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The influence of the coach-athlete relationship on coaching efficacy

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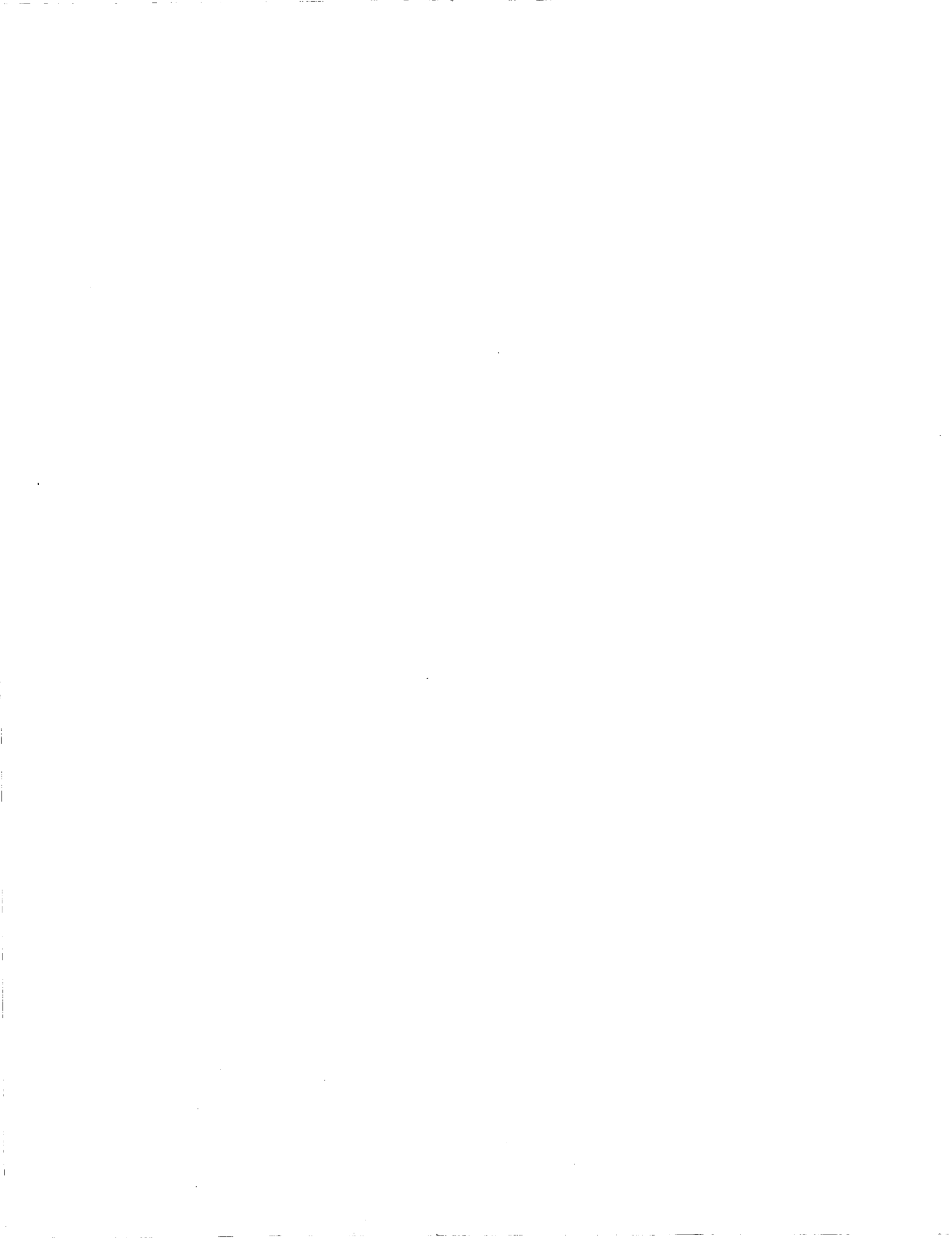
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THE INFLUENCE OF THE COACH-ATHLETE

RELATIONSHIP ON COACHING EFFICACY

BY

Anna Magle

Bachelor of Arts, University of Colorado, 2005

THESIS

Submitted to the University of New Hampshire

in Partial Fulfillment of

the Requirement for the Degree of

Master of Science

in

Kinesiology: Sport Studies

September, 2010

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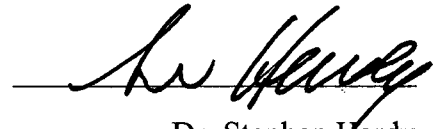


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DEDICATION

For Liam, who has taught me perseverance.

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I'm sure that no thesis is completed by one person. There many people who helped me tremendously to envision, create, and finish this project.

I'd like to thank all of the UNH Track and Field athletes for teaching me all that you have and for inspiring this project. Special thanks to Coaches Boulanger, Carroll, and Hoppler for letting me walk through the door to volunteer coach two years ago, and for showing me every day since then how important coaches are to athletes.

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ABSTRACT

THE INFLUENCE OF THE COACH-ATHLETE RELATIONSHIP ON COACHING EFFICACY

by

Anna B. Magle
University of New Hampshire, September, 2010

Bandura's (1997) theory of self-efficacy which was extended by Feltz et al. (1999) models of coaching efficacy provided framework for examining the relationship between coaching-efficacy and the coach athlete relationship. This study examined the relationship between NCAA head coaches' coaching efficacy and their coach-athlete relationship. NCAA coaches ($N=632$) completed the Coaching Efficacy Scale (CES), and the Coach Athlete Relationship Questionnaire (CART-Q). A canonical correlation between the subscales of the CES and the subscales of the CART-Q revealed that the subscales of coach-athlete relationship contributed significantly to the explanation of coaching efficacy. MANOVAs revealed significant differences in both CES as well as CART-Q subscales between coaches of individual and team sports, male and female coaches, and winning versus non-winning coaches. This study indicates that there is a significant relationship between coaching efficacy and the coach-athlete relationship and that this interaction should continue to be studied further.

CHAPTER I

INTRODUCTION

There are nearly 20,000 coaches employed within the NCAA (Acosta & Carpenter, 2008) as head coaches in Divisions I, II, and III. These coaches have daily interactions with thousands of young people in a relationship that is dynamic and influences both members – the coach, and the athlete. Coaching efficacy, or a coach's belief in her own abilities to coach, is influenced by a number of factors (Feltz, Moritz & Sullivan, 1999). Coaching efficacy has been found to predict coaching behavior, team satisfaction, and even winning percentages of athletic teams (Myers, Vargas-Tonsing, & Feltz, 2005). Similar research has demonstrated that coaches who have higher efficacy (belief in their coaching abilities) coach teams who have higher team efficacy (belief in their ability as a team) (Vargas-Tonsing, Warner, & Feltz, 2003). While a significant amount of research has focused on the quality and type of the coach-athlete relationships (Jowett, 2009) as well as sources of coaching efficacy (Feltz et al., 1999), to date, no research has investigated the effect that the coach-athlete relationship has on coaching efficacy. The current study examined the coach-athlete relationship as a source of information for coaching efficacy.

Self- Efficacy

Self-efficacy refers to a person's confidence in his or her own capabilities to perform specific tasks (Bandura, 1997). More specifically, Self-efficacy is one's beliefs in one's own capabilities. Self-efficacy is differentiated from self-confidence in that it references an individual's belief in their abilities to perform a specific task, as opposed to their belief in more generalized areas (e.g. cognitive ability). Self-efficacy is often

defined as situationally specific self-confidence. An individual may have very high self-efficacy in one area (e.g. I am confident in my ability to shoot free throws in basketball) but low self-efficacy in another area (e.g. I am not confident in my ball handling skills). Bandura (1997) notes that self-efficacy beliefs are what an individual believes about their abilities at a task (E.g. I think I can make the majority of my 3-point shots against this team) not about general skills sets that one has (e.g. I am strong). Self-efficacy relates to an individual's perceptions of their skill set in a specific situation, not necessarily their actual skill set. For example, an individual may have a physical ability skill set (e.g. ability to shoot a free throw) but lack belief in their ability to perform at a certain time (e.g. with 2 seconds to go in a game) and thus find themselves unable to perform that skill set, creating decreased self-efficacy at that particular time. Self-efficacy is tied to an individuals' belief in their particular skills at a particular time. The level of self-efficacy that an individual has in regards to a task will influence their behavior while performing that task. Research has shown (Bandura, 1997) that people with higher levels of self-efficacy tend to attempt more difficult tasks, persist at those tasks longer, and put more effort into that task than people with low self-efficacy.

Bandura (1997) has identified four main factors that affect an individual's self-efficacy; mastery experience, vicarious experience, social persuasions, and physiological factors. It is important to note that certain researchers within sport (Feltz, Short, & Sullivan, 2005) have further differentiated these sources into six categories, including "imaginal experience" which in Bandura's model is considered "self modeling" and included in the factor of "vicarious experience, and psychological/emotional factors as separate from physiological factors. The different types of efficacy information can work

in congruence to cause an individual to feel high or low amounts of self-efficacy in regards to a specific task. Mastery experience has been defined, within sport, as past performance accomplishment. Mastery experience is interpreted through the individual's assessment of those experiences. If an individual believes their own accomplishments are successful, they will have increased self efficacy. The level of success defined in the mastery experience also depends on the perceived challenge within the performance and level of autonomy believed to be obtained during the performance. Mastery experience has been found to be the most important factor in enhancing self-efficacy (Bandura, 1997) because it is a self-referenced factor. People with more experience and/or more prior success at performing a task will have higher self-efficacy in regards to that particular task.

Vicarious experience as a source of efficacy information involves an individual comparing themselves with others. Seeing another individual perform or model a task well can cause the observer to have increased efficacy in regards to their ability to perform that task. An important factor in the strength of vicarious experience is the individual's belief in the model. A vicarious experience provides the most self-efficacy information if the individual who is modeling the behavior is similar to the individual who is watching. For example, a high school swimmer may not obtain much efficacy information from watching a high status individual (e.g. Michael Phelps in the Olympics) because they do not see themselves as similar to Michael Phelps. However, watching another high school swimmer from their school perform well may enhance their belief that they can succeed as well. Within vicarious experience, Bandura included "self-modeling", which has also been identified as "imaginal experience (Feltz et al., 2005).

An individual's ability to envision themselves performing a task will enhance their self-efficacy. The source from which they are finding this self-efficacy has been identified as both within vicarious experience or as a completely separate source (imaginal experience). Mastery experience and vicarious experience are two important sources that have been shown to enhance self-efficacy.

A third identified source of efficacy information is verbal persuasion. This includes feedback from others and self-talk. The strength of the effect of verbal persuasion on self-efficacy beliefs is related to some extent on the prestige, credibility, expertise and trustworthiness of the persuaders. Coaches are seen as strong sources of efficacy information for athletes because they are often seen as credible sources of verbal persuasion. Coaches' verbal persuasion has been found to be an important source of efficacy information. Vargas-Tonsing (2009) found that pre-game speeches given by coaches have the potential to influence not only athletes' emotional states prior to competition, but also athletes' efficacy beliefs. In a similar study, Vargas-Tonsing and Bartholomew (2006) discovered that the type of pre-game speech can have a significant influence on team efficacy beliefs. This research has shown that coaches' verbal persuasion can influence both individual athletes as well as team efficacy beliefs. Feedback information from coaches is also an important source of efficacy information (Feltz et al., 2005). This feedback information occurs throughout practices and competitions, and coaches with higher coaching-efficacy tend to give athletes more efficacy enhancing feedback (Feltz et al., 1999). Additionally, athletes' self-talk, or the type of feedback they give to themselves during sport, has been found to replicate the

feedback that they get from coaches (Feltz et al., 2008). In sport, coaches are the primary source of verbal persuasion and thus a critical influence on athletes' self-efficacy.

A fourth source of efficacy information is physiological and affective factors. An individual's own interpretations of physiological and emotional sensations will contribute to their feelings of efficacy. It is critical to note that it is the individual's interpretations on these physiological factors that influences efficacy, and not necessarily the feelings themselves. For example, an individual may interpret sweaty palms and a rapid heartbeat and a feeling of nervousness as meaning that they are overly anxious and will not be able to perform, or as that they are "pumped up" and ready to compete well. These physiological factors are interpreted by the individual and it is their interpretation that leads to their feelings of efficacy.

Bandura (1997) has identified four major sources of information; mastery experience, vicarious experience, verbal persuasion, and physiologic/affective states. As mentioned above, within sport, two additional sources have been identified (Feltz, Short, & Sullivan, 2008.) Imaginal experiences have been identified as athletes imagining themselves or their team performing a task in a particular performance environment. Imaginal experiences, within certain contexts, have been shown to increase self-efficacy (Feltz & Riessinger, 1990). In addition, Feltz et al. (2008) identified emotional states as separate from physiologic states, which Bandura (1997) discussed together. Emotional states may be separate from physiologic states and thus influence self-efficacy in separate ways. The sources of self-efficacy, whether considered as four main sources (Bandura, 1997) or six main sources (Feltz et al., 2008), are important in determining overall self-efficacy experienced by an individual in a given situation. The amount of self-efficacy an

individual feels in regards to a particular task will determine their choice of tasks as well as persistence at that task. As a result, self-efficacy is a topic that has been researched extensively with athletes and more recently with coaches.

Coaching Efficacy and Theoretical Models of Coaching Effectiveness

The concept of coaching efficacy is differentiated from general self-efficacy in that it refers to a coach's beliefs regarding the extent to which they can influence both their athletes' performance as well as development (Feltz et al., 2008). The impact of coaching efficacy has been explained by several models. Feltz et al. (1999) developed a model of coaching efficacy that explains the sources from which coaches gain their efficacy and the related outcomes, and developed an instrument by which to test levels of coaching efficacy. During a five-week seminar with 11 coaches, Feltz and colleagues (1999) developed four main factors that were considered the key dimensions in coaching efficacy: efficacy regarding game strategy, efficacy regarding ability to motivate athletes, efficacy regarding ability to coach technique, and efficacy regarding ability to build character. Feltz et al. (1999) proposed that these four efficacy dimensions in turn influence coaching behavior, player/team satisfaction, player/team performance, as well as player/team efficacy. The four constructs that contribute to coaching efficacy were confirmed via factor analysis. Feltz et al. (1999) also found that among high school coaches, coaching efficacy was related to higher win/loss percentage and speculated that this is due to the fact that high-efficacy coaches may be able to provide relatively higher instruction and strategy information. Feltz and colleagues (1999) also proposed four sources from which coaches derive their feelings of efficacy; the extent of coaching experience, prior success within coaching, perceived skill of athletes, as well as social

support, specifically support from the school, parents, community, and administration. Feltz et al. (1999) created a framework (See Figure 1) which describes the sources from which coaches develop efficacy, the dimensions of that efficacy, and the results of coaching efficacy on overall coaching behavior. It is recognized that as Feltz' has defined "coaching behavior" can also be thought of as athlete outcomes as a result of coaching behavior.

