, 2005). Specifically, each of the five efficacy subscales has demonstrated acceptable levels of

internal consistency ranging from 0.82 (PCE; Myers, Chase, Pierce, & Martin, 2011) to 0.96 (GSE; Kowalski & Kooiman, 2013). Mean scores were calculated for the five coaching efficacy subscales for use in subsequent analyses.

ME is defined as the confidence a coach has in his or her ability to affect the psychological mood and skills of his or her athletes (Feltz et al., 1999) and was measured with seven items. This scale includes items such as “motivate your athletes,” and “help your athletes to not become overly confident in their ability to perform when they are performing well.” GSE is defined as the confidence a coach has in his or her ability to lead during competition (Feltz et al., 1999), and was measured with seven items. The seven GSE items include various prompts such as “devise strategies that maximize the positive effects of your team’s strengths during competition” and “make effective strategic decisions in pressure situations during competition.”

TE is defined as the confidence a coach has in his or her ability to use his or her instructional and diagnostic skills during practices (Myers, Feltz, Chase, et al., 2008) and was measured with six items. Example sample items for TE include “teach athletes the complex technical skills of your sport during practices” and “teach athletes appropriate basic technique during practices.” CBE is the confidence a coach has in his or her ability to positively influence the character development of his or her athletes through sport (Myers, Feltz, Chase, et al., 2008) and was measured with four items. Examples of the four items include “effectively instill an attitude of respect for others in your athletes” and “positively influence the character development of your athletes.”

PCE is defined as the confidence a coach has in his or her ability to prepare his/her

athletes physically for participation in his or her sport (Myers, Feltz, Chase, et al., 2008) and was measured with three items. An example of the three items is “prepare an appropriate plan for your athletes’ off-season physical conditioning.”

Demographic information. In order to describe the sample, coaches were asked to respond to 11 demographic questions. The information collected included age, race/ethnicity, gender, education, coaching experience, playing experience, NCAA division in which they coached, sport coached, current title, if they had previously been a head coach, and the current athletic conference in which they coach.

Procedures

The initial step in this study involved receipt of University Institutional Review Board approval. As is typical with online surveys in the social sciences, a precursor to the questionnaire included a clearly stated short introduction/purpose to the research which served as implied consent for coaches participating in this study. No incentives or rewards were provided to participants in this study, however each coach who completed the survey was given the opportunity to receive a summary of the results if they so desired.

Recruitment. Participants were recruited from personal coaching contacts, informal contact with coaches and administrators from two NCAA divisions (I and III) with whom the lead investigator had prior professional contact, and through purposeful sampling methods. Select coaches and administrators were asked to recommend assistant coaches who might be willing to participate in this research, and an email list of potential participants from these recommendations was created. In order to recruit a larger sample size, purposeful sampling took place in order to compile a target list of coaches that

encompassed a variety of sports and included a similar number of potential respondents in each NCAA division (I and III). Specifically, coaches of sports in which the lead researcher had few connections were purposefully targeted (i.e., baseball, softball, lacrosse, & tennis). This method allowed the potential for this sample to achieve greater representativeness or comparability; techniques used when the researcher wants to (a) select a purposeful sample that represents a broader group of cases, or (b) create the possibility for comparison between different groups within the study population (i.e., NCAA division, sport coached, etc.; Teddlie & Yu, 2007).

After the identification of potential participants, a three-email contact strategy was implemented (Dillman et al., 2009). Following best practices recommended in survey research, emails were personalized, the Qualtrics survey link was embedded in every email, and when appropriate coaches were carefully told who had recommended them for this survey (Dillman et al., 2009). Each of the emails were sent approximately seven days apart, and reminder emails were only sent to those who had not already completed the survey.

In order to boost DI responses towards the end of the data collection process a handful of administrative assistants at DI schools were contacted and offered a \$25 gift card if they could help recruit 15 responses from assistant coaches at their school. Having a number of partially completed responses and additional completed responses continuing to trickle in a fourth and final email invitation was sent to all coaches who had not yet completed the survey. Included in the fourth email was a survey closing date and a short plea asking for their participation. This last email was successful in increasing the overall participation especially for DI coaches.

Research Design

A survey research design was used in this study. The following variables were included: intentions to become a head coach, coaching commitment, the 5Cs of Coaching Efficacy, five dimensions of coaching efficacy, and NCAA level. In this research the predictor variables included intent to become a head coach (goals), commitment (beliefs), the 5Cs of coaching efficacy (values), and the outcome variables were the five coaching efficacy dimensions.

Data Analysis

An initial MANOVA was conducted to examine any potential group differences between DI and DIII assistant coaches with regard to the 16 dependent and predictor variables included in this study.

Descriptive Data Analysis

Means, standard deviations, and bi-variate correlations were calculated for all variables using SPSS 20.0. The data collected was tested for normality by examining skewness and kurtosis values associated with each of the variables. Using previously accepted standards (Byrne, 1998; Kline, 1998) of what constitute non-normality, skewness and kurtosis values between ± 1 were expected with values deviating from that standard considered non-normal data. After the descriptive statistics were calculated, internal consistencies were examined using Cronbach's (1951) alpha of each subscale with the current sample of NCAA assistant coaches. Values at or above 0.70 were considered reliable at an acceptable level as suggested by Nunnally (1978). Simple Pearson's r correlations were calculated testing the relationships between each of the variables in this study. This analysis included correlations among intent score, each of

the commitment variables; each of the 5Cs variables (commitment, communication, concentration, control, and confidence) and each of the five coaching efficacy variables (ME, GSE, TE, CBE, and PCE).

Main Analysis

A canonical correlation was computed to assess the relationships and the strength of the relationships among predictor variables (i.e., intentions, coaching commitment) and the outcome variables (five dimensions of coaching efficacy). Canonical correlation analysis is appropriate when there are sets of predictor and outcome variables and the relationships between them are unknown (Tabachnick & Fidell, 2013). Canonical correlation is also useful when the underlying dimensions representing the combination of dependent and independent variables are unknown (Tabachnick & Fidell, 2013). In this study, no prior research existed to suggest a way that head coaching intentions, coaching commitment, and the coaching values might predict various dimensions of coaching efficacy. Interpretation of the canonical correlation included examining Wilks' lambda values, and also used canonical loadings and communality coefficients to determine which variables contributed to the solution.

The canonical correlations were interpreted with two primary goals. First, multivariate significance was examined to determine if a relationship existed among the two sets of variables. In the event of multivariate significance, the relative contribution of the variables was examined. Subsequent analysis involved examining the relationships among predictor and criterion variable sets, initially by testing the model, and then by examining each potential canonical variate. This examination was completed using the Wilks' Lambda test statistic for the model, with $p < 0.05$ rejecting the null hypothesis that

there is no relationship between the variable sets. Using Wilks' Lambda, the more generalizable of the four test statistics (Sherry & Henson, 2005), the overall effect size of the model was considered ($1 - \lambda =$ overall effect). As outliers are particularly problematic in canonical correlation (Tabachnick & Fidell, 2013), univariate outliers for all 16 variables were identified and all multiple univariate outliers were removed from the canonical analysis.

Canonical coefficients greater than ± 0.30 were identified for each significant canonical solution, which represents a level that has been accepted in previous canonical analyses (Stuntz & Weiss, 2003; Tabachnick & Fidell, 2013). Loadings with higher values were used to indicate stronger relative contributions to the multivariate relationship. Pairs with structure coefficients in the canonical correlation below 0.30 were not interpreted as they represented less than 10% of the additional variance in the model (Tabachnick & Fidell, 2013). The squared structure coefficient explained the strength of relationship on each model, while the communality coefficient explained the overall usefulness of each variable within the model (Sherry & Henson, 2005). The communality coefficient was important in determining which predictor variables are not contributing to the model. Canonical loadings, or loading matrices, which are matrices of correlations between variables and canonical coefficients, were used to interpret each of the significant canonical variates (Tabachnick & Fidell, 2013). This process provided an opportunity to identify variable combinations that have more important relationships within the canonical correlation. As part of the canonical analysis, post hoc tests were also conducted to illuminate significant combinations of relationships between one or more of the predictor variables and the five coaching efficacy domains.

Results

MANOVA Results

A preliminary MANOVA was conducted to examine whether or not DI and DIII assistant coaches had answered the questions similarly. The MANOVA (Wilks' $\lambda = .93$, $F(17, 612) = 2.77$, $p < .000$) indicated significant differences between coaches at these levels and as such DI and DIII coaches were separated into different groups for additional analyses. Post hoc between subjects test for effects revealed that significant differences between DI and DIII assistant coaches ($p < .05$) only occurred within investments, and head coaching intentions. However, as a result of the significant differences in the overall model, separate descriptive results and results to the main analyses are listed below according to NCAA division.

Division I Descriptive Findings

Table 11 shows descriptive statistics for DI assistant coaches ($N = 327$) including means, standard deviations, scale reliabilities, and correlations between variables. Almost all of the variables demonstrated acceptable reliability ($\alpha > .70$). One commitment variable, *attractiveness of alternatives* ($\alpha = .51$) was removed from further analysis because of low reliability. Two other commitment variables, *benefits of coaching* ($\alpha = .63$), and *investments in coaching* ($\alpha = .68$) were not removed due to the exploratory nature of this study and alpha scores approaching the acceptable level. Mean scores suggest that DI assistant coaches have high levels of perceived coaching efficacy, scoring highest in character building efficacy ($M = 8.96$) and technique efficacy ($M = 8.89$). Similarly, these DI coaches highly value the development of communication, commitment, concentration, control, and confidence in their athletes. They reported

perceiving coaching to have high benefits ($M = 4.48$) and relatively low costs ($M = 3.43$). These DI coaches also had commitment shaped by perceiving to be highly invested in coaching ($M=4.32$) while perceiving low social constraints ($M = 2.85$). With regard to coaching goals, the career head coaching intentions for this DI sample was moderately high ($M = 5.34$, $SD = 1.45$), with some coaches interested in becoming head coaches and others not at all interested. Examination of correlation coefficients indicates strong positive correlations between the five coaching value variables.