Based on this framework, Feltz et al. (1999) also created the Coaching Efficacy Scale (CES), which measures the four constructs of coaching efficacy. This instrument initially included 41 items based on the four dimensions of coaching efficacy, but was reduced to 24 items. The CES has been analyzed using with first and second order factor analysis and found to provide solid evidence of goodness of fit (Feltz et al., 1999). The CES is an instrument by which researchers within the field of coaching efficacy are able to collect data and to analyze effects of and on coaching efficacy. By creating the original model as well as the CES, Feltz et al. (1999) laid the groundwork for research in sources of coaching efficacy information. This instrument has been employed in several investigations (Myers et al., 2005; Kent & Sullivan, 2003; Vargas-Tonsing, Warner & Feltz, 2003) has demonstrated its usefulness as instrument in determining coaching efficacy and the influence of coaching efficacy on outcomes in various aspects of sport.

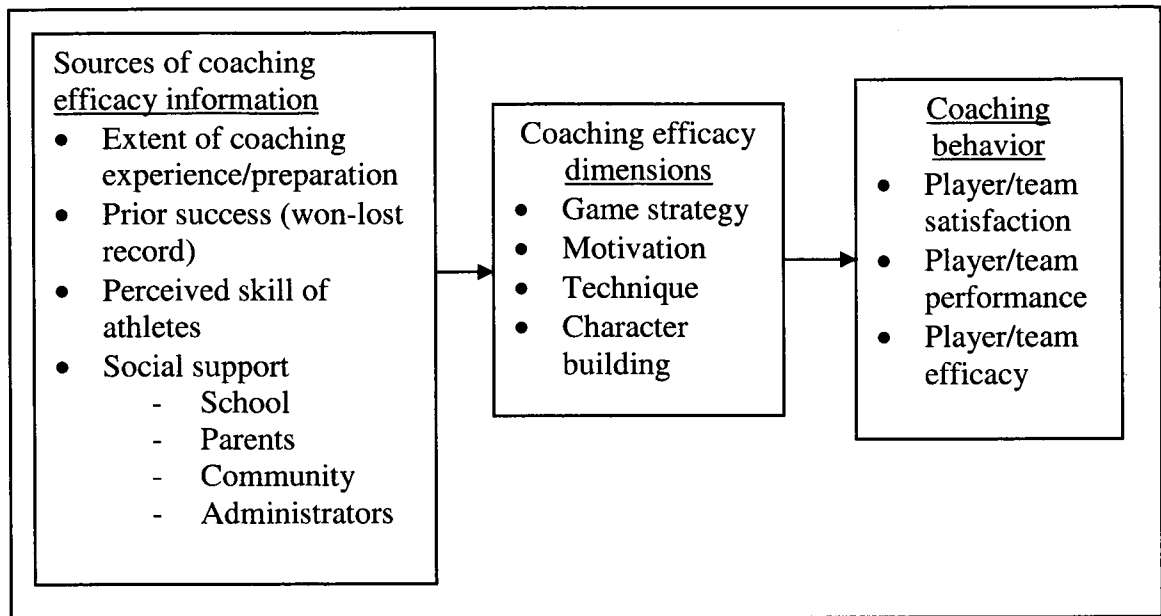


Figure 1. Feltz et al. (1999) conceptual model of coaching efficacy

In addition to the model proposed by Feltz et al., Horn (1996) proposed a working model of coaching effectiveness. (See figure 2). As differentiated from coaching efficacy, coaching effectiveness refers to coaching that results in athletes having successful performance outcomes, including individual player development and success, or positive psychological development or results from the athletes. The athlete outcomes may be measured in win-loss records (team performance outcomes), success at a national or international level (individual athletes) or by psychological measures (e.g. high perceived ability by athletes, high self-esteem, or high levels of sport enjoyment.). Coaching effectiveness is centered in coaching behavior, and how that behavior influences athletes. Coaching effectiveness is differentiated conceptually from coaching efficacy, which centers on coaches' confidence in their own coaching skills.

In Horn's (1996) model of coaching effectiveness, coaches and athletes have a dynamic interaction in which the expectancies, beliefs, and efficacy of each member (coach and athlete) feeds back to influence the other (See figure 2).

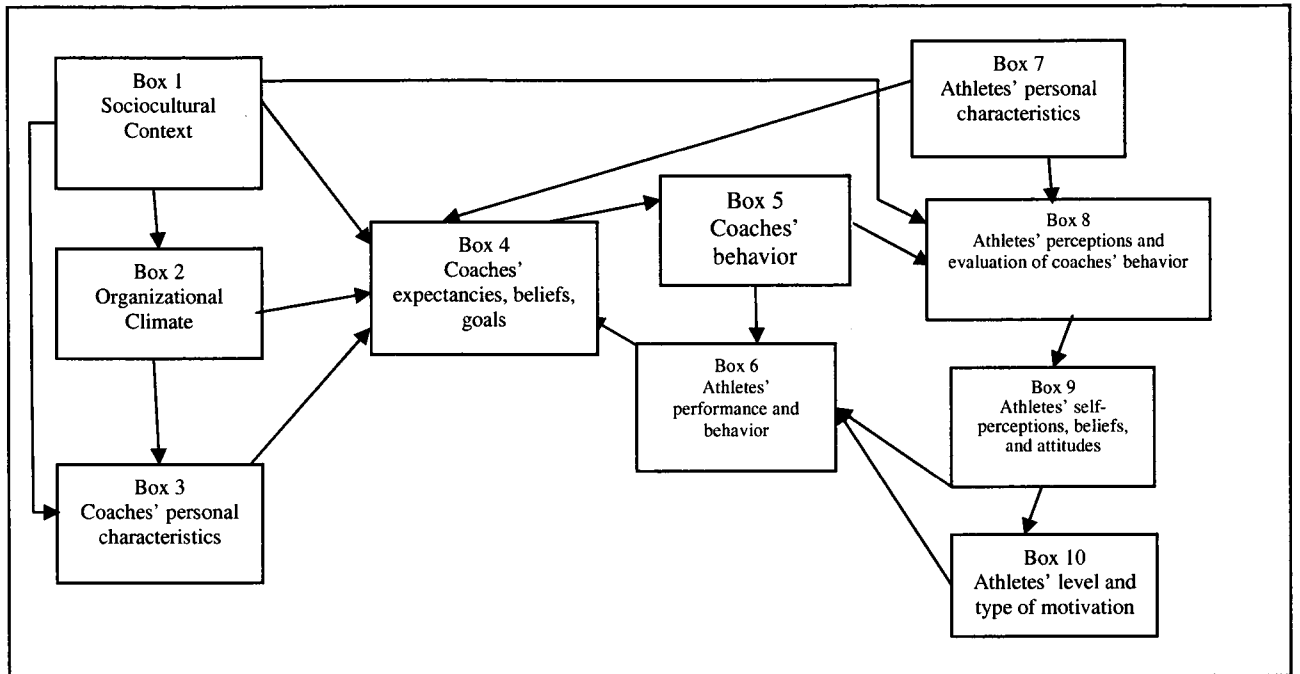


Figure 2, Horn (2002) Model of coaching effectiveness

This model proposes that the influence that a coach's efficacy beliefs have on athletes is mediated by the coach's behaviors, as well as the athletes' perceptions of those behaviors. In this model the coach's expectancies, beliefs and goals (Box 4) are influenced by their personal characteristics, which includes coaching efficacy (Box 3). The coach's expectancies, beliefs, and goals, are central to the Horn (2002), model, and influence all behavioral outcomes, both by the coach and by the athlete in response to the coach. These expectancies, beliefs, and goals are created by a number of factors, including the sociocultural context in which the coach is working, the organizational climate, and the coach's personal characteristics. Within Horn's (2002) model, "personal characteristics" of the coach are considered relatively unchanging, and include coaching

efficacy. In Horn's (2002) model, "Coaches' expectancies, beliefs, and goals" (Box 4) is the central concept to all behavioral outcomes for coaches.

According to Horn (2002), coaching efficacy is a relatively "stable" characteristic, and belongs in Box 3, "coaches' personal characteristics.". It could be argued, however, that because efficacy by definition is situational and dynamic, that efficacy more appropriately should be included in Box 4, "coaches' expectancies, beliefs, and goals." The location of efficacy within this model is critical, as it demonstrates the potential sources of that efficacy, as well as the influence of coaching efficacy on athletes. Coaching efficacy, if placed in Box 3, influences the coaches' beliefs. An alternate view would be to place coaching efficacy in Box 4, making coaching-efficacy is a part of those expectancies, beliefs, and goals. In either case, those expectancies, beliefs and goals in turn influence coaching behavior (Box 5), which will in turn influences athlete outcomes.

Within Horn's model (2002), Box 5, coaching behavior, is central to all outcomes. This differentiates it significantly from Feltz et al.'s model (1999), in which coaching-efficacy is the central factor (See Figure 1). According to Horn's model, a coach's behaviors are perceived and evaluated by athletes (Box 8). It is the athletes' perceptions of the coach's behavior that influence the athletes' self-perceptions, beliefs, and attitudes (including the athlete's self-efficacy, Box 9) (Feltz et al., 2008). These perceptions influence the athletes' motivation (Box 10) and athletes' performance and behavior (Box 6). Importantly, the athlete's performance and behavior feeds back to the coach's expectancies, beliefs, and goals to start the loop again. Although Horn's model does not identify an arrow, or influence, from Box 6 to Box 3, the current research will propose that athlete behavior and coach/athlete interaction is a critical source of coaching

efficacy. Athletes' behaviors would certainly seem to influence a coach, at least to some degree (Olympiou, Jowett & Duda, 2008). Additionally, two recognized sources of coaching efficacy information are "prior success" and "perceived skill of athletes" (Feltz, 1999), categories under which "athletes' performance and behavior" will certainly fall. Therefore, the current research will propose to include an arrow from Box 6, "athlete's performance and behavior" to box 3 "coaches' personal characteristics". (See figure 3).

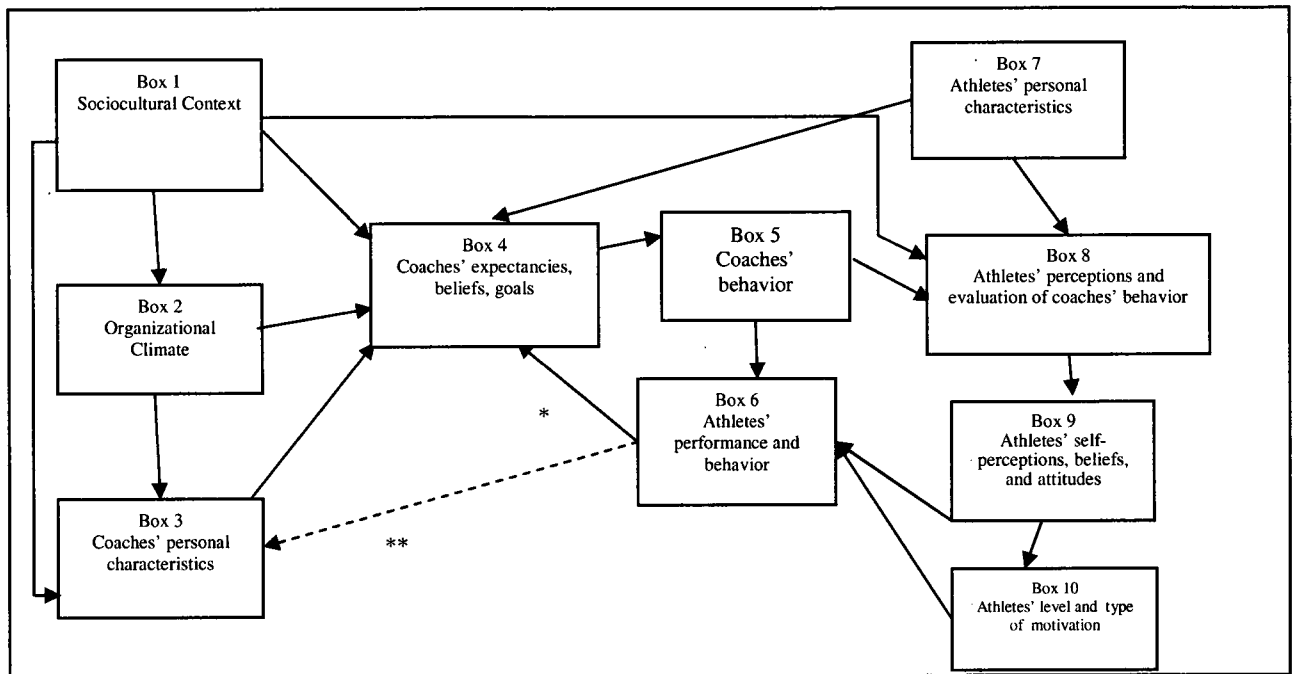


Figure 3. Horn (2002) with proposed additional source of coaching efficacy.

* —————> This arrow, which currently exists in Horn's model, represents the influence of coach-athlete interactions if coaching efficacy is placed in Box 4, which is proposed by Feltz et al (2008)

** - - - - -> Proposed Revision to Horn's (2002) model to represent influence of coach-athlete interactions on coaching efficacy

Feltz et al. (2008) have proposed in a critique of Horn's model, arguing that coaching efficacy is more central to coaching behaviors than proposed by Horn. As previously mentioned, coaching efficacy thus could be considered to be a portion of box

4, “coaches’ expectancies, beliefs, and goals”. The current investigation examined a portion of the bidirectional influence of coaches on athletes and athletes on coaches. In order to appropriately represent the influence of athletes on coaching efficacy, either there needs to be an arrow from box 6 to box 3, or coaching efficacy should be placed in box 4. This type of dynamic relationship between coaching efficacy, coach behavior, and athlete behavior is important because it demonstrates the nature coach/athlete interactions.

Both models, Feltz et al. (1999) and Horn (2002) which discuss coaching efficacy and coaching effectiveness include many sources that influence a coach’s personal characteristics when considering influences on coaching behavior, such as sociocultural context, organizational climate, support of the community, and experience coaching. The current study utilized both models and their differing perspectives in order to best understand coaching efficacy and coaching effectiveness. The theoretical models proposed by both Feltz et al. (1999) and Horn (2002) help to further the field in understanding coaching efficacy, and its influence on both coaches and athletes.

Research on Coaching Efficacy

Levels of coaching efficacy which produce the most positive outcomes are considered to be those that align with the difficulty of the task. An individual may have coaching efficacy beliefs that are much higher than the task at hand (e.g. a beginning coach believes that they should be coaching only Olympians) or that are much lower than the task at hand (e.g. a very accomplished and experienced coach does not feel they have any ability at all). Optimal levels of self-efficacy refer to an individual who has self-

efficacy beliefs that align with a challenging task (e.g. an accomplished coach believes she will be able to coach her team to maximize their ability). Levels of self-efficacy which align with the task are associated with increased motivation, ability to persist longer at tasks, as well as choice of tasks (Bandura, 1999). This could be taken to mean that a coach with appropriate levels of self-efficacy will be more motivated to coach, continue in the coaching profession longer, and choose more challenging coaching tasks.

A coach's level of coaching efficacy affects not only her own levels of motivation and choices within her profession, but also has an influence on the athletes with whom she interacts. Results from Vargas-Tonsing et al. (2003) indicate that within high school volleyball players, team efficacy was predicted by coaching efficacy. That is, coaching efficacy is important not only in and of itself, but also because of the influence that coaches have on athletes. Additionally, Feltz et al. (1999) found that high-efficacy coaches tended to use more effective coaching behaviors, particularly, increased use of positive reinforcement and increased technical instruction. High-efficacy coaches demonstrated higher measures of overall player satisfaction. High-efficacy coaches had more winning seasons compared to low efficacy coaches. Continued research needs to be conducted on coaching efficacy as coaches' behaviors have the ability to affect youth and young adult athletes with whom they associate. Therefore, it is important to understand sources of coaching efficacy not only to understand coaches, but because coaching efficacy has been shown to be important in athlete outcomes.

Some important differences (and similarities) of efficacy scores between demographic groups, such as gender, have been noted. Barber (1998) studied competence perceptions among high school coaches. Female coaches showed a higher preference

among competence information of athletes' improvement as well as improvement of their own coaching skills as compared to male coaches. This study also found that male and female coaches were similar in most of their self-perceptions, with the exception that female coaches perceived themselves to have higher competence levels in teaching sport skills. These differences and similarities in gender demonstrate that coaching efficacy can differ across demographic information.

While the original model proposed by Feltz et al. (1999) significantly advanced the field of research on coaching efficacy, recently further attempts have been made to solidify and potentially expand our knowledge of coaches' sources of efficacy information. Efforts have been made toward understanding efficacy within intercollegiate coaches, as well as the effects of coaching efficacy on team variables (Myers et al., 2005). Importantly, Myers et al. (2005) is the first study which examined intercollegiate coaches and their sources of efficacy information, which is proposed to corroborate the findings of high school coaches. In this study, 135 head coaches of Division II and III intercollegiate sport completed a questionnaire containing the Coaching Efficacy Scale and other items. At a separate time, a subset of the original population of coaches and 1618 athletes completed secondary questionnaires including the athletes' satisfaction with their head coach. This study found that intercollegiate coaches had similar sources of efficacy information as high school coaches, however, the strength of those sources of information were different. Myers et al. (2005) found that the most important source of coaching efficacy among intercollegiate coaches was perceived team ability. Myers et al. (2005) also found that for female coaches, social support was a stronger source of efficacy information than it was for male coach. Myers et al (2005)

also found for both male and female coaches that total coaching efficacy affected coaching behavior, particularly, those behaviors which enhanced efficacy of athletes. This research among intercollegiate coaches supports the concept that coaching efficacy is an important predictor of coaching behavior which subsequently influences the behavior, well-being, and success of athletes.

Coaching efficacy has also been examined as an important predictor in coaching commitment, and thereby longevity of coaches' careers. Kent and Sullivan (2003) discussed the link between the commitment of professional collegiate coaches in the United States and Canada and their coaching efficacy scores. They found that affective commitment was correlated with motivation, strategy, and character building efficacies, while normative commitment was related to both motivation and character building efficacies. Affective commitment, or the commitment to and relationship with the organization, was significantly predicted by coaching efficacy. Although this commitment is generally thought of as the "relationship with the organization" (Kent & Sullivan, 2003) it could be argued that among coaches, their relationship with the "organization" corresponds with their relationship with their team or athletes. The level of commitment that a coach feels toward a particular institution, for example, the university or program at which they work, while influenced by other factors, is in part explained by their commitment to the athletes with whom they work daily. The results from Kent and Sullivan (2003) confirm this concept as well as the fact that coaching commitment is at least partially explained by coaching efficacy.

In an attempt to reveal additional sources of coaching efficacy information and expand on existing coaching efficacy models, Chase, Feltz, Hayashi, and Helper (2005)

determined coaches' perceptions of their own sources of efficacy. Chase et al. (2005) interviewed a sub-group of coaches that had been included in the original development of Feltz' et al. (1999). In this interview of 12 high school basketball coaches, several themes emerged which can expand the sources of efficacy information found by Feltz et al. (1999). Chase et al. (2005) found that "player development" was the most frequently cited source of efficacy information. This included dimensions of "mutual respect between players and coaches" and "communication between coaches and players", both of which relate to the coach-athlete relationship. In addition, Chase et al. (2005) found another source of coaching efficacy defined as "player support" which included "players enjoy playing for you", "feedback from players" and "positive relationship with players". Chase et al. (2005) hypothesized that "It is possible that coaches gain confidence by seeing their players develop as skilled athletes but also as individuals." (p. 37). They also concluded that player support should be included with community support and perhaps even considered to be a more important contributor as coaches have more contact with players than they do with administration/parents/community. Many of the coaches made statements that imply that the relationships that they have with players could be an important piece to understanding coaching efficacy.

Within the model proposed by Feltz et al. (1999), social support is an important source of coaching efficacy. Feltz et al. (1999) have described this support as coming from parents, administrators, and the community. However, social support that comes from the individual athletes themselves, including their relationship with their athletes, should be included within this variable, as identified by Chase et al (2005). In addition, Jackson, Knapp and Beauchamp (2009) investigated tripartite efficacy among six coach-

athlete pairs. Jackson et al. grounded their research in theory from Lent and Lopez (2002). Lent and Lopez (2002) proposed a model in which two party relationships have not only self-efficacy (i.e. I believe I am a great basketball player), but also other-efficacy, or an individual's belief in the abilities of their partner, (i.e. I believe my coach is a great basketball coach) as well as *relation inferred self- efficacy* (RISE) which refers to an individual's beliefs about their partner's beliefs in them (i.e. I think my coach believes I'm a great basketball player). This multi-level relational self-efficacy implies that each individual in a partnership has an effect on the other partner, not only in terms of behavior, but also in terms of efficacy. Within this study, Jackson et al. discovered that coach-athlete dyad's efficacy beliefs are positively interrelated for both members. They found that coaches "repeatedly" reported that they would end their relationships with their athletes if they lost confidence in either their athletes or themselves. This is a key finding as it demonstrates that coaches' confidence (efficacy) in themselves and their relationship with their athletes is interrelated, and that coaches' motivation to remain in the profession is tied to their efficacy within the coach-athlete relationship. It was also found that an antecedent (source) of coaches' efficacy was the other-efficacy beliefs of the athletes as well as RISE beliefs. (Jackson et al., 2009). This again shows the interplay between coaches' efficacy beliefs and coaches' relationships with their athletes.

Coaching efficacy has been shown to influence many factors including coaching behavior, athlete behavior, and athlete outcomes (Feltz et al., 1999). Coaching efficacy has also been shown to relate to coaches' commitment to the profession (Sullivan & Kent, 2003). Coaching efficacy is also related to team efficacy and team outcomes (Vargas-Tonsing, 2003). Higher efficacy coaches have also been associated with

coaches' use of more praise and encouragement in their coaching (Feltz et al., 1999). Many of the sources and outcomes of coaching efficacy act in a "feedback loop"; for example teams with higher win-loss records will influence the coach's efficacy, which can lead to higher win loss records. Likewise, coaches who are more committed to the profession may remain coaching longer, gaining experience, which will relate to higher efficacy, and thus, higher levels of commitment. This variety of coaching efficacy sources and outcomes are critical, however, recent studies have looked to find further sources of coaching efficacy information. Researchers have identified "player support" as a potential source of coaching efficacy (Chase et al., 2005) as well as studying the interplay between coaches' self-efficacy and other efficacy in coach-athlete dyads. The coach-athlete relationship is a potential source of coaching-efficacy information whose strength is not yet known. This important and dynamic relationship could create another loop through which coaches with good relationships with their athletes have higher efficacy, which allows them to build stronger relationships with those athletes.

Coach-Athlete Relationship

The interconnected and multifaceted nature of the coach-athlete relationship makes it both theoretically and practically very important. In collegiate athletes, this relationship is arguably one of the most important in a collegiate athlete's life. It begins during the recruiting process, likely influencing the choice of college, and continuing throughout the athlete's career. Coaches and athletes spend significant amounts of time involved in an interdependent and emotionally charged environment. The coach-athlete relationship has been defined as the "situation in which the coach and athlete develop

interconnected feelings, thoughts, and behaviors” (Jowett, 2009, p. 35). Further, this two party, or “dyadic” relationship has been broken down into a model in which the relationship consists of three basic components: closeness, commitment and complementarity. Closeness is defined as the extent to which a coach and athlete feel that they understand each other, and each member feels that the relationship is important. Commitment is defined as the level to which each member believes that the other member is fully involved in and committed to the relationship. Complementarity describes the extent to which the two members work well together. These three relations are also interconnected, resulting in a co-orientation. Co-orientation represents that both the direct perspective of the relationship (e.g. I enjoy working with my athlete) as well as the meta-perspective (e.g. I believe my athlete enjoys working with me). By combining the direct and meta perspectives of both coach and athlete, one can examine the extent to which the four views (coach direct, coach meta, athlete direct, athlete meta) are co-orientated. Jowett’s model has been referred to as the 3 + 1 Cs (2008). This relationship not only includes each party’s perspective (i.e. my coach is honest with me) but also each party’s meta-perspective (i.e. my coach believes I am honest with her) (Jowett, 2009). This perspective is especially important because it includes not only how each member in the relationship feels, but also includes the interaction between both members of the relationship. The coach-athlete relationship is one which could be seen as fluid with each member of the relationship influencing the other. As a result of this dynamic and ever changing interpersonal relationship, continuing research needs to investigate the effect that this relationship has on each members’ performance, behavior, and personal characteristics.

It is only recently that researchers have begun to investigate the quality of this relationship as well as attempting to develop and test measures of this relationship with both the coach and the athlete. Through a series of investigations, Jowett and colleagues have developed measures of the coach-athlete relationship and its various constructs. These include the development of the Coach Athlete Relationship Questionnaire (CART-Q) which has been shown to be reliable, but has not to date been used extensively in other research (Jowett, 2009). The creation of the CART-Q allows researchers to investigate and test the coach-athlete relationship from each member's perspective and to begin to understand some of the factors that affect this relationship, as well as discovering the behaviors and personal characteristics that are influenced by it.

Researchers used an earlier version of the CART-Q to test one construct of the coach-athlete relationship, passion (Lafreniere, Jowett, Vallerand, Donahue & Lorimer, 2008). Lafreniere et al. discuss 'passion' as it relates to each individual (coach and athlete) relationship with the sport. They discuss 'harmonious' passion compared with 'obsessive' passions. In regards to this research, Lafreniere et al. (2008) investigated passion of both members as it relates to each members' passion for the sport. They describe that harmonious passion for sport allows coaches and athletes to enjoy and focus on sport whereas obsessive sport passion causes focus on sport at the expense of non-sport life. Lafreniere et al. found, among other measures, having similar levels of passion for sport (ie. both members having 'harmonious passion') can allow the coach-athlete relationship to be a positive and productive one. This area of passion is interesting because passion is aligned with intrinsic motivation and the self-determination theory. Lafreniere et al. (2008) argued that obsessive passion likens itself to extrinsic motivation

while harmonious passion is aligned with intrinsic motivation and positive emotions. This intrinsic relationship is related to Deci and Ryan's (2000) construct of competence; as coaches and athletes share a common goal in a positive manner, each member feels competent as they are reinforced by the other. An athlete who feels supported by her coach will gain confidence and competence, reinforcing the coach's behavior and in turn increasing the coach's feelings of confidence and competence. Therefore, coaches and athletes who both have a harmonious passion for their sport will also share intrinsic motivation and have positive relationships. The idea of passion as a construct of motivation supports one type of research into the coach-athlete relationship.

The coach-athlete relationship has prompted new areas of inquiry and subsequent discussions of methodological concerns, (Poczwadowski, Barrot, & Peregoy, 2002) reviews of related literature, and the creation of theoretical models (Poczwadowski, Barrot, & Jowett, 2006). Methodological concerns include the difficulties of studying a very close, interpersonal relationship that exists within a greater team dynamic and has two different perspectives – that of the coach and that of the athlete. To accurately assess and measure this relationship can understandably be very difficult, and the very act of asking questions about it could change either or both members' perspective. However, research has attempted to understand the coach-athlete relationship from various perspectives. Most recently, several researchers have attempted to discover how motivation and motivational climate affects the coach-athlete relationship (Olympiou et al., 2008; Frederick & Morrison, 1999; Jowett, 2008). The prospect of motivation and its interplay with the coach-athlete relationship can help researchers to understand the facets of this very important relationship as well as the factors that influence it. The

motivational climate, or overall feelings and types of motivation held by a team, is created by the coach. Various factors influence the type of motivational climate created by the coach, including the type of leader that the coach is. Coaches vary in their leadership style (Beam, Serwatka & Wilson, 2005) (autocratic, democratic, situational consideration, social support, and training and instruction) and this type of leadership will influence the overall motivational climate of the team. In turn, it has been found that the leadership style of the coach can be predicted in part by coaching efficacy (Sullivan & Kent, 2003). A coach's leadership style is created, in part, by her level of efficacy. This efficacy, in turn, will influence the coach's leadership style, which will help to predict the motivational climate of the team. The present research argues that when motivational climate influences the coach-athlete relationship (Jowett, 2008) that this information feeds back and subsequently influences coaching efficacy.

Recent research into the coach-athlete relationship has found qualitatively that empathic accuracy between coaches and athletes is higher in dyads that have positive judgments regarding their partner. Empathic accuracy is the level to which each member of a relationship is able to discern the feelings and beliefs of the other member. Higher empathic accuracy in turn was found to be associated with higher satisfaction for each member of the dyad (Lorimer & Jowett, 2009). Research along the same lines of empathic accuracy has found differences among coach-athlete dyads in individual and team sports. (Lorimer & Jowett, 2008). Lorimer and Jowett filmed 40 coach-athlete dyads during a practice session and then re-showed portions of the video to each member, asking them questions regarding the action on the film. They then measured the responses in regards to empathic accuracy. Results indicated that coach-athlete pairs in individual

sports had higher empathic accuracy than coach-athlete pairs in team sports. It is argued that coaches of team sports have different interactions day-to-day, and thus a different relationship with their athletes than do coaches of individual sports. The differentiation in time spent with athletes has an influence on the level of empathic accuracy that both members, coach and athlete, are able to have. Additionally, it has been shown by Lorimer and Jowett (2009) that the level of empathic accuracy also influences the level of satisfaction that each member has with their overall relationship.