Table 11

Descriptive Statistics, Correlations, & Internal Consistency Scores for NCAA Division I Assistant Coaches

	Moti- vation Effi- cacy	Game Strat- egy Effi- cacy	Tech- nique Effi- cacy	Char- acter Build- ing Effi- cacy	Physi- cal Condi- tioning Effi- cacy	Communi- cation	Commit- ment	Concen- tration	Con- trol	Con- fi- dence	Bene- fit	Cost	Sa- tis- fac- tion	Invest- ments	Social Con- straints	In- tent
Motivation Efficacy	0.88															
Game Strategy Efficacy	.45**	0.90														
Technique Efficacy	.45**	.62**	0.81													
Character Building Efficacy	.57**	.33**	.43**	0.84												
Physical Condition- ing Efficacy	.38**	.40**	.49**	.38**	0.83											
Communi- cation	.67**	.45**	.53**	.58**	.49**	0.84										
Commit- ment	.72**	.53**	.55**	.60**	.49**	.84**	0.86									
Concen- tration	.73**	.49**	.55**	.55**	.46**	.80**	.87**	0.85								
Control	.64**	.41**	.49**	.65**	.47**	.76**	.80**	.78**	0.82							

Table 11, continued

	Moti- va- tion Effi- cacy	Game Strat- egy Effi- cacy	Tech- nique Effi- cacy	Char- acter Build- ing Effi- cacy	Physi- cal Condi- tioning Effi- cacy	Communi- cation	Commit- ment	Concen- tration	Con- trol	Con- fidence	Bene- fit	Cost	Sa- tis- fac- tion	Invest- ments	Social Con- straints	In- tent
Confidence	.73**	.47**	.53**	.57**	.47**	.80**	.87**	.86**	.80**	0.79						
Benefit	.16**	.18**	.11**	.21**	.12*	.17**	.19**	.22**	.19**	.22**	0.68					
Cost	-.11*	-.05	-.01	-.08	-.08	-.13*	-.06	-.10	-.10	-.06	-.12*	0.75				
Satisfaction	.18**	.17**	.15**	.23**	.14*	.25**	.21**	.24**	.21**	.23**	.55**	-.31**	0.80			
Investments	.14*	.22**	.21**	.05	.13*	.13*	.18**	.13*	.03	.18**	.14**	.09	.09	0.70		
Social Con- straints	-.03	.08	.07	-.04	-.05	-.07	-.00	-.03	-.03	.02	.03	.14**	-.08	.16**	0.82	
Intent	.21**	.27**	.20**	.07	.15**	.13*	.19**	.15**	.12*	.21**	.14*	.09	.17**	.20**	.03	0.95
Mean	8.44	8.47	8.87	8.93	8.15	8.49	8.35	8.21	8.20	8.39	4.45	3.46	4.14	4.32	2.85	5.33
SD	0.93	1.02	0.82	0.89	1.28	0.90	0.95	0.96	1.05	0.93	0.49	0.81	0.62	0.44	1.12	1.44
Number of Items	7	7	6	4	3	5	5	5	5	5	3	3	5	4	4	9
Scale	1-10	1-10	1-10	1-10	1-10	1-10	1-10	1-10	1-10	1-10	1-5	1-5	1-5	1-5	1-5	1-7

** . Correlation is significant at the 0.01 level (2-tailed).

* . Correlation is significant at the 0.05 level (2-tailed).

Division I Canonical Correlation

In the canonical correlation analysis, the DI sample revealed a significant ($p < .05$) relationship between coaching characteristics and coaching efficacy for the first three canonical variates. For the first variate including canonical roots one to five, Wilks' $\lambda = .20$, $F(55, 1443.1) = 10.77$, $p < .000$. The correlation between the two sets of variables was $R_c = .84$ (70% overlapping variance), this indicated a very strong relationship between the predictor variable set and the five dimensions of coaching efficacy. The second variate, which included canonical roots two to five indicated Wilks' $\lambda = .69$, $F(40, 1184.9) = 3.05$, $p < .000$. The correlation between the two sets of variables was $R_c = .45$ (20% overlapping variance), this indicated a moderate relationship between the predictor variable set and coaching efficacy. The third variate, which included canonical roots three to five indicated Wilks' $\lambda = .87$, $F(27, 914.7) = 1.70$, $p < .014$. The correlation between the two sets of variables was $R_c = .27$ (7% overlapping variance), this also indicated a moderate relationship between the predictor variable set and coaching efficacy. After the first two pairs of variates, none of the additional variates explained significant relationships ($p < .05$).

Canonical loadings and standardized canonical coefficients were examined in order to determine the relative contribution of each variable to the canonical variate. Table 12 shows a complete list of correlations and standardized canonical coefficients for each variable as it contributed to the significant canonical variates. Using the standardized canonical coefficients the results indicated that concentration value (-.28), commitment value (-.21), confidence value (-.21), and control value (-.19) contributed most to the overall relationship within variate #1. While all five dimensions of coaching

Table 12

Correlations and Standardized Coefficients for Each Variable with Significant Canonical Variates (< .05) for NCAA Division I Assistant Coaches

Variables	Canonical Variate #1		Canonical Variate #2	
	Correlation	Coefficient	Correlation	Coefficient
<i>Coaching Characteristics</i>				
Communication (V)	-0.89	-0.14	0.13	0.33
Commitment (V)	-0.95	-0.27	0.01	0.01
Concentration (V)	-0.93	-0.25	-0.14	-1.04
Control (V)	-0.88	-0.20	0.40	1.28
Confidence (V)	-0.93	-0.17	-0.05	-0.42
Benefits (C)	-0.24	-0.01	0.18	0.18
Costs (C)	0.12	0.05	-0.02	0.18
Satisfaction (C)	-0.27	0.01	-19.00	0.21
Investments (C)	-0.21	-0.06	-0.32	-0.16
Social Constraints (C)	0.01	0.00	-0.18	-0.12
Intent (G)	-0.28	-0.10	-0.39	-0.38
<i>Coaching Efficacy</i>				
Motivation	-0.90	-0.57	-0.18	-0.66
Game Strategy	-0.64	-0.13	-0.30	-0.31
Technique	-0.70	-0.17	-0.15	-0.23
Character Building	-0.74	-0.23	0.64	1.16
Physical Conditioning	-0.62	-0.19	0.11	0.15

Note: (V) value variables, (C) commitment variables, (G) goal variable

efficacy were important contributors to the relationships within variate #1 and were strongly related to that canonical variate, motivation efficacy was the largest contributor with a standardized coefficient of -0.54. The results mean that motivation efficacy plays a large role in the solution, while all five coach value variables and all five coaching efficacy domains are meaningful contributors to the first variate with loadings above +/- .30. The redundancy index showed that 37.3% of the variance in coaching efficacy was explained by the independent variables. Redundancy index values greater than 10% are considered to be meaningful (Pedhazur, 1982).

Post hoc regression tests were examined to determine predictor variables, or combinations of predictor variables, that were significant contributors ($\alpha < .05$) to each of the criterion variables used in this relationship. For ME, concentration value, confidence value, and intent were all significant contributors. For GSE, commitment value, concentration value, and intent were contributors. For TE, communication value, concentration value, investments in coaching, and intent were significant contributors. For CBE control value was the lone significant contributor. Lastly, for PCE, communication value was the single significant contributor.

Division III Descriptives

Table 13 descriptive statistics for DIII assistant coaches ($N = 274$) including means, standard deviations, scale reliabilities, and correlations between variables. Most of the variables demonstrated acceptable reliability ($\alpha > .70$). One commitment variable, *attractiveness of alternatives* ($\alpha = .50$) was removed from further analysis. Two other commitment variables, *benefits of coaching* ($\alpha = .66$) and *costs associated with coaching* ($\alpha = .66$) were not removed due to the exploratory nature of this study and alpha scores approaching the acceptable level. Similar to the DI coaches, means suggest that DIII assistant coaches have high levels of perceived coaching efficacy, scoring highest in character building efficacy ($M = 8.91$) and technique efficacy ($M = 8.82$). The DIII coaches also indicated highly valuing the development of communication, commitment, concentration, control, and confidence in their athletes. They reported perceiving coaching to have high benefits ($M = 4.45$) and relatively low costs ($M = 3.46$). These DIII coaches also had commitment shaped by perceiving to be highly invested in coaching ($M = 4.16$), while perceiving high satisfaction with coaching ($M = 4.21$), and

low social constraints ($M = 2.95$). With regard to their coaching goals, the career head coaching intentions for this DIII sample were varied ($M = 5.08$, $SD = 1.44$), with some coaches very interested in becoming head coaches and others not at all interested.

Examination of correlation coefficients indicated strong positive correlations between the five coaching value variables.

Table 13

Descriptive Statistics, Bi-Variate Correlations, & Internal Consistency Scores for NCAA Division III Coaches

	Moti- va- tion Effi- cacy	Game Strat- egy Effi- cacy	Tech- nique Effi- cacy	Char- acter Build- ing Effi- cacy	Physi- cal Condi- tioning Effi- cacy	Communi- cation	Commit- ment	Concen- tration	Con- trol	Con- fid- ence	Bene- fit	Cost	Sa- tis- fac- tion	Invest- ments	Social Con- straints	In- tent
Motivation Efficacy	0.91															
Game Strategy Efficacy	.48**	0.90														
Technique Efficacy	.50**	.70**	0.88													
Character Building Efficacy	.64**	.36**	.37**	0.84												
Physical Condition- ing Efficacy	.48**	.51**	.55**	.37**	0.83											
Communi- cation	.63**	.53**	.52**	.53**	.47**	0.84										
Commit- ment	.76**	.56**	.51**	.55**	.44**	.81**	0.85									
Concen- tration	.73**	.59**	.58**	.55**	.50**	.81**	.86**	0.88								
Control	.66**	.51**	.44**	.57**	.41**	.74**	.81**	.80**	0.79							

Table 13 - Continued

	Moti- va- tion Effi- cacy	Game Strat- egy Effi- cacy	Tech- nique Effi- cacy	Char- acter Build- ing Effi- cacy	Physi- cal Condi- tioning Effi- cacy	Communi- cation	Commit- ment	Concen- tration	Con- trol	Con- fid- ence	Bene- fit	Cost	Sa- tis- fac- tion	Invest- ments	Social Con- straints	In- tent
Confidence	.72**	.56**	.52**	.50**	.41**	.78**	.85**	.86**	.80**	0.81						
Benefit	.21**	.17**	.13**	.14**	.20**	.23**	.18**	.22**	.15**	.19**	0.68					
Cost	-.08	-.02	.02	-.12*	.03	-.02	-.05	-.04	-.02	-.05	-.23**	0.65				
Satisfac- tion	.28**	.16**	.16**	.23**	.23**	.29**	.24**	.25**	.19**	.24**	.58**	-.34**	0.80			
Invest- ments	.17**	.22**	.25**	.10	.22**	.20**	.19**	.17**	.17**	.19**	.14*	.07	.20**	0.74		
Social Con- straints	.18**	.06	.05	.06	-.00	.06	.12	.06	.01	.11	.05	.02	.04	.18**	0.74	
Intent	.14*	.26**	.30**	.06	.27**	.18**	.16**	.18**	.10	.17**	.28**	-.12*	.30**	.24**	.04	0.97
Mean	8.39	8.42	8.80	8.89	8.13	8.47	8.30	8.17	8.20	8.34	4.44	3.43	4.17	4.24	2.89	5.18
SD	0.99	1.09	0.96	0.91	1.33	0.94	1.00	1.02	1.04	0.98	0.53	0.79	0.63	0.47	1.05	1.61
Number of Items	7	7	6	4	3	5	5	5	5	5	3	3	5	4	4	9
Scale	1-10	1-10	1-10	1-10	1-10	1-10	1-10	1-10	1-10	1-10	1-5	1-5	1-5	1-5	1-5	1-7

** . Correlation is significant at the 0.01 level (2-tailed).

* . Correlation is significant at the 0.05 level (2-tailed).