While empathic accuracy differs conceptually from efficacy, the research done by Lorimer and Jowett (2009) relates to Jackson, Knapp, and Beauchamp (2009). In both studies, statements from both members of the dyad regarding the other member were analyzed for accuracy and influence. Both studies make it clear that the coach-athlete relationship is not a one-way relationship; both members are involved and have influence on the other. As shown in figure 2 (Horn, 2002), the actions of the athlete have an influence on the coach and vice versa. The present study will discover the extent to which the dynamic relationship between coach and athlete has an influence on coaching efficacy.

Statement of the Problem

The present study looked specifically at the influence of the coach-athlete relationship on coaching efficacy. As evidenced by Chase et al. (2005), coaches have stated that this relationship is important to their efficacy, but the extent is not known. Using the instruments of the Coaching Efficacy Scale (CES) as well as the Coach Athlete Relationship Questionnaire CART-Q, the contribution of the coach-athlete relationship (CART-Q_ to coaching efficacy(CES) was examined. It is noted that this is a dynamic

relationship. Therefore, it could be argued that while the coach-athlete relationship influences coaching efficacy, likewise coaching efficacy may influence the coach-athlete relationship. By determining the extent of influence that the coach-athlete relationship has on coaching efficacy, the present study provides important theoretical knowledge for both Horn's (2002) model of coaching effectiveness as well as Feltz et al.'s (1999) model of sources of coaching efficacy. The present study also examined gender differences within efficacy and CART-Q scores, as well as potential differences between coaches of individual and coaches of team sports within intercollegiate coaches. Four hypotheses were proposed in this research;

- Qualitative literature from Chase et. Al (2005) and Jackson et al. (2009) has shown that it is likely that there is a relationship between the coach-athlete relationship and coaching efficacy. Therefore, it was hypothesized that the total score on the CART-Q will correlate positively with total score on the CES.
- Based on best understanding of the nature of efficacy, particularly motivation efficacy and interpersonal relationships, it was hypothesized that within the subscales of the CART-Q and the CES, motivation efficacy will most strongly correlate with all subscales of the CART-Q.
- Research by Lorimer and Jowett (2008) has shown differences between coaches of team and coaches of individual sports, and therefore, it is hypothesized that the overall score on the CART-Q

would be higher for coaches of individual sports than for those of team sports.

- Prior research on gender and coaching competence (Barber, 1998) has shown limited differences by gender, and it is hypothesized that there will be no gender differences on either the CART-Q or the CES.

Chapter II

METHOD

Participants

This study included 632 head coaches of men's and women's teams at Division I, II, and III universities in the United States of the following sports: soccer, basketball, lacrosse, ice hockey, volleyball, swimming/diving, tennis, and track and field/cross country. An effort was made to include sports that contained both a men's and women's population as well as including both team and individual sports. Football was excluded due to the role of the head coach as well as the specialized nature of assistant coaches. Participant profiles are provided in the results section.

Measures

Demographic information was collected through questions developed by the researcher including; age, gender of coach, gender of athletes coached, primary sport coached, number of years as a head coach in a college/university setting, total number of years coaching in a college/university setting, conference standing in most recent year (place by total number of teams), average conference standing (top third, middle third, bottom third), total number of athletes on the team, total number of assistant coaches, and total percentage of athletes on team on an athletic scholarship (100%, 80%, 60%, 50%, 25%, 10%, 0%) and years in current position. This data was used in addition to survey data collected to best increase our understanding of sources of coaching efficacy in different groups.

In order to assess the coach-athlete relationship, the present study used the Coach Athlete Relationship Questionnaire (CART-Q). This questionnaire was developed by

Jowett (2006, 2009). The CART-Q measures the three dimensions of coach-athlete relationship including closeness, commitment, and complementarity, also known as the “Three Cs”. Each aspect of the coach-athlete relationship also relates to the perspective of the other member, the ‘meta’ perspective and results in a +1 C, co-orientation. The CART-Q thus has two perspectives, a direct perspective and a meta-perspective. In the creation of the CART-Q, Jowett (2009) initially tested the CART-Q and its six subscales; closeness, commitment, and complementarity, and meta-closeness, meta-commitment, and meta-complimentarity. The subscales have been shown to have alpha coefficients of; $\alpha = .82$ for closeness, $\alpha = .89$ for commitment, and $\alpha = .89$ for complementarity (Jowett & Ntoumanis, 2004) and $\alpha = .88$ meta-closeness, $\alpha = .91$ meta-commitment and $\alpha = .94$ meta-complimentarity (Jowett, 2006) for the coach perspective of the instrument. Jowett (2006, 2009) does not provide information regarding the correlations between subscales. The coach perspective of this instrument has 22 items, 11 items of the direct perspective and 11 items of the meta-perspective. This instrument has been used extensively by Jowett and her colleagues (Jowett 2006; Jowett, 2009; Jowett & Ntoumanis; 2004). The author gained permission to use the CART-Q. The format of CART-Q was slightly modified for this study to be used in a web-based format, however, the content remained the same. The CART-Q asks coaches to reference one particular athlete. Four additional questions were created by the researcher were included to gain a understanding of what type of athlete coaches were choosing to reference.

In addition to the CART-Q, the present research utilized the Coaching Efficacy Scale (CES) (Feltz et al., 1999). This survey contains 24 items. This instrument contains the subscales of coaching efficacy; game strategy efficacy, motivation efficacy, technique

efficacy, character building efficacy, and a total score for coaching efficacy. The internal consistency coefficients were calculated for the four subscales and found to be above the .70 criteria. $\alpha=.88$ for character building efficacy, $\alpha=.89$ for technique efficacy, $\alpha=.91$ for motivation efficacy, and $\alpha=.88$ for strategy. The alpha coefficient for the entire CES scale was .95, with a test-retest coefficient of .82. This instrument has been used extensively in coaching efficacy research (Myers, Vargas-Tonsing, & Feltz, 2005; Kent & Sullivan, 2003, Vargas-Tonsing, Warner & Feltz, 2003). Although the CES was initially designed to be used with high school and non-professional coaches (Feltz et al., 1999), further research has shown that this instrument can be used appropriately with collegiate coaches (Kent & Sullivan, 2003; Sullivan & Kent, 2003).

By examining the relations between the subscales of the CES and the CART-Q scores and finding variance and covariance between the scores, this study was able to discover if any of the subscales for the CART-Q are related to the subscales on the CES. A canonical correlation was employed to examine this relationship. This study was able to assess differences in this relationship based on gender of coach and gender of athletes coached, differences between team and individual sports, and differences based on division of sport coached (I, II, III). Using these surveys this study was able to discover if coaches who perceive a more positive relationship with their athletes, or higher or lower scores on any of the subscales, have a correlating difference in any or all of the subscales on the CES.

Procedures

Participants were recruited by selecting athletic conferences that are representative both geographically as well as by divisional status. All schools in each conference were included. Contact information was gathered electronically for head coaches of men's and women's teams of the nine sports. Efforts were made to create as complete a population as possible while maintaining population parameters. Coaches emails were collected from a total of 129 Division I schools, 79 Division II schools, and 97 Division III schools. The total number of emails to coaches was 2525. The population was delimited to head coaches only to maintain consistency of coach-athlete interactions, as assistant coaches likely have a very different nature of interaction with athletes than do head coaches. Additionally, many assistant coaches are at times volunteer or part time and thus would have different interactions with athletes. By limiting to head coaches some similarity in type and level of coaching was ensured.

The survey was administered electronically via the internet. Prior to final administration, the survey was pilot tested and found to take 10 minutes or less to complete. Head coaches were invited via email to participate in a web-based survey and given a brief description of the project. A follow up "reminder" email was sent 1 week after the initial email, and again 5 days after the first follow up. A paragraph with participants' informed consent was included at the beginning of the survey and consent was given by taking the survey. Anonymity was preserved to the extent possible in a web-based survey.

Chapter III

RESULTS

The purpose of this study was to investigate the relationship between coaches' perceptions of their relationships with their athletes and coaching efficacy. Several demographic characteristics were also collected to investigate potential group differences based on gender, coaches of individual sports as compared to coaches of team sports, coaches' perceptions of their average levels of success at the conference level (determined by "average conference finish"), and division coached (NCAA Division I, Division II, and Division III). Separate multivariate analyses of variance (MANOVAs) were conducted to examine the relationships between the CES (Coaching Efficacy Scale) and demographic characteristics of coaches. Additionally, MANOVAs were conducted with the CART-Q (Coach Athlete Relationship Questionnaire, direct version and meta version) and these groups. Canonical correlations were employed to examine the relationship between subscales of the CES and subscales of the CART-Q.

Reliability and Multicollinearity

The Coach Athlete Relationship Questionnaire (CART-Q) was used to measure coaches' perceptions of their relationships with their athletes. A minimum alpha coefficient of .70 was employed to establish reliability (Nunnally, 1978). The six subscales of the CART-Q are direct closeness, direct commitment, direct complementarity, meta-closeness, meta-commitment, and meta-complimentarity. The reliabilities of the subscales of the CART-Q were confirmed with one exception. Alpha coefficients of $\alpha=.83$ direct closeness, $\alpha=.77$ direct complimentarity, $\alpha=.85$ meta

closeness, $\alpha=.82$ meta commitment, $\alpha=.88$ meta complimentarity. The one marginal reliability was direct commitment with a Cronbach's alpha of .64. While this alpha coefficient was below the established criterion, the CART-Q and all subscales were utilized in the analyses of this data to maintain the integrity of the measure. Previous research (Jowett, 2009, Jowett & Ntoumanis, 2004) has shown this subscale to be a reliable measure, and it was included in analyses because of prior evidence of reliability and to maintain the intended purposes of subscales. However, caution should be employed in interpreting analyses of this subscale.

In addition to the CART-Q, the present research also utilized the Coaching Efficacy Scale (CES) (Feltz et al., 1999). This instrument contains the subscales of coaching efficacy; game strategy efficacy, motivation efficacy, technique efficacy, character building efficacy, and a total score for coaching efficacy. The reliabilities of these subscales were confirmed by this study. Alpha coefficients for the current study were $\alpha=.93$ game strategy, $\alpha=.91$ motivation efficacy, $\alpha=.88$ technique efficacy, $\alpha=.86$ character building efficacy, and $\alpha=.95$ total coaching efficacy.

An examination of a correlation matrix of the subscales of the measures indicated that multicollinearity existed between specific subscales of the CART-Q. Direct complimentarity and direct closeness demonstrated a Pearson correlation $r = .72$. Meta-complimentarity was also highly correlated ($r > .70$) for three other subscales; .70, .83, and .81 for direct complimentarity, meta-closeness, and meta-commitment, respectively. To avoid multicollinearity, subscales were recalculated twice to create a total direct and total meta perspective and secondly to create total closeness, total complimentarity, and total commitment. These reconfiguration did not eliminate the issue of multicollinearity as the

pearson correlations continued to exceed .70. Therefore, the original format was employed for all analyses. The direct and meta versions of the CART-Q as well as their subscales are considered to be “conceptually distinct yet intercorrelated constructs” and while high intercorrelations are expected, the scale has still been considered to be appropriate for use in multivariate analysis (S. Jowett, personal communication, April 21, 2010). Due to the high intercorrelations within these subscales, however, caution should be used when interpreting multivariate findings. Further research needs to address whether these intercorrelations are an anomaly or whether adaptations need to be made to the measure.

Descriptive Profile of Participants

This survey was conducted during the late winter/early spring. Coaches were contacted via email and asked to take a web-based survey asking questions regarding their coaching confidence, their relationship with their athletes, as well as some demographic information. A total of 636 coaches completed the survey. The mean age was 44.07 ($SD=10.43$). Additionally, this sample was comprised of quite experienced coaches, the average number of years coaching experience was 17.02 ($SD=9.7$) with average years head coaching 13.3 years ($SD=9.54$). The mean years at current position was 9.65 ($SD=8.44$) years indicating that coaches within this sample were relatively stable in their positions. The coaches within this sample coached both very small and very large teams. The mean number of athletes coached is 26.6 athletes ($SD=20.67$). Taken together, the coaches represented within this sample work with approximately 16,580 athletes. These coaches, on average, had just over two assistant coaches, $M=$

2.011 ($SD=1.38$). This may represent the high representation of Division III coaches within this sample, who generally do not have large numbers of assistant coaches.

This sample had a distribution of gender of coaches that is not representative of national averages in NCAA coaches. This sample was comprised of a majority of male coaches, ($n=394$ male coaches, 62.3%) and 228 female coaches (36.1%). This provides a high representation of female coaches compared to national data (Acosta & Carpenter, 2009). It is noted, however, that data from Acosta and Carpenter refers to all sports, where as this study represented only particular sports, and therefore these sports may have higher representation of female coaches. The coaches represent teams made up of only male athletes, $n=115$ (18.2%), only female athletes $n=349$ (55.2%), and teams made up of both genders $n=160$ (25.3%).

The presence of only 18% of coaches working with exclusively male teams represents a small percentage. Over a quarter of coaches within this sample worked with both genders of athletes, which seems to be a large percentage and may not be representative of the general coaching population. The divisions were represented approximately as targeted in the procedures, reflecting the membership of the NCAA. Division I coaches, $n=237$ (37.5%), Division II coaches, $n=122$ (19.3%) and Division III coaches $n=265$ (41.9%). This does reflect a slight response bias with Division III coaches being more likely to respond to the survey. Coaches had relatively high perceptions of success, rating themselves by “average conference finish”, 48.9% of respondents ($n=309$) identified their program to be in the top third, 29.4% ($n=186$) in the middle third, and 19.6% ($n=124$) bottom third. This may represent a response bias, with winning coaches

being more likely to respond to the survey, or a perception bias, with coaches believing that they are more successful than they are.

The population of coaches that was sampled represents a very confident group as a whole. The mean score (on a scale that is 0 to 9) for total coaching efficacy was 7.81 ($SD=.73$). The means for each subscale; game strategy efficacy, motivation efficacy, technique efficacy, and character building efficacy were 7.87 ($SD=.86$), 7.47 ($SD=.95$), 7.97 ($SD=.86$) and 8.09 ($SD=.82$), respectively. This population of coaches was a very confident group as a whole, with means in total and within each subscale that approached the maximum on the scale. Means and standard deviations for all CES subscales for specific demographic groups are displayed in Table 1, and means and standard deviations for CART-Q subscales are displayed in Table 3.