Division III Canonical Correlation

Results of the canonical correlation analysis, in the DIII sample, revealed a significant ($p < .05$) relationship between coaching characteristics and coaching efficacy for the first three canonical variates. For the first variate including canonical roots one to five, Wilks' $\lambda = .22$, $F(55, 1197.8) = 8.42$, $p < .000$. The correlation between the two sets of variables was $Rc = .83$ (69% overlapping variance), this indicated a very strong relationship between the predictor variable set and the five dimensions of coaching efficacy. The second variate, which included canonical roots two to five reported Wilks' $\lambda = .71$, $F(40, 983.9) = 2.29$, $p < .000$. The correlation between the two sets of variables was $Rc = .37$ (14% overlapping variance), this indicated a moderate relationship between the predictor variable set and coaching efficacy. In this sample, the third variate was also significant, which included canonical roots three to five: Wilks' $\lambda = .83$, $F(27, 759.9) = 1.85$, $p < .006$. The correlation between the two sets of variables was $Rc = .33$ (11% overlapping variance), which indicated a moderate to low relationship between the predictor variable set and coaching efficacy. After the first three pairs of variates, none of the additional variates explained significant relationships ($p < .05$).

Canonical loadings were examined in order to determine the contributing factors to the canonical variate. Table 14 shows that among the predictor variables concentration value (-.96), commitment value (-.95), and confidence value (-.91) were the most important contributors to the overall relationship followed by communication value (-.85), control value (-.83), and satisfaction (-.33). All five dimensions of coaching efficacy were important contributors to the relationship led by ME (-.94), and followed by GSE (-.78), TE (-.73), CBE (-.70) and PCE (-.65). Standardized coefficients (see

Table 14) indicated that the values concentration (-.45) and commitment (-.39) were the most important predictor variables to the first variate solution, while motivation efficacy (-.64) was the most important dependent variable. The results mean for variate #1 that motivation efficacy, commitment, and concentration provide the largest contributions to the multivariate relationships. Also for variate #1, the redundancy index showed that 40.5% of the variance in coaching efficacy was explained by the independent variables. Standardized coefficients among the efficacy domains that were meaningful for the second variate included TE (-.87), CBE (.63), ME (.48), and PCE (-.36). Independent variables with contributions to variate #2 included: control (.92), intent (-.66), and concentration (-.64). This suggests that TE, CBE, ME, PCE, control, intent, and concentration all make important contributions to the second variate. Although the third variate explained less variance, it too was significant.

In this variate, the standardized coefficients indicated that confidence (-1.15), control (1.13), ME (-1.09), CBE (1.03), communication (.97), commitment (-.90), and PCE (.69). This indicates that three efficacy domains (ME, CBE, and PCE) and three coaching values, are the most important contributors to the third canonical variate. The redundancy value for both variates two and three were less than 10% and as such were not meaningful.

Table 14

Correlations and Standardized Coefficients for Each Variable with Significant Canonical Variates (< .05) for NCAA Division III Assistant Coaches

Variable	Canonical Variate #1		Canonical Variate #2		Canonical Variate #3	
	Correlation	Coefficient	Correlation	Coefficient	Correlation	Coefficient
<i>Coaching Characteristics</i>						
Communication (V)	-0.84	0.01	0.22	0.77	0.24	0.71
Commitment (V)	-0.95	-0.39	-0.13	-0.83	0.00	-0.54
Concentration (V)	-0.95	-0.39	0.12	0.76	0.05	-0.09
Control (V)	-0.84	-0.07	-0.07	-0.24	0.38	1.30
Confidence (V)	-0.92	-0.16	-0.09	-0.50	-0.12	-1.16
Benefits (C)	-0.27	-0.01	0.07	-0.04	0.03	-0.11
Costs (C)	0.08	0.01	0.25	0.21	-0.24	-0.25
Satisfaction (C)	-0.33	-0.06	0.01	-0.16	0.20	0.25
Investments (C)	-0.27	-0.04	0.36	0.31	-0.13	-0.10
Social Constraints (C)	-0.18	-0.08	-0.29	-0.31	-0.23	-0.06
Intent (G)	-0.26	-0.06	0.57	0.57	-0.25	-0.25
<i>Coaching Efficacy</i>						
Motivation	-0.94	-0.67	-0.25	-0.86	-0.04	-0.73
Game Strategy	-0.73	-0.28	0.34	-0.07	-0.10	-0.06
Technique	-0.69	-0.10	0.58	0.70	-0.21	-0.44
Character Building	-0.69	-0.10	-0.10	-0.02	0.68	1.20
Physical Conditioning	-0.60	-0.04	0.60	0.67	0.18	0.36

Note. (V) value variables, (C) commitment variables, (G) goal variable;

Post hoc regression tests revealed that commitment value, concentration value, and social constraints involved with coaching were all significant contributors to the ME variable. For GSE, commitment value, concentration value, and intent were the only significant contributors. For TE, concentration value and intent were the lone contributors. For CBE, control value was the only significant contributor. And lastly, for PCE, confidence value, concentration value, and intent were all significant contributors.

Discussion

The purpose of this study was to explore the multivariate relationships between coaching values, commitment, and intent with five dimensions of coaching efficacy (motivation, game strategy, technique, character building, and physical conditioning). There are a number of important descriptive results in this study. First, when compared to previous coaching efficacy research (i.e., Feltz, et al., 1999) and specifically with previous intercollegiate coaching efficacy research (Kent & Sullivan, 2003; Marback, et al., 2005), the assistant coaches in this study reported very high levels of perceived coaching efficacy. Similar to previous research, CBE was the highest reported efficacy domain, and like the others nearly a full point higher than in previous studies (i.e., Feltz, et al., 1999). These results indicate that the coaches in this study were in general a very confident group of coaches, regardless of age, sport, level, education, or experience. As seen in Tables 11 and 13, the similarity between the descriptive statistics in DI and DIII assistant coaches in this study is nearly identical across all of the variables examined. This provides strong indication that with regard to coaching efficacy, coaching values, coaching commitment, and head coaching intentions there may not be a difference between DI and DIII coaches. However, the result of the MANOVA indicated that

coaches within these two groups were answering these questions differently. The variation between levels, DI (i.e., scholarships, increasingly cutthroat environment) versus DIII (i.e. non-scholarship, truly amateur sport) is evident, but looking beyond the overall model, only investments and head coaching intentions revealed significant differences between DI and DIII assistant coaches. As a result within coaching efficacy and among variables such as coaching values and coaching commitment, potential differences or similarities remain unclear.

Results of the canonical correlation analysis showed that each of the five value variables emerged as being significantly related to the five dimensions of coaching efficacy. Within each of the DI and DIII samples the overall model indicated that there were significant relationships between the coaching characteristic variables (values, commitment, and goals) with the criterion variables (dimensions of coaching efficacy). Within the five significant variates (DI – 2; DIII – 3), one of the interesting results had more to do with what did not seem to be contributing to the set of multivariate relationships. While various coaching efficacy domains, coaching values, and intent were all responsible for meaningful contributions to one or more variates, each of the commitment variables was noticeably absent. This could reflect the type of commitment variables/subscales used in this analysis, or it might suggest that with intercollegiate assistant coaches, their values and intentions are comparatively more important than their commitment as it relates to coaching efficacy. The overall significance of the model in both samples suggests that there is a strong relationship between coaching values, commitment, and goals and coaching efficacy among intercollegiate assistant coaches.

In addition to supporting the connection between coaching goals, commitment, and intent with coaching efficacy, the significant findings in this study support the importance of understanding, and studying, the meaning of and associations between coaching goals, commitment, and intentions. Within the coaching and sport psychology literature, the components included in the heart of Horn's (2008) coaching effectiveness heuristic have received limited attention from researchers. The connections in this research indicate that understanding concepts such as coaching values or coaching commitment as sources of coaching behaviors are important to better understand in the larger pursuit of understanding what leads to certain coaching behaviors. The predictive nature of these relationships would also benefit from further understanding of how a variable such as coaching values differs based upon sociocultural context, organizational climate, and various personal characteristics of coaches.

The results from this study also included identification of unique combinations of variables that were significant predictors of the five specific dimensions of coaching efficacy. Among the more interesting of the findings was that in both the DI and DIII samples, the value variable of control was the lone significant predictor of CBE. This suggests that coaches who value teaching their athletes how to control their emotions and deal with adversity are more likely to have higher levels of CBE. Interestingly, coaches in this study reported having very high levels of CBE, and there was virtually no difference between divisions. With a win at all cost mentality that is often widespread in intercollegiate athletics, this finding begs the question as to whether the coaches in this sample actually demonstrate high levels of character building or if their efficacy in character building is merely a function of their collective perception with regard to CBE.

Nevertheless, this finding suggests that intercollegiate assistant coaches who are seeking to improve their own CBE could do so by deliberately teaching their athletes to control their emotions, respond to adverse situations in a positive manner, and focus on controlling only what they can control. In line with the tenets of achievement goal theory (Ames, 1992; Nicholls, 1989) this finding is consistent with coaching from a mastery perspective and it suggests that doing so can lead to higher levels of CBE.

Another important finding in this study involved the relationship between intention to become a head coach and the dimensions of coaching efficacy. While the focus of this study was to examine the multivariate relationships between predictor variables and criterion variables, intent demonstrated a particularly important role within the significant relationships revealed. In the DI sample, the intent variable was a significant contributor to the relationship among dependent variables and ME, GSE, and TE. In the DIII sample, intent contributed to the relationships among the dependent variables and GSE, TE, and PCE. While not necessarily significant by itself, the relative importance of the intent variable within the significant canonical correlation suggests that intent may be an important predictor of coaching efficacy.

In part due to the intent variable, several significant combinations of variables in the DI sample illuminated important relationships with a dimension of coaching efficacy. First, the combination of concentration value, confidence value, and intent were significant contributors to ME. This suggests that assistant coaches who aspire to be head coaches, and value teaching their players concentration skills and build athletes' confidence will have higher levels of ME. Athletes are often motivated by successful performance, positive reinforcement, and they typically perform at higher levels when

they are able to focus. Developing skills such as concentration and confidence lead to long-term player development and as a result it makes sense that assistant coaches who are interested in becoming head coaches are not only demonstrating concentration and confidence, but also, related to those, have higher levels of ME.