An examination of scores on the CART-Q, which is on a scale that ranges from 1 to 7, reveals that as a whole this population had a mean of 6.21 ($SD=.59$) for a total direct score and 5.95 ($SD=.78$) for total meta score. These again represent means that are near the maximum of the scale. The individual subscales for the direct version; direct closeness, direct commitment, and direct complimentarity had means for the total population of 6.30 ($SD=.65$), 6.14 ($SD=.68$), and 6.18 ($SD=.67$), respectively. The individual subscales of the meta version which are meta closeness, meta commitment, and meta complimentarity had means of 6.04 ($SD=.80$), 5.81 ($SD=.88$) and 5.96 ($SD=.80$). Although lower than the direct scores, these again represent scores that are near the mean. Overall, this population of coaches rated very high, near the maximum on both scales, the CES and the CART-Q. This population represents very confident coaches who have very high ratings of their relationships with their athletes.

The CART-Q asks coaches to reflect on their relationship with one specific athlete from their team. In order to better understand the athletes that coaches chose, additional questions were created by the researcher and addressed details regarding the athlete that coaches chose to reference. It was found that coaches tended to reference athletes who were in a position of leadership on the team (e.g. captain) (67.6%), and the year in school most referenced was Junior (41.1%). Additionally, coaches tended to reference an athlete they considered “one of the most athletically talented players”, 59.3%, and athletes that were very heavily or heavily recruited, (71.2% chose either a 4 or 5 on a scale of 1-5 with 1 being “did not recruit at all” and 5 being “heavily recruited”). Obtaining information regarding the general type of athletes being referenced allows further insight into the meaning behind the coaches’ perceptions of the coach-athlete relationship.

Relationship Between Demographic Characteristics and Efficacy

The Coaching Efficacy Scale (CES) MANOVAs were employed to examine group differences within the four subscales of the CES; game strategy efficacy, motivation efficacy, technique efficacy, and character building efficacy. Multiple demographic variables were analyzed to discover any group differences in coaching efficacy.

Initially, a MANOVA was conducted with CES subscales on gender of coach. Wilks’ lambda=.95, $F(4, 576)=6.68$ $p<.05$. Follow-up discriminant function analyses indicated that game strategy and character building efficacy were the dependent variables that maximally differentiated the groups. Univariate results indicated that game strategy efficacy and motivation efficacy were significant. Due to the multivariate nature of the

relationships discriminant function coefficients were prioritized. An examination of the means indicated that while male coaches ($M=7.98$, $SD=.82$) rated themselves as having higher game strategy efficacy than female coaches ($M=7.70$, $SD=.89$), female coaches ($M=8.14$, $SD=.80$) on average rated themselves as having higher efficacy in their ability to build the character of their athletes than male coaches ($M=8.07$, $SD=.83$). A MANOVA examining both gender of coach and gender of athlete was not possible due to insufficient cell sizes to examine this interaction.

Table 1

Means for Coaching Efficacy Scale_ - Subscales

	CES-GS <i>M (SD)</i>	CES-MOT <i>M (SD)</i>	CES-TEC <i>M (SD)</i>	CES-CB <i>M (SD)</i>	CES-TOT <i>M (SD)</i>
Total Population ($N=636$)	7.87 (.86)	7.47 (.95)	7.97 (.86)	8.09 (.82)	7.81 (.73)
Gender					
Males ($n=394$)	7.98 (.82)	7.53 (.94)	8.02 (.84)	8.07 (.83)	7.87 (.71)
Females ($n=228$)	7.70 (.89)	7.35 (.97)	7.89 (.89)	8.14 (.80)	7.72 (.74)
Individual Team Sport					
Team Sport ($n=398$)	7.85 (.85)	7.38 (.95)	7.97 (.84)	8.05 (.81)	7.78 (.72)
Individual ($n=227$)	7.91 (.87)	7.63 (.94)	7.99 (.90)	8.18 (.82)	7.89 (.73)
Average Conf Finish					
Top Third ($n=309$)	7.89 (.86)	7.58 (.92)	7.96 (.88)	8.12 (.79)	7.86 (.72)
Middle Third ($n=186$)	7.90 (.83)	7.44 (.92)	8.03 (.78)	8.06 (.86)	7.83 (.71)
Bottom Third ($n=124$)	7.75 (.91)	7.20 (1.06)	7.91 (.94)	8.06 (.85)	7.68 (.76)
NCAA Divisional Affiliation					
Division I ($n=223$)	8.10 (.74)	7.62 (.91)	8.14 (.70)	8.18 (.73)	7.99 (.65)
Division II ($n=116$)	7.75 (.89)	7.38 (.93)	7.93 (.93)	7.96 (.87)	7.72 (.73)
Division III ($n=244$)	7.73 (.90)	7.35 (.99)	7.84 (.95)	8.08 (.87)	7.71 (.75)

Note. CES-GS = Game strategy efficacy, CES-MOT = Motivation efficacy, CES-TEC= Technique efficacy, CES-CB = character building efficacy, CES-Tot = Total coaching efficacy

In order to examine differences in efficacy based on type of sport coached, a MANOVA was conducted on the CES subscales by individual and team sport coaches. The multivariate relationship was significant, Wilks' lambda=.98, $F(4, 579)=2.49$ $p<.05$. Follow up discriminant function analyses and univariate F statistics indicated that the subscale of motivation efficacy maximally differentiated the groups. An examination of the means revealed that coaches of individual sports rated themselves as having higher efficacy in their ability to motivate their athletes than coaches of team sports (individual sport coaches $M=7.63$, $SD=.94$, team sport coaches $M=7.38$, $SD=.95$)

Table 2

Discriminant Function Coefficients and Univariate F Statistics - CES

	Discriminant Function Coefficients				Univariate F Statistics			
	CES-GS	CES-MOT	CES-TEC	CES-CB	CES-GS	CES-MOT	CES-TEC	CES-CB
Gender	.96	.47	-.29	-.82	14.05*	4.14*	3.03	1.94
Team/Ind	-.39	1.30	-.24	-.09	.37	7.82*	.18	2.15
Ave	-.05	1.38	-.44	-.50	1.31	6.72*	.75	.35
Finish								
Division	-.89	-.06	-.11	.02	12.69*	5.09*	7.68*	2.83

Note. * $p<.05$ CES-GS = Game strategy efficacy, CES-MOT = Motivation efficacy, CES-TEC= Technique efficacy, CES-CB = Character building efficacy

In order to examine the relationship of coaches' perceptions of their own success at the conference level to CES, a MANOVA was conducted with the CES subscales by perceived average conference finish. The multivariate relationship was significant. Wilks' lambda=.96, $F(8, 1146)=2.80$ $p<.05$. Follow-up discriminant function analyses and univariate results indicated that the subscale of motivation efficacy contributed to these differences. Post-hoc analysis using Scheffe revealed a significant difference in

motivation efficacy between coaches who rated themselves in top third and bottom third of their conference ($M=7.58$, $SD=.92$ and $M=7.20$, $SD=1.06$, respectively, $p<.05$). No differences were found between the top third and middle third or middle third and bottom third.

The CES was originally designed for research with age group and high school coaches. It has since been employed in research with Division II and III college coaches. To examine divisional differences in the CES, a MANOVA was conducted with NCAA divisional affiliation. The multivariate relationship was significant, Wilks' lambda=.95, $F(8, 1154)=3.82$ $p<.05$. Discriminant function analyses indicated that only game strategy efficacy maximally differentiated the groups. Univariate results indicated that game strategy efficacy, motivation efficacy and technique efficacy were significant contributors. Due to the multivariate nature of the relationships, discriminant function analyses were prioritized. Post-hoc analysis using Scheffe tests indicated that Division I ($M=8.10$, $SD=.74$) scored significantly higher in game strategy efficacy than either Division II ($M=7.75$, $SD=.89$) or Division III ($M=7.73$, $SD=.99$) coaches, however, Division II and Division III coaches were not significantly different from each other. A complete list of discriminant function coefficients and univariate F statistics for the CES can be found in Table 2.

Relationship Between Demographic Characteristics and Coach-Athlete Relationship

The Coach-Athlete Relationship Questionnaire (CART-Q) contains two perspectives, the direct perspective (the coach's feelings about their relationship with their athlete) and the meta perspective (the coach's feelings about their athletes relationship with them). Within these perspectives, there are six subscales; direct

closeness, direct commitment, direct complementarity, and meta closeness, meta commitment, and meta complementarity. These subscales were examined within multiple demographic variables to investigate group differences by coach-athlete relationship within the sample.

Examining the CART-Q direct perspective by gender of coach revealed no significant multivariate relationship, Wilks' lambda= 1.00, $F(3,589)=.802$ $p>.05$. Examinations of the CART-Q meta perspective, or coaches' perceptions of their athletes relationship with them, by gender of coach were also conducted. Investigating the CART-Q meta perspective by gender of coach revealed no significant multivariate relationship, Wilks' lambda= .99, $F(3,592)=1.46$. $p>.05$. Although an interaction between gender of coach and gender of athlete was an interesting potential investigation, the present study lacked sufficient cell sizes needed for this investigation.

In order to examine differences in coaches' perceptions of their relationships with their athletes' based on type of sport coached, a MANOVA was conducted. The multivariate relationship was significant, Wilks' lambda=.97, $F(3,591)=5.35$. $p<.05$. Discriminant function analyses indicated that all three subscales, direct closeness, direct commitment, and direct complementarity maximally differentiated the groups. Univariate results indicated that direct commitment and direct complementarity were significant. Due to the multivariate nature of the relationships, the discriminant function analyses were prioritized. An examination of the means revealed that coaches of individual sports (Direct Closeness $M=6.33$, $SD=.64$, Direct Commitment $M=6.25$, $SD=.64$, Direct Complementarity $M=6.28$, $SD=.62$) rated their relationships with their athletes within all

three subscales higher than coaches of team sports (Direct Closeness, $M=6.28$, $SD=.66$, Direct Commitment $M=6.07$, $SD=.70$, Direct Complimentarity $M=6.12$, $SD=.68$).

Table 3

Means for CART-Q subscale– Direct and Meta Perspective

	Dir Close <i>M</i> (<i>SD</i>)	Dir Com <i>M</i> (<i>SD</i>)	Dir Comp <i>M</i> (<i>SD</i>)	Tot Dir <i>M</i> (<i>SD</i>)	Met Close <i>M</i> (<i>SD</i>)	Met Com <i>M</i> (<i>SD</i>)	Met Comp <i>M</i> (<i>SD</i>)	Tot Met <i>M</i> (<i>SD</i>)
Total Population ($N=363$)	6.30 (.65)	6.14 (.68)	6.18 (.67)	6.21 (.59)	6.04 (.80)	5.81 (.88)	5.96 (.80)	5.95 (.78)
Gender								
Males ($n=379$)	6.32 (.60)	6.14 (.63)	6.18 (.64)	6.22 (.56)	6.04 (.77)	5.79 (.86)	5.95 (.77)	5.94 (.74)
Females ($n=217$)	6.26 (.73)	6.12 (.76)	6.17 (.72)	6.20 (.66)	6.04 (.85)	5.85 (.91)	5.99 (.85)	5.97 (.82)
Individual Team Sport								
Team ($n=398$)	6.28 (.66)	6.07 (.70)	6.12 (.68)	6.17 (.60)	5.97 (.80)	5.73 (.90)	5.87 (.82)	5.87 (.82)
Individual ($n=227$)	6.33 (.64)	6.25 (.64)	6.28 (.62)	6.29 (.57)	6.15 (.79)	5.95 (.84)	5.87 (.82)	6.12 (.75)
Average Conf Finish								
Top Third ($n=309$)	6.37 (.60)	6.23 (.61)	6.25 (.58)	6.28 (.53)	6.11 (.75)	5.89 (.85)	6.02 (.77)	6.02 (.73)
Middle Third ($n=186$)	6.27 (.69)	6.08 (.76)	6.16 (.73)	6.18 (.66)	6.02 (.79)	5.80 (.85)	5.99 (.74)	5.95 (.74)
Bottom Third ($n=124$)	6.15 (.67)	6.03 (.68)	6.05 (.71)	6.08 (.61)	5.89 (.93)	5.64 (1.00)	5.76 (.93)	5.77 (.90)
NCAA Division								
Division I ($n=230$)	6.32 (.62)	6.16 (.65)	6.23 (.61)	6.25 (.56)	6.07 (.83)	5.82 (.94)	6.03 (.83)	6.00 (.80)
Division II ($n=119$)	6.20 (.77)	6.08 (.79)	6.05 (.80)	6.11 (.72)	6.03 (.80)	5.80 (.89)	5.86 (.83)	5.90 (.78)
Division III ($n=258$)	6.32 (.63)	6.15 (.64)	6.19 (.62)	6.24 (.56)	6.02 (.79)	5.81 (.81)	5.93 (.75)	5.94 (.73)

Note. Dir Close = Direct Closeness, Dir Com = Direct Commitment, Dir Comp = Direct Complimentarity, Tot Dir = Total Direct Perspective, Met Close = Meta-closeness, Met Com = Meta-Commitment, Met Comp = Meta Complimentarity, Tot Met = Total Meta Perspective

Differences in perceived relationship differences by type of sport coached were examined by conducting a MANOVA to investigate team sport coaches and individual sport coaches with from the CART-Q meta perspective. The multivariate relationship was significant, Wilks' lambda=.97, $F(3, 595)=5.53$. $p<.05$. Discriminant function coefficients prioritized only the subscale of meta-complimentarity. Univariate results indicated that all three subscales, meta-closeness, meta-commitment, and meta-complimentarity are all significant. Due to the multivariate nature of the results, discriminant function analyses were prioritized. An examination of the means revealed that coaches of team sports ($M=5.73$, $SD=.82$) perceive their athletes' relationship with them as lower on average in meta-complimentarity than coaches of individual sports ($M=5.95$, $SD=.82$).

To test for differences in relationships based on coaches' perceptions of success, a MANOVA was conducted with the CART-Q direct perspective and self-reported average conference finish. The multivariate relationship was significant, Wilks' lambda= .98, $F(6, 1168) = 2.23$. $p<.05$. Discriminant function analyses indicated that only the subscale of direct closeness maximally differentiated the groups. Univariate results indicate that all three subscales were significant. Due to the multivariate nature of the results, discriminant function analyses were prioritized. Post hoc analyses using Scheffe tests revealed that the only significant difference was between coaches who self reported finishing in the top third of their conference and those in the bottom third. An examination of the means revealed that coaches who, finish in the top third of their conference ($M=6.37$, $SD=.60$) also rated themselves higher in the subscale of direct

closeness than coaches who have an average conference finish in the bottom third ($M=6.15, SD=.67$).