The second significant, and logical, combination of variables within the DI sample were the three predictors of GSE: commitment value, concentration value, and intent. All three of these predictor variables are congruent in that they suggest a coach is dedicated to coaching and athlete development for the long term. This finding indicates that DI assistant coaches who have higher levels of GSE they value teaching their athletes hard work, great effort, and they are likely to place the same value in their own coaching. One of the ways that coaches likely value effort and focus is through the importance a coach places upon game strategy. This finding also suggests that a coach who has high levels of GSE would be more likely to value teaching commitment, would feel like s/he believes that sustained focus on tasks is important, and would have strong intentions to become a head coach in the future.

The third interesting connection between predictor variables and coaching efficacy in the DI sample occurred among the possible predictors of TE. Four variables significantly predicted TE: communication value, concentration value, investments in coaching, and intent to be a head coach. At DI level of intercollegiate athletics, skill execution and technique are expected within athletic performance in every sport. As such it makes sense that coaches who are extremely invested in coaching, and who desire a head coaching career would report high efficacy in skill development and performance. Furthermore, concentration is an important component of skill execution. In part due to

the development of an excellent ability to concentrate, highly skilled players are often able to make decisions quickly and execute high level technical and tactical skills (Martens, 2012). Furthermore, coaches who value developing communication skills among their athletes are also likely to be coaches who value communication as a coach. Teaching high-level skills and techniques successfully involves being able to communicate effectively with different athletes and involves a high-level of conceptual understanding with regard to the skill one is teaching. As a result, it is reasonable to conclude that there is a strong relationship between DI assistant coaches who value communication, concentration, are highly invested in coaching, and want to become head coaches with TE.

While the DIII sample did not have the same significant predictors of TE, both concentration value and intent to be a head coach were relevant in the relationship with TE. While concentration and intent to be a head coach can be explained in the same way as with the DI sample. With fewer assistant coaches to rely on at the DIII level it is critical that a head coach is knowledgeable about skills and techniques for all positions and all aspects of a sport. As such, it is reasonable to understand that assistant coaches in DIII who aspire to be head coaches would have higher knowledge of, and then high efficacy with regard to, required skills in their sport. While this might be less important in DI where head coaches are surrounded by specialized coaches and assistant coaches who often have knowledge in a particular area that is even beyond their own level, it is possible that desiring a head coaching position might motivate a coach to become more knowledgeable in sport specific techniques regardless of division.

Limitations

There are several limitations of this study. The primary limitation of this study was simply the exploratory nature of this study. While several theories are included in this study, the design of this study was not to test any one particular theory. Second, while the purpose was to identify relationships among variables to predict assistant coaching efficacy, this study did not measure behaviors or perceived coaching behaviors; rather it was a precursor examining coaches' values, beliefs, and goals as a predictor of coaching efficacy. Furthermore, because this research uniquely combined several social psychological theories (i.e., TPB, Coaching Efficacy, commitment) to the novel population of assistant coaches the generalizability of the results should be viewed with caution and future research should be completed in order to build upon the meaningfulness of the current study.

Future Directions

The multivariate analysis in this study provides a foundation for examination of relationships between the domains of coaching efficacy and various social-psychological predictor variables. While this is a valuable contribution to understanding relationships between these sets of variables, future consideration of potential differences with regard to social-psychological variables in intercollegiate coaching would be worthwhile. Future research should continue to examine social-psychological sources of coaching efficacy. Combinations of demographic and social-psychological variables should be examined at different levels of sport, within different sport contexts, and according to different groups of coaches (i.e., gender, assistant versus head coaches, race, etc.). In addition, coaching values, coaching commitment, and coaching goals should be given

further consideration as to their capacity to explain coaching efficacy and with regard to their importance in the general coaching effectiveness heuristic. Lastly, the connections between coaching values, goals, and commitment with coaching efficacy and ultimately coaching behaviors should be examined. The consideration of these connections could provide additional insights into the development of values or goals that ultimately might lead to effective coaching behaviors. In addition, assistant coaches continue to be an important group of coaches who provide meaningful contributions to athlete and team success as well as with the athletic and personal development of players. More research is needed on assistant coaches at a variety of levels, which could provide important insights into coaching efficacy, coaching commitment, and coaching effectiveness.

Implications

The present study illuminated and supported previous notions about the need for additional research with regard to coaching efficacy, coaching commitment, coaching goals, coaching values, and in the understudied population of intercollegiate assistant coaches. First, the significance of the relationships between goals, commitment, and values with coaching efficacy is important. A previously known outcome of coaching efficacy is coaching behavior (i.e., Feltz et al., 1999) and if goals, commitment, and values predict coaching efficacy, they may also be important antecedents of coaching behavior. Findings support Horn's (2008) model of coaching effectiveness, and as such suggests that goals, commitment, and values should be given additional practical and theoretical consideration in the future. This knowledge provides an important link to the education and development of assistant coaches before they enter the profession and after they are immersed in the coaching world. With the established premise that higher

efficacy is a precursor to higher levels of effectiveness, this knowledge could help assistant coaches improve coaching skills to help them be more effective. In addition, and due to the largely exploratory nature of this study, findings from this research open a line of inquiry combining social-psychological constructs, coaching literature, and the understudied population of assistant coaches.

Conclusions

The results from this study illustrate the significant relationship between coaching values, commitment, and goals with coaching efficacy among intercollegiate assistant coaches. In addition, this study provides a useful examination of an understudied population of coaches in the highest levels of amateur sport in the United States – intercollegiate athletics. The findings suggest that various coaching values, such as the development of control are predictors of various dimensions of coaching efficacy, such as character building efficacy. While many sources of coaching efficacy have been identified in the past such as prior success, coaching experience/preparation, perceived skill of athletes (e.g., Feltz et al., 1999; Vealey & Chase, 2008), and coach's playing experience (Feltz et al., 2009), this study extends the list of sources of coaching efficacy beyond various demographic factors. Findings from this study provide empirical evidence of the social-psychological concepts of coaching values, coaching commitment, and coaching goals as directly, and strongly significantly, related to the various dimensions of coaching efficacy among intercollegiate assistant coaches.

CHAPTER VII
A SUMMARY OF FINDINGS ON RELATIONSHIPS
AMONG COACHING GOALS, COMMITMENT,
VALUES, AND DIMENSIONS OF COACHING
EFFICACY IN NCAA DIVISION I AND
DIVISION III ASSISTANT COACHES

Coaches play important roles in the development of athletes, the strategies implemented by a team or group of athletes, and ultimately in competitive outcomes. While the athletes are exerting great efforts on the field of play, one of the most important responsibilities for coaches is putting each of his/her athletes in a position where those athletes can be successful. In intercollegiate athletics, this is important not just for the positive development of athletes, but also for the job security of coaches who often need to earn favorable objective outcomes (i.e. wins) in order to retain their positions. As a result, a constant pursuit of understanding what it means to be an “effective coach” has dominated the coaching science research for most of the past half century (Côté & Gilbert, 2009).

Ambiguity remains in terms of what best describes, a truly effective coach (Denison et al., 2013). As described in Chapter 1, Horn’s (2008) heuristic of coaching effectiveness (see Figure 1) presents a framework with which to understand the contributors to effective coaching. While actual coaching behaviors have garnered much attention in the coaching science research (Nelson & Colquhoun, 2013), the antecedents

of coaching behaviors have drawn less attention. Furthermore, numerous variables that may contribute to coaching behaviors in Horn's (2008) model have rarely been examined. The present research aimed to explore the relationships among potential predictors, specifically coaching goals, beliefs, and values, and one multidimensional antecedent of coaching behaviors, coaching efficacy, within the framework of Horn's (2008) heuristic of coaching effectiveness.

Initial Purpose

The purpose of this study was to examine predictors of assistant coaches' multidimensional coaching efficacy at the intercollegiate level within the framework of Horn's (2008) working model of coaches' effectiveness. Specifically, the purpose of this study was to examine the relationships among assistant coaches' efficacy and three social psychological constructs: (1) coaching goals, as defined by strength of intentions to become a head coach; (2) coaching beliefs, in this study defined as coaching commitment, as measured by a coach's reported commitment to coaching his/her sport; and (3) the value a coach displays toward positive psychological factors and the development of interpersonal skills in accordance with the 5 Cs of coaching efficacy (Harwood, 2008). As part of the exploration of the relationships among efficacy, goals, commitment, and values among a sample of intercollegiate assistant coaches, three research questions were considered:

- Q1 Is the Modified Coaching Confidence Questionnaire (based upon the 5 Cs of Coaching Efficacy – Harwood, 2008), a valid and reliable tool with which to measure coach values?
- Q2 Which characteristics of coaches best explain coaching commitment?
- Q3 What are the relationships among coaching goals, beliefs, and values and the various dimensions of coaching efficacy?

Major Findings

After examining descriptive and inferential statistics, there are a number of important findings to report from this study. In order to present them in an organized fashion they are presented by chapter/research question and followed with a discussion of the connections among findings across the chapters/research questions and larger implications moving forward.

Is the MCCQ a Valid and Reliable Instrument for the Measurement of Coaching Values? (Chapter 4)

The first research question involved the psychometric properties of the MCCQ. This question was addressed through an examination of the internal validity of the MCCQ subscales, and through confirmatory factor analysis, which was used to test the factor structure of the MCCQ and to determine its factorial validity in measuring coach values using the 5 Cs as five value dimensions (commitment, communication, concentration, control, and confidence). The results of the internal consistency analysis for the 5 Cs revealed alpha levels greater than Nunnally's (1978) recommended standard of 0.70. In the high school sample all alpha levels were greater than or equal to .80, and in both the DI and DIII samples alpha scores for each of the five value dimensions exceeded .81. Thus, the instrument was found to be internally consistent.

The results of the factor analysis in Chapter 4 indicated that the five value subscales (commitment, communication, concentration, control, and confidence) measured through the MCCQ revealed fit indices that exceeded acceptable minimum levels for each of the three samples. Second, factorial invariance, using factor loadings were also acceptable for the coach samples at each of the three coaching/athletic levels.

Additionally, within the factor analyses conducted in this study, the lack of cross loading items provided additional justification for use of the MCCQ as a measurement tool.

Without a single item that loaded cross loaded, in combination with strong factor loadings, these findings suggest that the 5Cs instrument measured five different factors as anticipated. These results provided initial support for the 25-item MCCQ as a valid and reliable tool with which to measure coaches' value orientations relative to each of the 5Cs. Furthermore, the inclusion of a variety of sports, both genders, and both head and assistant coaches indicates that this instrument may be useful across more than just varying athletic levels, but also with coaches in different sports.