Table 4

Discriminant Function Coefficients and Univariate F Statistics – CART-Q

CART-Q Direct Perspective

	Discriminant Function Coefficients			Univariate F Statistics		
	CART-Q DCLOSE	CART-Q DCOM	CART-Q DCOMP	CART-Q DCLOSE	CART-Q DCOMM	CART-Q DCOMP
Gender	n/a	n/a	n/a	.85	.02	.03
Team/Ind	1.06	-.89	-.89	.86	7.86*	8.05*
Ave Finish	-.59	-.32	-.17	5.51*	4.75*	4.02*
Division	n/a	n/a	n/a	1.57	.58	3.08

CART-Q Meta Perspective

	Discriminant Function Coefficients			Univariate F Statistics		
	CART-Q MCLOSE	CART-Q MCOM	CART-Q MCOMP	CART-Q MCLOSE	CART-Q MCOMM	CART-Q MCOMP
Gender	1.62	-1.74	-.15	.01	1.13	.21
Team/Ind	.70	-.35	-1.22	6.18*	9.79*	14.67*
Ave Finish	-.26	.19	1.05	3.44*	3.67*	4.85*
Division	n/a	n/a	n/a	.29	.01	2.03

Note. DClose = Direct Closeness, DCom = Direct Commitment, DComp = Direct Complimentarity, MClose = Meta-closeness, mcom = Meta-Commitment, MComp = Meta Complimentarity.

To further examine group differences in perceived relationships based on team success a MANOVA was conducted investigating the CART-Q meta version and average conference finish. The multivariate relationship was significant. Wilks' lambda=.98, $F(6, 1176)=2.14, p<.05$. Discriminant function analyses indicated that only the subscale of meta complimentarity maximally differentiated the groups. Univariate results indicated

that all three subscales significantly contributed to group differences. Due to the multivariate nature of the data, discriminant function analyses were prioritized. Post hoc analysis using Scheffe tests revealed that the only significant difference was between coaches who self-reported finishing on average in the top third of their conference ($M=6.02$, $SD=.77$) and those who self reported finishing in the bottom third ($M=5.76$, $SD=.93$). Neither group was significantly different than the middle third.

Examinations of the CART-Q direct perspective with divisional affiliation revealed no significant multivariate relationship. Wilks' lambda=.99, $F(6,1178)=.29$ $p>.05$. Likewise, examinations of the CART-Q meta perspective with divisional affiliation revealed no significant multivariate relationship. Wilks' lambda= .98, $F(6,1184)=2.01$ $p>.05$. These analyses indicate that there is no significant difference in coaches' perceptions of relationship based on divisional affiliation. A complete list of discriminant function coefficients and univariate F statistics for the CART-Q can be found in Table 4.

Relationship Between Coach-Athlete Relationship and Coaching Efficacy

A major research question of the present study was the relationship between the coach-athlete relationship and coaching efficacy. By investigating the relationship between the subscales of the CART-Q and the CES, the coach-athlete relationship and coaching efficacy can be investigated not only as a whole, but also as the subscales of each questionnaire relate to each other. In order to examine the relationship between subscales of the CES and the CART- Q, a canonical correlation was conducted. The multivariate relationship was found to be significant, Wilks' lambda =.53, $F(24$,

1857)=15.62. $p < .05$. Reduction analysis further determined two significant functions, which provided for two unique solutions.

The canonical correlation for the first function was $r_c = .66$ and for the second function was $r_c = .20$. The first function is moderate in strength, and the second fairly low in strength. For function 1, the redundancy index is 32.05%, which is the amount of variance of coaching efficacy that is explained by the coach athlete relationship, as reflected by the subscales. Function 2, while significant, explains a small percentage of the variance between these two sets of variables (.26%) A redundancy index of 10% or higher is considered to be meaningful. Canonical correlations of .3 or higher were determined to be significant (Pedhazur, 1991).

Table 5

Canonical Loadings for CART-Q subscales and CES subscales

Variables	Function 1	Function 2
<u>Predictor Variables</u>		
Direct Closeness	.89	-.12
Direct Commitment	.84	.07
Direct Complimentarity	.80	-.18
Meta-Closeness	.90	.12
Meta-Commitment	.84	.53
Meta-Complimentarity	.86	.14
<u>Criterion Variables</u>		
Game Strategy Efficacy	.63	-.26
Motivation Efficacy	.95	.28
Technique Efficacy	.50	.03
Character Building Efficacy	.80	-.42

Function 1 indicated that all subscales of the coach-athlete relationship were positively related to all subscales of coaching efficacy. Function 2 indicated that meta-

commitment was negatively related to character building efficacy. Canonical loadings can be seen in table 5.

Summary

The 632 NCAA Division I, II, and III coaches who responded to this survey provided interesting information regarding coaching efficacy and the coach athlete relationship. The descriptive statistics demonstrate that the coaches who responded to this survey were relatively experienced, had limited assistant coaches, and coached teams with wide variability from very small to very large. Participants represent a higher percentage of female coaches than are in the population of coaches in the NCAA (Acosta & Carpenter, 2009), suggesting a response bias with female coaches being more likely to respond to the survey. The coaches in this survey represented all targeted sports and female, male, and co-ed teams.

The analyses revealed that there were no gender differences within coaches' assessment of their relationships with their athletes', however, some significant differences were evident by gender within efficacy subscales. Coaches of individual sports rated higher on coach-athlete relationship measures as well as their perceived motivational efficacy as compared to coaches of team sports. This suggests differences on several levels between coaches of individual sports and coaches of team sports. Coaches' self reported average finish in conference was related to their scores on the coaching efficacy scale as well as coach-athlete relationship subscales. This suggests differences between coaches who are more "winning" than others. The connection between the coach-athlete relationship and coaching-efficacy was explored and it was

found that the coach-athlete relationship explains a significant amount of variance in coaching efficacy.

CHAPTER IV

DISCUSSION

The purpose of this investigation was to examine the constructs of the coach-athlete relationship, coaching efficacy and the relationship between these variables. Specifically, differences based on gender of coach, gender of athletes, perceived success, sport type, and divisional affiliation were examined on both coaching efficacy and coach-athlete relationships.

The original hypothesis was that motivation efficacy as a subscale would be most related to the coach-athlete relationship, and this hypothesis was not supported. Additionally, it was hypothesized that overall scores on the CART-Q would correlate positively with overall scores on the CES. The results of this study support this secondary hypothesis, and indicate that the coaches' perceptions of their relationship with their athletes at least moderately relates to their coaching efficacy. More specifically, a canonical correlation showed that all subscales of the coach-athlete relationship; direct closeness, direct commitment, direct complementarity, meta-closeness, meta-commitment, and meta-complimentarity were all positively correlated with all subscales of coaching efficacy; game strategy efficacy, motivation efficacy, technique efficacy, and character building efficacy. This finding did not support the initial hypothesis, which was made under the belief that the coach-athlete relationship would be most related to motivation efficacy. These results indicate that the coach-athlete relationship is more omnipresent in all aspects of coaching efficacy than previously thought. The coach-athlete relationship seems to be a very important component in understanding coaching efficacy, not only in motivation efficacy but also in game strategy, technique, and

character building efficacy. While this result is different than the original hypotheses, it demonstrates the importance of the coach-athlete relationship.

The first canonical function, which explained 32% of variance, indicated that all subscales of the coach-athlete relationship were related to all subscales of coaching efficacy. This is a large amount of variance within the realm of social psychological variables. The fact that all subscales of the Coach Athlete Relationship Questionnaire significantly related to the subscales of the Coaching Efficacy Scale shows that these constructs are intimately related. The coach-athlete relationship and its impact on coaching efficacy has not been researched significantly within quantitative methodologies prior to this study. However, the results support research of Lorimer and Jowett (2009), who found that the coach-athlete relationship has important implications for both the coach and the athletes. Qualitative research by Chase et al. (2005) indicated that relationships with athletes were important to coaching efficacy, and the present study supports that research. Additionally, qualitative research by Jackson et al. (2009) also found that levels of coach efficacy (as well as athlete efficacy) were impacted by the quality of the coach athlete relationship. The finding in the present study that all subscales of the coach-athlete relationship are related to all subscales of coaching efficacy indicates the extent of the relationship between coaching efficacy and the coach-athlete relationship.

The second canonical function, which explained only .26% of variance, indicated that meta-commitment, the coaches' perceptions of the extent to which their athlete was committed to them, was negatively related to character building efficacy. While this solution is statistically significant, it is important to recognize that it is not

psychologically meaningful. Interpretation of this finding is difficult; however, one possible explanation could be that the coaches who perceive the athletes as being less committed feel more confident in their ability to build the character of those athletes. These athletes have the “furthest to go”, so the coaches can have more of an impact. Those athletes that may be more difficult to work with could also be the ones with whom the coaches can have the biggest influence. However, this finding explains only a very small amount of the variance in the coaching efficacy scale, and caution should be employed in interpreting these findings.

In addition to the main research question, this study uncovered some very useful information regarding NCAA coaches and some interesting similarities (e.g. gender) and differences (e.g. team vs. individual sport coaches) with the framework of coaching efficacy and the coach-athlete relationship. It was hypothesized that there would be no significant impact of gender either with coaching efficacy or the coach-athlete relationship, based on work by Barber (1998). The results of this study partially supported work by Barber (1998) regarding the influence of gender of coach on coaching efficacy, who found that female coaches score higher in competence with “teaching sport skills”, but did not find gender differences in other subscales. There were no significant gender differences in technique or motivation efficacy. Interestingly, the current findings indicate that male coaches scored significantly higher in their game strategy efficacy, while female coaches scored significantly higher in character building efficacy.

The fact that this study found no differences in the coach-athlete relationship by gender is also interesting and ties to the findings in coaching efficacy. Within the results of this study, differences in character building efficacy is not explainable by stating that

female coaches have better relationships with their athletes, and thus have higher character building efficacy than their male counterparts. Female coaches were found to have higher confidence in their ability to develop the character of their athletes while male coaches have higher confidence in their ability to coach game strategy. However, these gender differences, while statistically significant, represent only a difference in scores of .28 for game strategy efficacy and .14 for character building efficacy, respectively, and thus may not have extensive practical meaning. Gender differences within efficacy subscales represent coaches' confidence in their abilities within various subscales.

When looking specifically at the results of both the direct and meta version of the CART-Q, this study found no differences in perceptions of the coach-athlete relationship by gender. Although hypothesized, this finding is somewhat surprising, as men and women are often thought to have different styles of communication. Additionally, research has found that female coaches have higher empathic accuracy scores than male coaches (Lorimer & Jowett, 2010). This makes it very interesting that within this sample, there were no differences in coach-athlete relationship scores by gender of coach. The study by Lorimer and Jowett (2010) also found that when investigating athlete's empathic accuracy as well, the lowest levels were for female athletes and female coaches, and the highest for male athletes and male coaches. Within this sample, no differences were found by gender, however, incorporating an athlete perspective could yield a different result.

It was hypothesized that the overall score on the CART-Q would be higher for coaches of individual sports than for those of team sports. This study found significant

differences in coaches of team sports as compared to coaches of individual sports, both within the CART-Q as well as the CES. Coaches of individual sports rated significantly higher than coaches of team sports in 4 of the 6 subscales of the coach-athlete relationship. Coaches of individual sports also were significantly higher in motivation efficacy – their confidence in their ability to motivate their athletes. This confirms research by Lorimer and Jowett (2009) which reported that empathic accuracy within coach athlete dyads was higher for coaches of individual sports. The nature of individual sports as compared to team sports does seem to be shown within the results of this study. The differences in coach-athlete relationship and coaching efficacy by type of sport is a very interesting finding, and may begin to suggest a root difference in the way that coaches interact with their athletes dependent upon type of sport.

This study also found some significant differences between coaches who perceived themselves as having a high winning percentage and those who perceive their winning percentage to be lower. Although there were no hypotheses made in terms of differences by coaches' perceived success, some significant differences were found. Because this study investigated many different types of sports, perceptions of athletic success were measured by "Average Conference Finish". Nearly half of respondents (48.9%) rated themselves as "Top Third". This finding initially appears to be suspect; as a representative sample, one half of coaches cannot be finishing on average in the top third of teams in their conference. This may represent a response bias – winning coaches were more likely to respond to the survey. It may also represent a perception bias – coaches perceive themselves as more winning than they actually are. Within this sample, coaches who reported themselves as finishing on average in the top third of their

conference had scores that were significantly higher than coaches who reported finishing in the bottom third within several subscales. Coaches in the top third scored higher in direct closeness and meta-complimentarity, and also rated higher in their confidence levels in their ability to motivate their athletes. Though this data is not directional – it could be that winning coaches gain more efficacy, or that coaches with higher efficacy win more, it is an interesting finding of differences. There was a significant relationship between groups of coaches who rated themselves as finishing, on average, higher in their conference across the questionnaire data. The results of this study show that there are important group differences across many of the demographics. The 632 coaches who responded to the survey represent different sports, divisions, genders, success rates, size of teams, and levels of experience. The differences between these groups help to gain understanding of coaching efficacy and the coach-athlete relationship. While the findings of this study provide important insights into the coach-athlete relationship, the intercorrelations between the subscales of the CART-Q require caution to be employed in interpreting these findings. However, the findings from this sample, both in response to the main research question as well as in response to demographic differences, have both theoretical and practical implications.

Theoretical Implications

This investigation primarily addressed the question of whether the coach-athlete relationship was important in determining coaching efficacy. The theoretical framework that this study employed relied heavily on a the theoretical model by Feltz et al. (1999). Feltz et al. (1999) found that coaching efficacy is an important construct not only because of the impact on the coach, but also because higher efficacy coaches tend to engage in

behaviors that positively impact athletes. Feltz et al. (1999) proposed four sources from which coaches derive their feelings of efficacy; the extent of coaching experience, prior success within coaching, perceived skill of athletes, and social support, specifically support from school, parents, community, and administration. Feltz et al. did not include any discussion of a coach's relationship with athletes within the coaching efficacy model. The results of the present study confirm the suggestions from qualitative studies by Chase et al. (2005) and Jackson et al. (2009), which suggested that the coach athlete relationship was importantly related to coaching efficacy. It is suggested as a result of these findings that the model proposed by Feltz et al. be adjusted to account for the important impact of the coach-athlete relationship. Although Feltz et al. (1999) identifies social support, they specifically do not identify any relationship with the athletes. This study proposes that the Feltz et al. model of coaching efficacy should be altered to include the coach-athlete relationship as a source of coaching efficacy, either as a part of social support or as its own factor. Although the coach-athlete relationship could be included either within "social support" or as its own source of coaching efficacy information, because a large percentage of variance in coaching efficacy scores (32%) was found to be related to the coach-athlete relationship, it is proposed that it be added as its own source of coaching efficacy information. See figure 4.