Characteristics of Coaching Commitment (Chapter 5)

The cluster analysis conducted with regard to the coaching commitment of intercollegiate coaches was consistent with previous findings regarding coaching commitment and revealed new insights. First, using a cluster analysis, three of the four clusters of coaching commitment largely mirrored findings from previous coaching commitment research (Raedeke et al., 2000). As seen in Table 15, the profiles of Cluster 1, 2, and 4 found in this study reflected profiles that were similar to profiles in previous research. In addition to these three cluster profiles, a fourth important profile emerged which provides a new perspective on coaching commitment. Cluster 3, labeled the "Identify as coaches" profile, was comprised of a group of intercollegiate coaches whose coaching commitment was strongly influenced by social constraints. Similar to the entrapped cluster (Cluster 2), these coaches seemed to feel 'stuck' in coaching as a career. However, unlike the entrapped coaches, Cluster 3 coaches demonstrated high levels of satisfaction and perceived considerable benefits in coaching. So, while the

overall commitment level might be considered moderate for the identify as coaches cluster, coaches whose identity is tied to their coaching careers might be more inclined to stay in coaching than coaches in the entrapped cluster.

Table 15

Hypothesized Profiles (Raedeke et al., 2000) Compared to the Results in the Present Study

	Hypothesized	Study Results	Hypothesized	Study Results	Hypothesized	Study Results
	Low Commitment	Cluster 1	Entrapped	Cluster 2	Enjoyment-Based	Cluster 4
Benefits	low	very low	low	low*	high	high
Costs	high		high	very high	low	low
Satisfaction	low	very low	low	low	high	high
Investments	low	very low	high	high	high	
Social Constraints	low		high		?	low
Commitment Level	low		moderate		high	

*cluster 2 benefit z-score was -.26, rounding towards being a moderate contributor to the cluster; all blank spaces indicate values that were not contributing factors to the cluster solution $-.30 < x < .30$.

The other important finding from Chapter 5 involved the descriptive analysis of the four clusters. There were three thought-provoking descriptive revelations that emerged from the comparison of the four clusters: (1) the low commitment cluster had more female coaches, and was the least experienced group of coaches; (2) the entrapped cluster was the most educated group and had the largest percentage of coaches from one sport (basketball); (3) and the ‘identify as coaches’ cluster had the highest percentage of male coaches, and was the oldest and least educated cluster. When considering all of the variables across the four emergent profiles, there were not any clear indications that one sport, one type of assistant coach, or one demographic variable (i.e. race, gender, playing experience) was a unique contributor to the cluster make up. These findings strongly suggest that identifying a committed coach involves more than recognizing a set of

descriptive variables about a coach or about his/her coaching environment. Rather this finding suggests that getting to know the characteristics, values, goals, and beliefs of an individual will be far more important than knowing the demographic profiles of coaches when identifying coaching commitment.

**Multivariate Exploration of
Coaching Efficacy, Values,
Commitment, and Goals
(Chapter 6)**

The primary research question in this study involved an examination of the multivariate relationships among coaching values, commitment, and goals with the five dimensions of coaching efficacy (motivation, game strategy, technique, character building, and physical conditioning). Using a canonical correlation analysis, the overall model was significant ($p < .05$) for both DI and DIII coaching samples. This result indicated that there were significant relationships among the three sets of predictor variables (5Cs, five commitment variables, and intent to be head coach) and the five dimensions of coaching efficacy. Furthermore, the percent of variance explained by the first significant canonical root in each sample was extremely high (DI = 84%; DIII = 83%). This finding suggests that all eleven predictor variables (five values, five commitment, and one intent) contributed to the explanation of the five coaching efficacy domains.

As a follow-up analysis, the factors contributing to each of the six significant canonical variates (DI = 2; DIII = 3) in terms of the canonical loadings were examined. With regard to the canonical loadings for all sixteen variables in both the DI and DIII variates, coaching efficacy, values, and intent were all meaningful contributors to the relationships. However, in the DIII sample, all five value dimensions (5Cs) loaded on the

first canonical root at values ranging from -.84 and -.95. The only other covariate that loaded at a meaningful level was satisfaction (-.33), albeit at a level far lower than any of the five value dimensions. This finding indicates that the five value dimensions were all important contributors to the first canonical root, while satisfaction played a much smaller, but still meaningful role in the first canonical root. The other four commitment variables and the intent variable were not meaningful contributors to the solution. The first canonical root explains the largest amount of the variance in the canonical model, which suggests that each of the 5Cs contributed in an important way to the overall relationship with the set of efficacy dimensions, with satisfaction making an additional contributing to the relationship. In the DIII sample, investments in coaching loaded onto the second canonical root (.35), although at a lower level than intent (.57), and benefits, costs, and social constraints did not load on any of the three canonical roots. This finding indicated that intent and investments in coaching were the only meaningful contributors to the root explaining the second largest variance in the overall model.

In the DI sample, the first canonical root also reported large, meaningful contributions from each of the 5 Cs, ranging from -.88 to -.95. As was the case in the DIII sample, the 5Cs were also important contributors to the first canonical root, which explained the greatest percent of the variance in the multivariate relationship between the two variable sets. Also similar to the DIII sample, in the DI sample, none of the commitment variables loaded on the first canonical root, and only investments (-.32) in coaching loaded on the second canonical root but to a lesser extent than control (.40) and intent (-.39).

The final important finding in this study involved the post hoc regression analyses that were conducted as part of the canonical correlation to test the relative contribution of each of the predictor variables to the five dimensions of coaching efficacy. For each of the DI and DIII coaching samples there were between one and three predictor variables with significant ($p < .05$) relationships with the coaching efficacy domains. Among these significant relationships several were of particular interest. First, in both the DI and DIII samples the control value variable was the only variable that was a significant predictor of character building efficacy. This finding suggests that coaches who are committed to helping their players control in-game reactions to mistakes, officials' calls, or actions from their opponents have higher levels of character building efficacy. The fact that this relationship was consistent in both DI and DIII only enhances the importance of this relationship for intercollegiate assistant coaches. Other efficacy dimensions with interesting significant relationships included DIII coaches' game strategy with concentration and intent and relationships between technique and communication, concentration, and investments in the DI sample.

Theoretical Contributions

In order to examine the connections across findings it is important to place the findings in the larger contextual models of both coaching efficacy and coaching effectiveness. Figure 6 shows the anticipated predictors and outcomes of coaching efficacy (Chase & Martin, 2013; Feltz et al., 1999; Sullivan & Kent, 2003). Coaching behavior, one of the outcomes of coaching efficacy is also an outcome of values, beliefs, and goals within Horn's (2008) heuristic model of coaching effectiveness (see Figure 7).

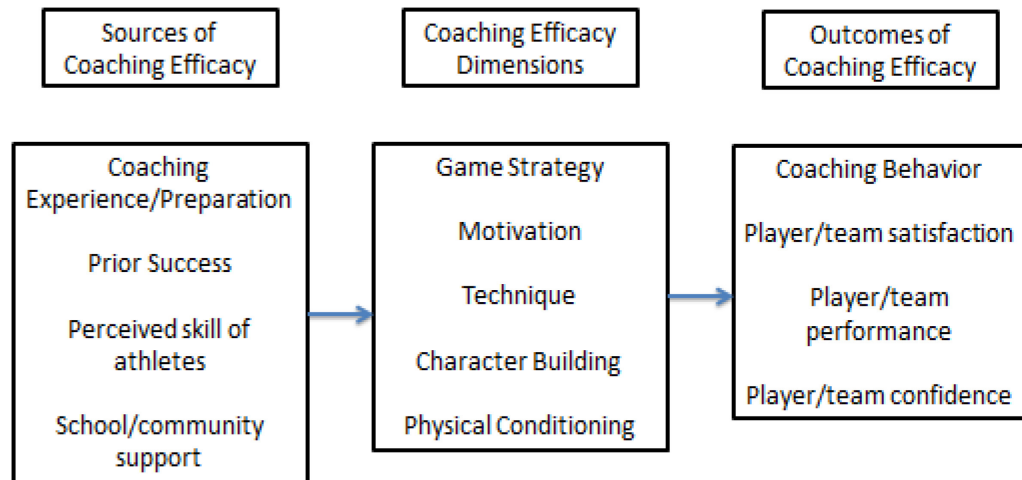


Figure 6. The conceptual model of coaching efficacy (Chase & Martin, 2013; Feltz et al., 1999; Sullivan & Kent, 2003)

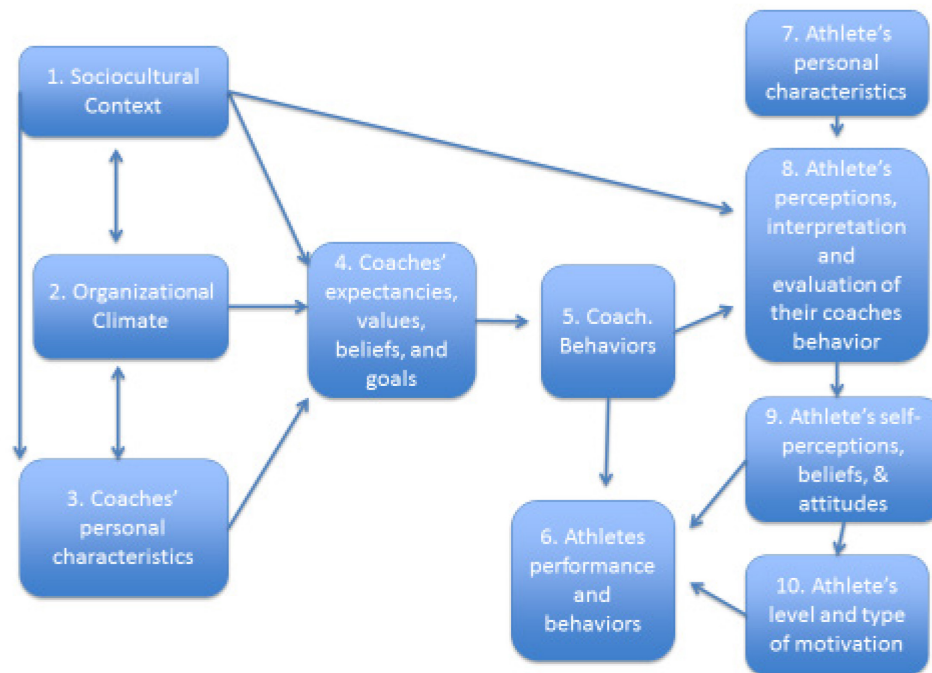


Figure 7. Heuristic model of coaching effectiveness (Horn, 2008)

The purpose of this study was to examine the relationships among five coaching values, coaching commitment, and coaching goals (all within Box 4) and the five dimensions of coaching efficacy (see Figure 8). According to Horn's (2008) model of coaching effectiveness, coach behaviors are highly influential with regard to athlete performance. Knowing that athlete self-efficacy also influences athlete performance, it stands to reason that coaching efficacy would predict coaching behaviors as well (Chase, Feltz, Hayashi, & Hepler, 2005). In accordance with, Horn's (2008) heuristic model of coaching effectiveness, coaching efficacy through its influence on coaching behaviors may also potentially influence athlete performance. This influence can occur either directly in the coaching efficacy model, or indirectly through coach behaviors as in Horn's (2008) heuristic model. The framework of coaching effectiveness, and how each of the variables in the present study fit into Horn's (2008) coaching effectiveness model, are critical components to understand. However, the focus of this present research was to closely examine Box 4 in the heuristic model (see Figure 8) by predicting coaching efficacy, one of the more proximal antecedents of coaching behaviors (Feltz et al., 1999).