The inclusion of the coach-athlete relationship within this model as a source of coaching efficacy information confirms the importance of this relationship and demonstrates the mutually beneficial nature of the coach-athlete relationship. The inclusion of the coach-athlete relationship within sources of coaching efficacy allows this important association to be recognized within the model.

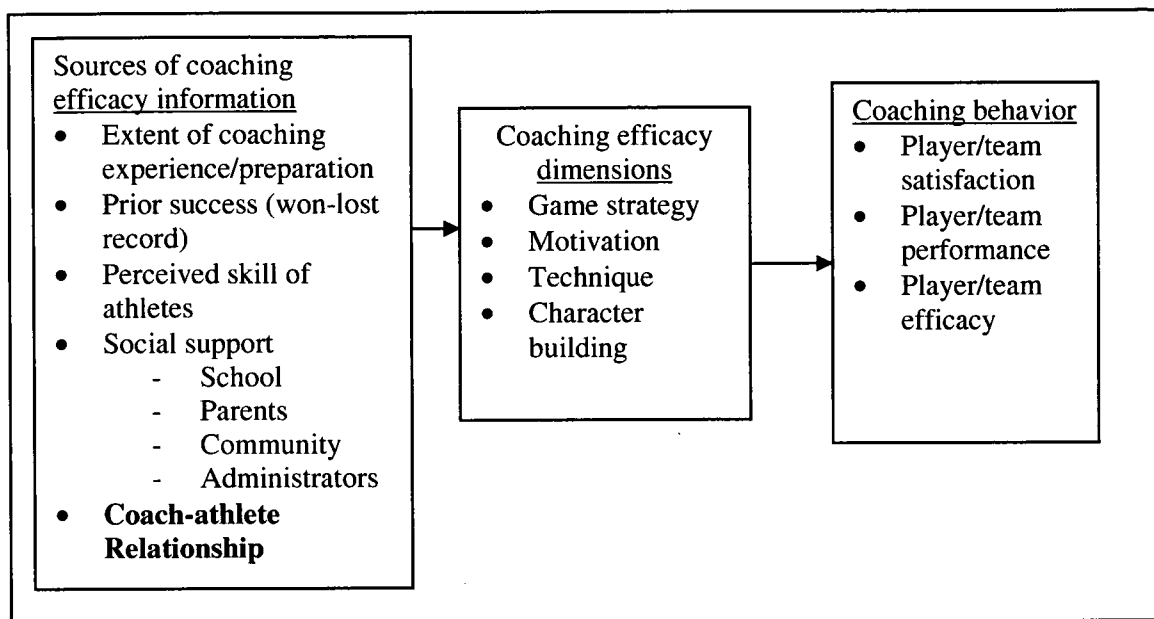


Figure 4. Feltz et al. (1999) conceptual model of coaching efficacy modified to include the coach-athlete relationship

In addition to the Feltz et al. (1999) coaching efficacy model, this study included in its theoretical constructs the Horn (2002) coaching effectiveness model. This model includes at its center, coaches' behavior, as opposed to the model by Feltz' et al., where coaching behavior is considered an outcome. For a full review of the Horn, (2002) model, please reference pages 8-12 of this study. Within Horn's model, the coaches' and athletes' dynamic relationship is accounted for, however, not as a source of coaching efficacy. The present study found a moderately strong relationship of the coach-athlete relationship with coaching efficacy. The coach athlete relationship accounted for 32% of the variance of coaching efficacy, which is a large amount of variance. As such, this model should accommodate this either by placing coaching efficacy in Box 4, which was suggested by Feltz et al. (2005), in which case the coach-athlete relationship and its influence on coaching efficacy is represented by the existing arrow between Box 6 and

Box 4. Alternately, an arrow from Box 6 to Box 3, where Horn has placed coaching efficacy, would also represent the coach-athlete relationship and its correlation with coaching efficacy. The results from this study strengthen the idea of modifying Horn (2002) model to better represent the dynamic relationship between coaches and athletes, see Figure 5. It is proposed, based on the results of this study, that not only is coaching efficacy influenced by the coach-athlete relationship, but because the coach-athlete relationship is dynamic and changing, that coaching efficacy be placed in box 4 “coaches beliefs and goals” as a coaching belief rather than a “personal characteristic.” (Box 3).

The present study has significant theoretical implications because none of the current models that represent coaching efficacy account for the coach-athlete relationship. The sample of NCAA I, II, and III coaches demonstrated that this relationship is significantly related to the coaches' level of efficacy. Further research is needed to solidify and define the true interaction between the coach-athlete relationship and coaching efficacy; however, this study makes it clear that these two facets of coaching are interrelated.

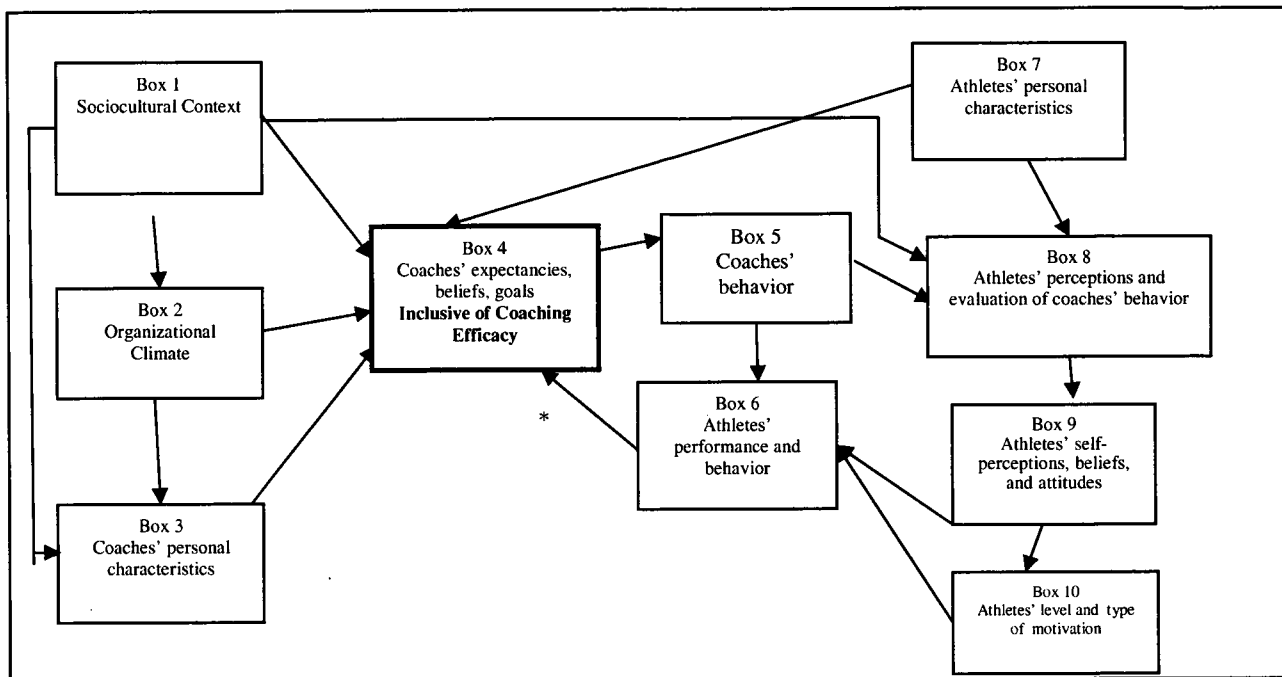


Figure 5. Horn (2002) with proposed additional source of coaching efficacy.

* —————> This arrow, which currently exists in Horn's model, represents the influence of coach-athlete interactions if coaching efficacy is placed in Box 4, which is proposed by Feltz et al (2008) and confirmed by the results of this study

Practical Implications

The results of this study show that an important aspect of coaching efficacy is the coach-athlete relationship. This means that in order to be confident, coaches need to have more than simple game strategy knowledge, but also be able to engage with athletes. This may confirm what many coaches already know; coaching is more than 'knowing the Xs and Os'. These results encourage coaches to embrace the interactive nature of coaching with the understanding that it impacts not only the athlete, but also the coach's confidence levels. Because coaching efficacy is very important to both coach and athlete outcomes, acknowledging the coach-athlete relationship as an important factor within the structure of efficacy may also influence administration and coaching decisions. Athletic administrators should be encouraged to hold clinics or workshops teaching coaches to

maximize their relationships and create a positive performance climate. It has been shown that coaches who have higher efficacy have been shown to give more positive feedback, have higher win/loss records (Feltz et al., 1999) and are more committed to institutions (Sullivan & Kent, 2003). Knowing that the coach-athlete relationship has an important impact on coaching efficacy should influence coaches and administrators to specifically seek out coaches who demonstrate that this relationship is important to them, which would help to achieve optimal coach and athlete outcomes.

Coaching education programs could clearly benefit from this information. Coaching education, particularly sport specific coaching education, often focuses on teaching technique and tactics of the sport. However, these finding indicates that coaches not only need knowledge and skills in technique and strategy, but also information about creating positive coach-athlete relationships and a productive climate. Without a relationship with the athletes, even a coach who has incredible knowledge of the game may have lower efficacy in their ability to relate it to their athletes. By teaching coaches to engage in positive ways with their athletes, coaching education can help to develop more confident coaches in all aspects of the game. By engaging with coaches and developing positive relationship, coaches will be better able not only to feel confident in character building and motivation, which seem obviously tied to the coach-athlete relationship, but also teaching game strategy and technique. Creating optimally challenging environments for all athletes and supporting individual development requires a commitment to positive coach-athlete relationships. By incorporating information regarding how to best engage with athletes, coaching education programs could potentially help coaches to gain confidence in many areas of coaching confidence.

The significant differences between coaches of individual sports and coaches of team sports has implications for coaches of both types of sport. This study found that coaches of individual sports scored significantly higher in four of the six subscales of the coach-athlete relationship, as well as in motivation efficacy. This finding has practical implications as coaches develop. This finding may particularly impact coaches who coach multiple sports (particularly Division III) to recognize the differences that exist between relationships and motivation efficacy between individual and team sports, and adjust their coaching styles accordingly. This information could also be used by coaches of team sports to maximize coach and athlete experiences. Coaches of individual sports often engage with one athlete at a time, and may be better able to interact with each athlete differently. Alternatively, coaches of team sports may often be interacting with an entire team. It is possible that coaches of individual sports are better able to identify and respond to individual differences have more positive relationships as a result. This knowledge is something that coaches of team sports could use to better their own confidence. If a team sport coach is able to identify with each athlete, as individual coaches do, they may be better able to feel confident in their motivation of those athletes.

The absence of significant gender differences in this study, particularly within coach-athlete relationship scores, was somewhat surprising. With limited female representation within NCAA coaches (Acosta & Carpenter 2009), this result should be considered in hiring decisions as it furthers the cause for gender equality. Since the passage of Title IX there have been efforts to hire more female coaches, however, the percentages of women in coaching roles has declined in recent years (Acosta & Carpenter, 2009). There are often assumptions made regarding differences in the coach-

athlete relationship by gender (e.g. female coaches are more prone to be easily swayed by the team, not as “tough”, male coaches are stronger disciplinarians, etc.) and this study showed that from the perspective of the coaches, there are no differences. Therefore, hiring committees should look at two candidates of different genders without assumptions of differing relationships based on those genders. This finding may help female coaches to continue to gain legitimacy as professional coaches in the NCAA.

The fact that this study found similarities in the gender within two efficacy subscales (technique efficacy, motivation efficacy) furthers the idea that female coaches should not be marginalized based on their gender alone. Female coaches were equally confident in coaching technique and motivating their athletes as male coaches. Female coaches were actually more confident in character building, which could lead some programs, particularly those with a mission statement of development rather than performance, to target female coaches for hiring. Male coaches scored higher in game strategy efficacy only, which furthers the idea of male coaches having more knowledge ‘of the game’ than female coaches. The most practically applicable finding within coaching efficacy and gender is that male and female coaches were more similar than different. These similarities can help to confirm female coaches’ legitimacy within the NCAA.

This study also found that coaches who had perceptions of finishing in the top third of their conference had higher scores within two dimensions of the coach-athlete relationship (direct closeness, meta-complimentarity) as well as higher confidence in their ability to motivate their athletes (motivation efficacy) than coaches who finished on average in the “bottom third”. This supports findings by Feltz et al. (1999) that higher

efficacy coaches were more successful in terms of win losses. This finding is not directional, therefore, it could be that winning coaches gain efficacy and better relationships with their athletes, or that high efficacy coaches with better relationships with their athletes win more. Regardless, this finding makes it clear that by supporting coaches who develop a positive athletic relationship with their athletes may help coaches to not only improve coaching efficacy but also to actually win more games.

Strengths and Limitations

The present study provides significant information that is both theoretically and practically important for coaches with the NCAA regarding coaching efficacy, the coach-athlete relationship, and their interrelationship. However, there are some important limitations that should be mentioned. This study was able to gather a large number of participants because an internet based survey and email contacts were utilized. The large sample size is a strength, however, there is the possibility of a response bias due to the use of the internet survey, or a potential for fewer responses from coaches for whom their email is presorted by someone other than them (an office manager) who may or may not have chosen to pass the email along, or for those coaches who are not comfortable using the internet and email. This sample may represent more coaches who receive their email directly and those who are more internet savvy.

A potential limitation of this study lies in the fact that the coaching efficacy subscale (CES) was originally designed for use with high school and age group level coaches. Prior to this study, it had been used with NCAA Division II and III coaches (Myers et al., 2005). The current study used the coaching efficacy scale with Division I coaches and did find significant differences between Division I and Division II and III

coaches. However, only one subscale, game strategy efficacy contributed to the differences. An important finding is that coaches of all divisions had no significant differences in efficacy levels of motivation, character building, or technique efficacy. However, the significant differences within game strategy efficacy represents a unique difference that may question the appropriateness of this scale being used within Division I or other “professional” level coaches, particular using the subscale of game strategy efficacy. Because of the similarities in scores, as well as a lack of differences within coach-athlete relationship subscales, it was determined that Division I coaches were appropriate for the use in this study, however, this should be examined further.

A potential confounding factor of this study may be that the coaching efficacy scale asks questions regarding a coaches’ efficacy in coaching their entire team while the coach athlete relationship questionnaire asks a coach to consider one athlete specifically. It is possible that a coach’s relationship with one specific athlete may differ greatly from their efficacy regarding their team as a whole. This disparity within the structure of the two instruments utilized may represent a break in the types of interactions that are being measured. The development of a coach-team relationship questionnaire could be necessary to better measure a consistency of interactions. However, regardless of this potential limitation, this study does provide very important information regarding the interaction between coaching efficacy and the coach-athlete relationship.