While understanding these connections is important, findings from this study demonstrated that five specific coaching values: commitment, communication, concentration, control, and confidence all had relationships with the five different domains of coaching efficacy. This suggests that coaching values may be linked as a predictor of coaching efficacy. Using the 5Cs as values and demonstrating an initially sound measurement tool to do so simply strengthen the potential connections between these values and the dimensions of coaching efficacy.

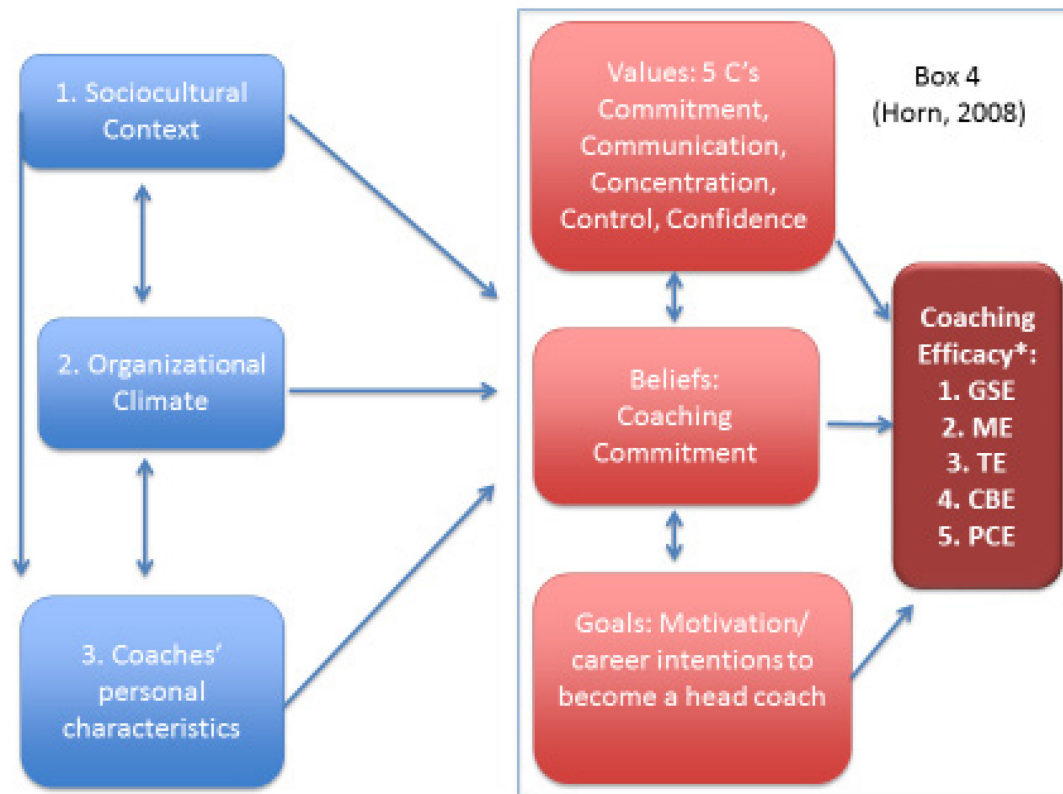


Figure 8. Working model for the present research within the framework of Horn's (2008) heuristic of coaching effectiveness.

Intent to become a head coach was also linked to coaching efficacy, which suggests that coaching goals might also be a predictor of coaching efficacy. As is the case with the 5Cs coaching values, more research should take place to further examine the connections between intent, these and other coaching values, and the five different domains of coaching efficacy.

Also worthy of note within this study was the relative unimportance of the commitment subscales within the larger multivariate exploration. As has been the case with sport commitment (Scanlan, Carpenter, Schmidt et al., 1993) and with previous

coaching commitment research (Raedeke, 2004; Raedeke et al., 2000; 2002), the six dimensions of commitment are all meant to contribute collectively to overall level of commitment. The cluster analysis results support some previous notions about coaching commitment (Raedeke et al., 2000), but using the commitment subscales as independent variables in the canonical correlation may not have been as useful as it might have been to include a singular commitment score in the analysis. In addition, having to remove the ‘attractiveness of alternatives’ subscale due to poor reliability, and including the benefit scale despite internal subscale consistency below .70 (in both samples) raise additional questions about the usefulness of including the five subscales as separate predictors of coaching efficacy.

Larger Implications

There are some important larger implications from this study. First, the findings indicate that important and meaningful relationships exist between the two sets of variables (predictor variables: 5 Cs, five commitment variables, and intent to be head coach; outcome variables: five dimensions of coaching efficacy) included in this study. Findings provide additional support for the relationships proposed through Box 4 within Horn’s (2008) model of coaching effectiveness. Furthermore, the amount of variance explained through these relationships and the overall strength of the relationships imply very important relationships between sets of variables.

In addition, the development of an instrument to explicitly measure a coach’s value in developing interpersonal skills and positive psychological characteristics in one’s athletes could be an important contribution for future research. The creation and examination of the MCCQ provides a starting place from which to examine coaching

values among future coaches. The relevance of coaching values in the coaching effectiveness model; their previous use in a successful intervention program (Harwood, 2008); the evidence that the items used are a sound model to examine five separate values; and the strength of the relationships with the coaching efficacy dimensions all suggest that these values and coaching efficacy should be examined more closely in the future.

With regard to the understudied area of coaching commitment, there were three clusters that emerged that are of theoretical interest. These findings revealed the presence of clusters of coaches who were distinguished by characteristics of low commitment, enjoyment-based commitment, and entrapment. These findings are consistent with previous research with age group swim coaches (Raedeke et al., 2000). Having similar results across different levels and with different sports provides further weight to this results. In addition the new cluster present in this study suggests that there are coaches in intercollegiate athletics who identify strongly as coaches.

Lastly, this study provided important knowledge on the largely unstudied population of assistant coaches. While roles of head and assistant coaches often overlap (Solomon & Buscombe, 2013), especially in higher levels of sport, such as intercollegiate sport, very little is known about assistant coaches. This study revealed that assistant coaches are extremely confident in what they value with regard to the 5Cs. Findings also suggest that with regard to coaching commitment NCAA assistant coaches fit into profiles of low commitment, enjoyment-based commitment, entrapped, and coaches who identify strongly as coaches. Of particular interest in the intercollegiate coach sample in the present study, few if any demographic variables were influential in contributing to

differences in cluster membership. In addition, this study revealed that coaching efficacy in assistant coaches is related to coaching goals, commitment, and intent in a multivariate way. This study represents one of the first studies conducted with assistant coach with regard to coaching efficacy. The results in this study provide additional knowledge about assistant coaches, who represent a large portion of the coaching community and who also remain largely missing from the larger body of coaching research (Gilbert & Trudel, 2004a; Rathwell et al., 2014).

Conclusions and Future Directions

Assistant coaches provide a unique population in which to explore predictors of coaching efficacy. However, the importance of this study extended beyond an examination of the perceptions of a relatively understudied coaching population. Despite the fact that researchers have been pursuing answers to the question, “*What are the characteristics of an effective coach?*” for some time, the pursuit of an evidence-based, generalizable answer to this question remains elusive and relevant in coaching and social psychological research. Horn’s (2008) heuristic model of coaching effectiveness is useful to understand the “big picture” of what coaching effectiveness entails. While coaching behaviors and coaching knowledge have been focused on in previous studies, the goal of this study was to examine the heart of Horn’s heuristic model. Specifically, the present study examined coaching efficacy, one of the most proximal antecedents to coaching behaviors and a key component in effective coaching (Feltz et al., 1999) in relation to three predictors of coaching behavior: coaching goals, commitment, and values. The focus of this study within the heart of Horn’s heuristic model represents a

deeper exploration of coaching beyond the study of coaching behaviors or knowledge, examining what coaches desire (goals), what coaches are committed to, and what coaches' value.

This research addressed a gap in the literature on assistant coaches as it used head coaching intentions within the rarely explored sport context; it examined coaching commitment more specifically than the previous studies that focused on gender or race; it established and tested a new method of measuring coaching values; it examined coaching efficacy as an outcome variable as opposed to a predictor variable; and coaches' goals, commitment, and values (Box 4) within Horn's (2008) heuristic model of coaching effectiveness. Combining three social-psychological constructs (intent, commitment, and coaching values) within the framework of coaching effectiveness, important characteristics with potentially strong relationships to coach's dimensions of coaching efficacy were suggested that previously had yet to be discovered.

The results from the present study provide a foundation for a number of future directions worthy of consideration. First coaching values, and specifically the 5 Cs used in this study, should be examined at different levels of, and in different sports. Second, coaching commitment deserves more consideration and specifically which, if any, psychological factors are predictors of coaching commitment. Third, coaching efficacy should be examined further in relation to additional social psychological variables and beyond coaching values, commitment, and goals, such that we might gain a greater depth and breadth of understanding of coaching efficacy.

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APPENDIX A**PILOT STUDY SURVEY – MODIFIED COACHING
CONFIDENCE QUESTIONNAIRE OF
HIGH SCHOOL COACHES**

SURVEY INSTRUMENT FOR HIGH SCHOOL COACHES

Part I: 5Cs Modified Coaching Confidence Questionnaire

*Circle one number for each of the statements below. Read the question/statement in **BOLD** prior to answering each item. The questions apply to the team you are currently coaching this season or for the last team you coached with during the present academic school year. Please answer honestly, as there are no correct or incorrect answers.*

*Thank you for your time and opinions! The **question in BOLD** at the top is the beginning of each of the 25 statements listed...*

How much confidence do you possess in employing the behaviors or strategies that actively help players to...?		Not at all confident Extremely confident									
1	2	3	4	5	6	7	8	9	10		
1	Show elevated levels of effort	1	2	3	4	5	6	7	8	9	10
2	Ask questions of coach about a drill or a skill	1	2	3	4	5	6	7	8	9	10
3	Maintain confidence in their performance despite any previous mistakes they have made	1	2	3	4	5	6	7	8	9	10
4	Exhibit responsible actions towards opponents, teammates, and coaches after successes and failures	1	2	3	4	5	6	7	8	9	10
5	Demonstrate consistent high levels of effort over the course of the season	1	2	3	4	5	6	7	8	9	10
6	Stay focused on key components of a drill without being distracted	1	2	3	4	5	6	7	8	9	10
7	Recover quickly after mistakes without a negative reaction or emotion	1	2	3	4	5	6	7	8	9	10
8	Want the ball/puck/racquet (etc.) with no fear of mistakes	1	2	3	4	5	6	7	8	9	10
9	Provide positive encouragement and feedback to their teammates	1	2	3	4	5	6	7	8	9	10

10	Persist at skills in the face of mistakes or failure	1	2	3	4	5	6	7	8	9	10
11	Maintain their focus in the midst of adversity	1	2	3	4	5	6	7	8	9	10
12	Show interest in working hard the day after a game/match/meet regardless of the outcome	1	2	3	4	5	6	7	8	9	10
13	Listen to, acknowledge, and implement technical feedback from coaches	1	2	3	4	5	6	7	8	9	10
14	Share information with coach and accept feedback	1	2	3	4	5	6	7	8	9	10
15	Listen to instructions attentively and maintain eye contact	1	2	3	4	5	6	7	8	9	10
16	Maintain high positive body language to all events and consistency throughout	1	2	3	4	5	6	7	8	9	10
17	Bring a presence to training that exudes confidence	1	2	3	4	5	6	7	8	9	10
18	Show interest and engagement in mastery with no avoidance of difficult skills	1	2	3	4	5	6	7	8	9	10
How much confidence do you possess in employing the behaviors or strategies that actively help players to...?		<div>Not at all confident</div> <div>Extremely confident</div>									
19	Encourage, praise, and instruct teammates clearly and confidently	1	2	3	4	5	6	7	8	9	10
20	Pursue challenging individual and team goals	1	2	3	4	5	6	7	8	9	10
21	Avoid worrying about or reacting to officials calls/decisions as they are out of your athletes control	1	2	3	4	5	6	7	8	9	10
22	Maintain their focus when they are physically and/or mentally fatigued	1	2	3	4	5	6	7	8	9	10
23	Help others to refocus quickly, indicating an organizational focus	1	2	3	4	5	6	7	8	9	10
24	Avoid arguing or blaming teammates alongside negative emotions	1	2	3	4	5	6	7	8	9	10
25	Maintain a positive approach to the session/practice indicative of a genuine belief	1	2	3	4	5	6	7	8	9	10

Part II: Demographic Questions

26. What is your age? _____
27. What sport do you currently coach?

28. What is the highest level of education you have completed (*please circle one*)?
- a. high school b. associates degree c. bachelor's degree d. master's degree
e. doctorate
29. What is your gender (*please circle one*)? MALE or FEMALE
30. How many years have you been coaching at the high school level?

31. Please circle which of the following BEST represents your race/ethnicity:
- | | |
|---------------------------|-----------------------------------|
| <i>Hispanic or Latino</i> | <i>Black or African American</i> |
| <i>Asian</i> | <i>Hawaiian/Pacific Islander</i> |
| <i>White or Caucasian</i> | <i>Native American or Alaskan</i> |
| <i>Other</i> | |
- _____
32. What was the highest level you played in the sport you are a coach? _____
33. What was your coaching role on this team (*please circle one*)? HEAD or
ASSISTANT

APPENDIX B**COMPLETE SURVEY FOR NCAA DIVISION I & III
COLLEGE ASSISTANT COACHES**

Default Question Block

Predicting coaching efficacy in NCAA assistant coaches: A social-psychological analysis of coaching goals, beliefs, and values

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Research Advisors: Dr. Megan Babkes Stellino (megan.stellino@unco.edu; 970-351-1809) and Dr. Robert Brustad (bob.brustad@unco.edu; (970) 351-1712)

As part of my culminating project to receive my PhD in the School of Sport and Exercise Science at the University of Northern Colorado, I am working on a research project that seeks to gain a better understanding of coaching efficacy in assistant coaches. More specifically, I am exploring the relationship between coaching intentions, coaching values and coaching commitment with coaching efficacy across a variety of sports. In order to do so I need input from coaches like you!!

If you choose to participate in this research, you will be entered into a **one time, 10-15 minute survey**, with questions regarding your head coaching goals, your commitment to coaching, your coaching values, and your confidence levels in certain areas of coaching. No identifying information will be solicited on the survey and as such, confidentiality will be maintained for participants. Information (e.g., age, gender) will also be gathered for demographic purposes.

Risks to you are minimal. Your name will not appear in any professional report of this research and the final report will primarily rely on findings from the group. Completed surveys and other information from this study will be stored in a password-protected computer in the office of the primary researcher and will only accessible by the researchers on this project. No names or email addresses will be associated with any of the data collected in this research.

Participation is voluntary. You may decide not to participate in this study and if you begin participation you may still decide to stop and withdraw at any time. Your decision will be respected and will not result in loss of benefits to which you are otherwise entitled. If you have any concerns about your selection or treatment as a research participant, please contact Sherry May, IRB Administrator, in the Office of Sponsored Programs, Kepner Hall, University of Northern Colorado, Greeley, Colorado, USA, 80639; 1-970-351-1910.

Sincerely,

Brett A. Nichols

Brett A. Nichols & Drs. Megan Babkes Stellino & Robert Brustad

Click "YES" to begin the online coaching survey

- ☐ YES, I would like to continue with the survey
- ☐ No

In which NCAA Division do you currently coach (during the 2014-15 academic year)?

Division I

Division III

Other



Which sport are you an assistant coach for (during 2014-15 academic year)? **SELECT ONE**

Which of the following **best describes your current title** (during the 2014-15 season)?

SELECT ONE

- | | | |
|--|---|---|
| <input type="radio"/> Assistant Coach | <input type="radio"/> Recruiting Coordinator | <input type="radio"/> Special Assistant to the Head Coach |
| <input type="radio"/> Associate Head Coach | <input type="radio"/> Student Assistant | <input type="radio"/> Position Coach (i.e. Running Backs coach) |
| <input type="radio"/> Director of Operations | <input type="radio"/> Video Coordinator | <input type="radio"/> Other <input type="text"/> |
| <input type="radio"/> Graduate Assistant | <input type="radio"/> Volunteer Assistant Coach | |

How many years have you been coaching your sport (including this season)?

Have you ever been a head coach at the collegiate level?

- ☐ Yes
- ☐ No

In **which athletic conference** do you currently coach?

What is your sex?

- ☐ Male
- ☐ Female

What is your age?

What is the highest level of education that you have **completed**?

Which of the following best describes your race/ethnicity (select one)?

- | | |
|--|---|
| <input type="radio"/> Asian | <input type="radio"/> Native American or Alaskan |
| <input type="radio"/> Black or African American | <input type="radio"/> White or Caucasian |
| <input type="radio"/> Hawaiian or Pacific Islander | <input type="radio"/> Other (please describe below) <input type="text"/> |
| <input type="radio"/> Hispanic/Latino | <input type="radio"/> Multiple (please describe below) <input type="text"/> |

What is your highest level of playing experience in the sport you coach?

Coaching confidence refers to the extent to which coaches believe that they have the capacity to affect the learning and performance of their athletes. Think about how confident you are as a coach. Rate your confidence for each of the items below - using the statement in **BOLD** as the beginning of each question.

In relation to the team (or athletes) that you are currently coaching, how confident are you in your ability to...?

	Not at all Confident 1	2	3	4	5	6	7	8	9	Extremely Confident 10
Maintain the confidence of your athletes	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Recognize opposing team's strengths during competition	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Mentally prepare your athletes for game/meet strategies	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Instill an attitude of good moral character in your athletes	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Build the self-esteem of your athletes	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Demonstrate the skills of your sport	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Understand competitive strategies	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

In relation to the team (or athletes) that you are currently coaching, how confident are you in your ability to...?

	Not at all Confident 1	2	3	4	5	6	7	8	9	Extremely Confident 10
Adapt to different game/meet situations	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Recognize opposing team's weaknesses during competition	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Motivate your athletes	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Make critical decisions during competition	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Build team cohesion	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Instill an attitude of fair play among your athletes	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Continuing from the previous page and thinking about how confident you are as a coach...Rate your confidence for each of the items below - using the statement in **BOLD** as the beginning of each question.

In relation to the team (or athletes) that you are currently coaching, how confident are you in your ability to...?

	Not at all Confident 1	2	3	4	5	6	7	8	9	Extremely Confident 10
Coach individual athletes on technique	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Build the self-confidence of your athletes	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Develop athletes' abilities	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Maximize your team's strengths during competition	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Recognize talent in athletes	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Promote good sportsmanship	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Detect skill errors	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Adjust your game/meet strategy to fit your team's talent	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Continuing from the previous page and thinking about how confident you are as a coach...Rate your confidence for each of the items below - using the statement in **BOLD** as the beginning of each question.

In relation to the team (or athletes) that you are currently coaching, how confident are you in your ability to...?

	Not at all Confident 1	2	3	4	5	6	7	8	9	Extremely Confident 10
Accurately assess your athletes' physical conditioning	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Build team confidence	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Instill an attitude of respect for others in your athletes	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Prepare an appropriate plan for your athletes' off-season physical conditioning	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Teach the skills of your sport	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Implement an appropriate endurance program for your athletes during the season	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Read the question/statement in **BOLD** (listed above the set of items) prior to answering each item. The questions apply to your general feelings of confidence about each of these items as an assistant coach in your sport. Please answer honestly, as there are no correct or incorrect answers.

How much confidence do you possess in employing the behaviors or strategies that actively help players to...?

[illegible]

Continuing from the previous page and thinking about how confident you are as a coach...Rate your confidence for each of the items below - using the statement in **BOLD** as the beginning of each question.

How much confidence do you possess in employing the behaviors or strategies that actively help players to...?

[illegible]

How much confidence do you possess in employing the behaviors or strategies that actively help players to...?

	Not at all confident										Extremely Confident
	1	2	3	4	5	6	7	8	9	10	
Provide positive encouragement and feedback to their teammates	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	
Persist at skills in the face of mistakes or failure	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	
Maintain their focus in the midst of adversity	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	
Show interest in working hard the day after a game/match/meet regardless of the outcome	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	
Listen to, acknowledge, and implement technical feedback from coaches	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	
Share information with coach and accept feedback	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	

How much confidence do you possess in employing the behaviors or strategies that actively help players to...?

	Not at all confident										Extremely Confident	N/A
	1	2	3	4	5	6	7	8	9	10		
Avoid worrying about or reacting to officials calls/decisions as they are out of your athletes control	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

You are more than HALFWAY home!! About 40% left...

Continuing from the previous page and thinking about how confident you are as a coach...Rate your confidence for each of the items below - using the statement **in BOLD** as the beginning of each question.

Many coaches consider **benefits** involved with coaching to include: the opportunity to continue in athletics, enjoyment of teaching skills and working with athletes, winning, being a positive role model, & being a part of building a successful program...

Keeping these in mind, please respond to/rate the following items...

	Not at all				Very Much So
	1	2	3	4	5
All things considered, to what extent are there benefits associated with coaching?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
In general, to what extent do you find coaching rewarding?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
...					
	1 - Much Less in Coaching	2	3	4	5 - Much Greater in Coaching
How do the benefits of coaching compare to the benefits found in other careers?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Many coaches consider **costs** involved with coaching to include: having a heavy workload, poor financial compensation, a lack of support and/or recognition, a lack of professional development opportunities, & a significant time commitment to coaching...

Keeping these in mind, please respond to/rate the following items...

	Not at all				Very Much So
	1	2	3	4	5
All things considered, to what extent are there unpleasant things associated with coaching?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
In general, to what extent are there 'costs' associated with coaching?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
...					
	1 - Much Less in Coaching	2	3	4	5 - Much Greater in Coaching
How do the costs of coaching compare to the costs found in other careers?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Please respond to/rate the following questions about your feelings about coaching.

	Not at all				Very Much So
	1	2	3	4	5
All things considered, how satisfied are you with coaching?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
...					
	Very little				A lot of effort
	1	2	3	4	5
How much energy/effort do you put into coaching?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
...					
	Not a chance				Absolutely
	1	2	3	4	5
Knowing what you know now, if you had to decide all over again, would you coach?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
If a good friend told you that he/she was interested in going into coaching, would you suggest that he/she pursue a career in coaching?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
...					
	1 - Coaching is far from the ideal job	2	3	4	5 - Coaching is the ideal job
How does coaching compare to your conception of an ideal job?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
...					
	My coaching experience has been a disappointment (1)	2	3	4	My coaching experience has been phenomenal (5)
How does your coaching experience measure up to the sort of career you wanted when you decided to go into coaching?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
...					
	1 - Very little	2	3	4	5 - An excessive amount of time
In general, how much time do you put into coaching?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

...	1 - Other career options do not compare	2	3	4	5 - I have great options outside of coaching
In general, how do your career alternatives compare to coaching?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

...	1 - Much less in coaching	2	3	4	5 - Much greater in coaching
How do your coaching investments compare to what most people invest into their jobs?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

...	Not at all attractive				Very Attractive
	1	2	3	4	5
All things considered, how attractive are your career options to coaching?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

...	1 - Unfavorably - coaching is where I want to be	2	3	4	5 - Favorably
How do your alternative career options compare to how you would ideally like to spend your time?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

...	1 - Very little	2	3	4	5 - An excessive amount of time
How much time do you put into coaching?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

[illegible]

APPENDIX C

PARTICIPANT RECRUITMENT EMAILS

Email #1 – Initial request for coach participation

From: Brett Nichols
Sent: Monday, March 9, 2015 8:30 p.m.
To: insertcoachemailaddress@unco.edu
Subject: Survey of NCAA Assistant Coaches Goals, Beliefs, and Values

March 9, 2015

Dear Coach Johnson,

I am writing to you to request your participation in a brief survey that I am conducting for my doctoral dissertation at the University of Northern Colorado. I recently spoke with Andrew Cooper, the head volleyball coach at XX University, and he thought that you might be interested in this study and/or you would be an excellent candidate to contribute to this project. I am asking current assistant coaches like you to report on your goals, values, and beliefs as an intercollegiate [SPORT] coach. Your responses to this survey will help evaluate the predictability of coaching efficacy among coaches at the intercollegiate level.

The survey is very brief and will only take about 10 minutes to complete. Please click the link below to go to the survey Web site (or copy and paste the link into your Internet browser) to begin the survey.

Survey link: <http://www.qualtrics.com/s/XXXXXXX>

Your participation in the survey is completely voluntary and all of your responses will be kept confidential. No personally identifiable information will be associated with your responses to any reports of these data. The University of Northern Colorado Institutional Review Board has approved this survey. Should you have any comments or questions, please feel free to contact me at brett.nichols@unco.edu or 330-475-6785 at any time.

I appreciate your time and consideration in completing this survey. It is only through the help of coaches like you that we can extend the knowledge about being an assistant coach at the highest levels of amateur sport.

Sincerely,

Brett Nichols
PhD Candidate
University of Northern Colorado

Email #2 – First follow-up email soliciting coach participation

From: Brett Nichols
Sent: Monday, March 16, 2015 8:30 p.m.
To: insertcoachemailaddress@unco.edu
Subject: NCAA Assistant Coach Survey

March 16, 2015

Dear Coach Johnson,

I recently sent you an email asking you to respond to a brief survey about your goals, values, and beliefs as an intercollegiate [SPORT] coach. Your responses to this survey are very important and will help us evaluate the predictability of coaching efficacy among coaches at the intercollegiate level.

This survey is short and should only take about 10 minutes to complete. If you have already completed the survey we appreciate your participation. If you have not yet completed it, I encourage you to take a few minutes and complete the survey.

Please click on the link below to go to the survey website (or copy and paste the link into your Internet browser) to begin the survey.

Survey link: <http://www.qualtrics.com/s/XXXXXXX>

Your response is important. Getting direct feedback from coaches like you is critical to improving the knowledge base of intercollegiate coaching. Thank you for your help by completing the survey.

Sincerely,

Brett Nichols
PhD Candidate
University of Northern Colorado

Email #3 – Second follow-up email soliciting coach participation

From: Brett Nichols
Sent: Monday, March 23, 2015 8:30 p.m.
To: insertcoachemailaddress@unco.edu
Subject: NCAA Assistant Coach Survey

March 23, 2015

Dear Coach Johnson,

Having worked with college athletes for much of the past decade (five years as a full time coach) I understand how valuable your spare time is at this point in the school year. I am hoping that you would be willing to give about 10 minutes of your time in the next week to help me collect important information about assistant coaches by completing a short survey.

If you have already completed the survey, I really appreciate your participation. If you have not yet completed it, I urge you to complete the survey. I plan to end this survey next week, so I wanted to email everyone who has not responded to make sure you had a chance to participate.

Please click on the link below to go to the survey website (or copy and paste the link into your Internet browser) to begin the survey.

Survey link: <http://www.qualtrics.com/s/XXXXXXX>

Thank you in advance for completing this survey. Your response is important! Getting information directly from coaches like you is the best way to contribute to the knowledge base surrounding coaching and intercollegiate athletics.

Sincerely,

Brett Nichols
PhD Candidate
University of Northern Colorado

APPENDIX D**ORIGINAL COACHING CONFIDENCE QUESTIONNAIRE**

Original Coaching Confidence Questionnaire (Harwood, 2008)

How much confidence do you possess in employing the behaviors or strategies that actively help players to...?			Not at all confident Extremely confident									
Commitment	1	Showing elevated levels of effort	1	2	3	4	5	6	7	8	9	10
Communication	2	Asking questions of coach about a drill or a skill	1	2	3	4	5	6	7	8	9	10
Concentration	3	Staying focused on key components of a drill without being distracted	1	2	3	4	5	6	7	8	9	10
Control	4	Recovering quickly after mistakes without a negative reaction or emotion	1	2	3	4	5	6	7	8	9	10
Confidence	5	Wanting the ball/puck/racquet (etc.) with no fear of mistakes	1	2	3	4	5	6	7	8	9	10
Commitment	6	Persistence at skills in the face of mistakes or failure	1	2	3	4	5	6	7	8	9	10
Communication	7	Sharing information with coach and accepting feedback	1	2	3	4	5	6	7	8	9	10
Concentration	8	Listening to instructions attentively and maintaining eye contact	1	2	3	4	5	6	7	8	9	10
Control	9	Maintaining high positive body language to all events and consistency throughout	1	2	3	4	5	6	7	8	9	10
Confidence	10	Bringing a presence to training that exudes confidence	1	2	3	4	5	6	7	8	9	10
Commitment	11	Showing interest and engagement in mastery with no avoidance of difficult skills	1	2	3	4	5	6	7	8	9	10
Communication	12	Encouraging, praising, and instructing teammates clearly and confidently	1	2	3	4	5	6	7	8	9	10
Concentration	13	Helping others to refocus quickly, indicating an organizational focus	1	2	3	4	5	6	7	8	9	10
Control	14	Averting arguing or blaming teammates alongside negative emotions	1	2	3	4	5	6	7	8	9	10
Confidence	15	Maintaining a positive approach to the session indicative of a genuine belief	1	2	3	4	5	6	7	8	9	10

APPENDIX E**UNIVERSITY OF NORTHERN COLORADO
INSTITUTIONAL REVIEW BOARD
APPROVAL LETTER**



Institutional Review Board

DATE: March 30, 2015

TO: Brett Nichols, M.A.

FROM: University of Northern Colorado (UNCO) IRB

PROJECT TITLE: [723220-2] Predicting Coaching Efficacy in NCAA Assistant Coaches

SUBMISSION TYPE: Amendment/Modification

ACTION: APPROVAL/VERIFICATION OF EXEMPT STATUS

DECISION DATE: March 30, 2015

Thank you for your submission of Amendment/Modification materials for this project. The University of Northern Colorado (UNCO) IRB approves this project and verifies its status as EXEMPT according to federal IRB regulations.

Brett -

Hello and thank you for providing a clear amendment and consent form to your approved IRB application.

This change of recruitment protocol is now approved. Please note where the \$25 gift card will be for (e.g. Amazon, Target, VISA) in both your letter and consent form before use in data collection. This small addition does not need to be submitted for subsequent review.

Best wishes with your continued work on this project.

Sincerely,

Dr. Megan Stellino, UNC IRB Co-Chair

We will retain a copy of this correspondence within our records for a duration of 4 years.

If you have any questions, please contact Sherry May at 970-351-1910 or Sherry.May@unco.edu. Please include your project title and reference number in all correspondence with this committee.

This letter has been electronically signed in accordance with all applicable regulations, and a copy is retained within University of Northern Colorado (UNCO) IRB's records.