This study found high intercorrelations between several subscales of the CART-Q survey, which, having been used in multivariate research, may have caused a higher percentage of variance to be explained than truly exists. Caution should be employed when interpreting the multivariate analyses as these high intercorrelations may have

caused the findings to be overstated. While this represents a potentially significant limitation within this study, the CART-Q is known to have high intercorrelations and has been considered by the developer to be appropriate for use in multivariate analyses (S. Jowett, personal communication, April 21, 2010). The high intercorrelations between subscales of the CART-Q bring into question whether the subscales represent truly different facets of the coach-athlete relationship. This suggests limitations for both the theoretical as well as the practical implications of the findings of this study, due to the limitations of the CART-Q.

Future Research Directions

The high intercorrelations of the CART-Q, as well as the potential problems created by the differences in reference points for coaches by the different survey, provides an area of potential future research in refinement of this measure. The CART-Q is a relatively newly developed (Jowett, 2009), and the present study is the largest known population for which it has been used to date. Refining this measure to be better used with NCAA coaches of both team and individual sports, as well as refining and creating better delineation between subscales could assist future researchers who use this measure.

This quantitative study is the first to provide information of its kind regarding coaching efficacy and the coach-athlete relationship. Because these two dimensions of coaching were shown to be so highly interrelated, this study suggests several future research directions to further investigate this question. Most importantly, while this study reveals a significant correlation of coaches' perceptions of their relationship with their athletes with coaching efficacy, it is very possible that athletes' perceptions could reveal

different results. A study involving either strictly athletes or pairing athletes with coaches in order to assess differing assessments of relationship scores will be necessary to more fully understand the dynamic between coaches, athletes, coach-athlete relationships, and efficacy. Further research regarding coaching efficacy, including both coaches' and athletes' perceptions of the coach-athlete relationship, as well as influences on athlete efficacy, will be necessary to more fully understand the relationships. From a theoretical perspective, increased knowledge of the athlete perspective of the coach-athlete relationship will allow researchers to best represent the true nature of coaching efficacy and coaching effectiveness within theoretical models (Feltz et al., 1999, Horn, 2002). Gaining an athlete perspective of relationships may give different results than the coach perspective. The coach was asked to reference one athlete in particular, and some coaches in this study work with as many as 150 athletes per season. The coaches may choose to reference an athlete with whom they work well. Gaining an athlete perspective will give a better overall view of the athletes that were not referenced by coaches.

An additional direction for future research would be to more fully investigate the differences in efficacy levels and coach-athlete relationships. Previous research (Lorimer & Jowett, 2008), has suggested differences in relationships by type of sport. Continuing research into the specific differences between coaches of individual sports and coaches of team sports may help to develop coaching education programs that are specific to type of sport. This difference has only begun to be examined, and again, gaining an athlete perspective into the difference in coaching behavior within both team and individual sports could help coaches of both types to maximize their effectiveness.

The gender differences within this study, and lack of gender differences, were particularly telling. Again, an athlete perspective may reveal differences that were not apparent within coaches. Much of the coach-athlete relationship research to date has been conducted employing a qualitative approach, and significant gender differences have not been found. It is possible, as suggested by this study, that there are no gender differences by gender of coach, or by gender of coach and gender of athlete. However, further research, assessing athlete perspective of this question, may help our understanding of the dynamics between coaches and athletes.

While the correlations found within this survey are moderately strong, no causality that is shown. The use of structural equation modeling of the present research question would better show causality and directionality of these findings.

Conclusion

This research focused on the relationship between coaching efficacy and the coach-athlete relationship. The coaches represented within this sample represent interactions with approximately 16,580 athletes in the NCAA. The relationships that are represented by this data represent an extraordinary number of young people who are being influenced by these 636 coaches. This study shows that the coach-athlete relationship and coaching efficacy are highly related. This study found a significant relationship between the subscales of coaching efficacy and the coach athlete relationship. The importance of the coach-athlete relationship and its impact on not only athletes, but also on coaches, is only beginning to be understood. Further research should investigate this question from an athlete's perspective to more fully understand the dynamic relationship between efficacy and the coach-athlete relationship.

APPENDIX A
EMAILS TO HEAD COACHES

Email to Head Coaches

Dear Coach,

As an NCAA head coach, you have dedicated your life to helping student-athletes be successful. Working daily with student-athletes has given you experience and knowledge that is distinct and meaningful. As a head coach you have unique insight into coaching confidence and the coach-athlete relationship.

I am a graduate student and assistant coach at the University of New Hampshire. I am conducting a survey to examine the coach-athlete relationship and its impact on confidence in the coaching role. The survey results will allow us to better understand this unique relationship as well as the sources from which coaches draw their confidence.

The on-line questionnaire will take approximately 10-15 minutes of your time and includes a brief background questionnaire and surveys regarding coaching confidence and the coach-athlete relationship. The site of the questionnaire will be open until March 10th, however we encourage you to complete it as soon as possible.

To begin the survey, click on the following link:

http://survey.unh.edu/surveycat/surveys/survey802_CoachEffic.htm

At the top of the screen you will see a description of the study and an explanation of your rights as a participant in the study. Scroll down to begin the questionnaire. Once you have completed the questionnaire, please click submit.

Thank you in advance for participating in this survey.

Warmest Regards,

Anna Magle
Department of Kinesiology
University of New Hampshire

Follow up Email to Head Coaches

Dear Coach,

You received an email last week inviting you to participate in a survey regarding coaching confidence and the coach-athlete relationship. If you have already taken this survey, Thank You! If not, this email is a reminder that you are invited to participate. As a head coach you have unique insight and knowledge that can assist our understanding of the relationship between coaches and athletes.

The on-line questionnaire will take approximately 10 minutes of your time and includes a background questions and surveys regarding coaching confidence and the coach-athlete relationship. The site of the questionnaire will be open until March 10th however we encourage you to complete it as soon as possible.

To begin the survey, click on the following link:

http://survey.unh.edu/surveycat/surveys/survey802_CoachEffic.htm

At the top of the screen you will see a description of the study and an explanation of your rights as a participant in the study. Scroll down to begin the questionnaire. Once you have completed the questionnaire, please click "submit".

Thank you in advance for participating in this survey.

Warmest Regards,

Anna Magle
Department of Kinesiology
University of New Hampshire

Final Follow Up

Dear Coach,

You received an email last week inviting you to participate in a survey regarding coaching confidence and the coach-athlete relationship. If you have already taken this survey, Thank You! If not, this email is the last reminder that you are invited to participate. As a head coach you have unique insight and knowledge that can assist our understanding of the relationship between coaches and athletes.

The on-line questionnaire will take approximately 10 minutes of your time and includes a background questions and surveys regarding coaching confidence and the coach-athlete relationship. The window in which to take this survey will close in 48 hours.

To begin the survey, click on the following link:

http://survey.unh.edu/surveycat/surveys/survey802_CoachEffic.htm

At the top of the screen you will see a description of the study and an explanation of your rights as a participant in the study. Scroll down to begin the questionnaire. Once you have completed the questionnaire, please click “submit”.

Thank you in advance for participating in this survey.

Warmest Regards,

Anna Magle
Department of Kinesiology
University of New Hampshire

APPENDIX B
PARTICIPANT INFORMED CONSENT

Thank you for agreeing to take this survey. This study is intended to determine the relationship between your confidence as a coach and the relationship you have with your athletes.

This survey will take approximately 10-15 minutes. Participation in this survey is voluntary and all responses will be kept strictly confidential to the extent possible when transmitting information via the internet. You may refuse to answer any question or stop participating at any time. All responses will be aggregated and kept anonymous. Participation is expected to present no or minimal risk.

You understand that your consent to participate in this research is entirely voluntary and that your refusal to participate will involve no prejudice, penalty, or loss of benefits to which you would otherwise be entitled. If you consent to participating in this study, you are free to stop your participation in this study at any time.

If you have questions pertaining this study you can contact Anna Magle, Graduate Student, Department of Kinesiology, University of New Hampshire at (603)862-2045, or graduate student advisor Dr. Heather Barber in the Department of Kinesiology, (603) 862-2058.

If you have questions regarding your rights as a research subject you can contact Julie Simpson in the UNH Office of Sponsored Research, (603)-862-2003 or Julie.Simpson@Unh.edu to discuss them.

Your participation is very much appreciated. When you have finished this survey please click "submit" below.

APPENDIX C
DEMOGRAPHIC QUESTIONS

1) Age:

-
- 2) Gender:
- Male
 - Female
- 3) Gender of athletes coached:
- Male
 - Female
 - Both
- 4) Primary sport coached?
- Soccer
 - Basketball
 - Lacrosse
 - Ice Hockey
 - Volleyball
 - Swimming/Diving
 - Tennis
 - Track and Field/Cross Country
- 5) Number of years as a head coach in a college/university setting:
-
- 6) Total number of years coaching in a college/university setting:
-
- 7) Number of years in current position:
-
- 8) Conference standing in most recent year (place by total number of teams, eg. third place in a conference of twelve schools would be "3/12")
-
- 9) Average conference standing:
- Top Third
 - Middle Third
 - Bottom Third
- 10) Total number of athletes on team:
-
- 11) Total number of assistant coaches:
-
- 12) Total percentage of athletes on team on an athletic scholarship:

- 100%
- 80%
- 60%
- 50%
- 25%
- 10%
- 0%

APPENDIX D
COACHING EFFICACY SCALE (CES)

Coaching confidence refers to the extent to which coaches believe 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.

	0 (not at all confident)	1	2	3	4	5	6	7	8	9 (extremely confident)
13) How confident are you in your ability to maintain confidence in your athletes?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
14) How confident are you in your ability to recognize opposing team's strengths during competition?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
15) How confident are you in your ability to mentally prepare athletes for game/meet strategies?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
16) How confident are you in your ability to understand competitive strategies?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
17) How confident are you in your ability to instill an attitude of good moral behavior?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
18) How confident are you in your ability to build the self-esteem of your athletes?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
19) How confident are you in your ability to demonstrate the skills of your sport?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
20) How confident are you in your ability to adapt to different	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

game/meet situations?

21) How confident are you in your ability to recognize opposing team's weakness during competition?

22) How confident are you in your ability to motivate your athletes?

23) How confident are you in your ability to make critical decisions during competition?

24) How confident are you in your ability to build team cohesion?

25) How confident are you in your ability to instill an attitude of fair play among your athletes?

26) How confident are you in your ability to coach individual athletes on technique?

27) How confident are you in your ability to build the self-confidence of your athletes?

28) How confident are you in your ability to develop athletes' ability?

29) How confident are you in your ability to maximize your team's strengths during competition?

30) How confident are you in your ability to recognize talent in athletes?

31) How confident are you in your ability to promote good sportspersonship?

32) How confident are

APPENDIX E
COACH ATHLETE RELATIONSHIP QUESTIONNAIRE (CART-Q)
DIRECT AND META VERSIONS

Direct Version

These questions aim to measure the quality and content of the coach-athlete relationship. Please read carefully the statements below and select the answers that indicates whether you agree or disagree. There are no right or wrong answers. Please respond to the statements as honest as possible and relevant to how you personally feel with a specific athlete from your team or squad.

	(Strongly Disagree)	2	3	4	5	6	(Strongly Agree)
	1						7
37) I am close to my athlete.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
38) I am committed to my athlete.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
39) I like my athlete.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
40) When I coach my athlete, I am at ease.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
41) I trust my athlete.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
42) I feel that my coaching career is promising with my athlete.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
43) When I coach my athlete, I am responsive to his/her efforts.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
44) I respect my athlete.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
45) I appreciate my athlete's sacrifices in order to improve performance.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
46) When I coach my athlete, I am ready to do my best.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
47) When I coach my athlete, I adopt a friendly stance.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Meta Version

These questions aim to measure the quality and content of the coach-athlete relationship. Please read carefully the statements below and select the answers that indicates whether you agree or disagree. There are no right or wrong answers. Please respond to the statements as honest as possible and relevant to how you personally feel with a specific athlete from your team or squad.

	(Strongly Disagree) 1	2	3	4	5	6	(Strongly Agree) 7
48) My athlete is close to me.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
49) My athlete is committed to me.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
50) My athlete likes me.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
51) My athlete is at ease when I coach him/her.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
52) My athlete trusts me.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
53) My athlete feels that his/her sporting career is promising with me.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
54) My athlete is responsive to my efforts when I train him/her.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
55) My athlete respects me.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
56) My athlete appreciates the sacrifices I make in order to improve performance.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
57) My athlete is ready to do his/her best when I train him/her.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
58) My athlete adopts a friendly stance when I train him/her.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

APPENDIX F
ADDITIONAL RELATIONSHIP QUESTIONS

60) Considering the athlete you referenced for the previous questions, is this athlete in a position of leadership on the team (ie. captain)?

- Yes
- No

61) Considering the athlete you referenced for the previous questions, what year is this athlete in school?

- 1st Year
- Sophomore
- Junior
- Senior
- 5th Year

62) Considering the athlete you referenced for the previous questions, do you consider this athlete one of the most athletically talented on your team?

- Yes
- No

63) Considering the athlete you referenced for the previous questions, to what extent did you recruit this athlete?

- 1 (Walk on, did not recruit at all)
- 2
- 3 (Somewhat recruited)
- 4
- 5 (Heavily recruited)

APPENDIX G
IRB APPROVAL FORM

University of New Hampshire

Research Integrity Services, Office of Sponsored Research
Service Building, 51 College Road, Durham, NH 03824-3585
Fax: 603-862-3564

15-Feb-2010

Magle, Anna
Kinesiology, NH Hall
P.O. Box 202
W. Nottingham, NH 03291

IRB #: 4793

Study: The Influence of the Coach-Athlete Relationship on Coaching Efficacy

Approval Date: 12-Feb-2010

The Institutional Review Board for the Protection of Human Subjects in Research (IRB) has reviewed and approved the protocol for your study as Exempt as described in Title 45, Code of Federal Regulations (CFR), Part 46, Subsection 101(b). Approval is granted to conduct your study as described in your protocol.

Researchers who conduct studies involving human subjects have responsibilities as outlined in the attached document, *Responsibilities of Directors of Research Studies Involving Human Subjects*. (This document is also available at <http://www.unh.edu/osr/compliance/irb.html>.) Please read this document carefully before commencing your work involving human subjects.

Upon completion of your study, please complete the enclosed Exempt Study Final Report form and return it to this office along with a report of your findings.

If you have questions or concerns about your study or this approval, please feel free to contact me at 603-862-2003 or Julie.simpson@unh.edu. Please refer to the IRB # above in all correspondence related to this study. The IRB wishes you success with your research.

For the IRB,



Julie F. Simpson
Manager

cc: File
Barber, Heather

LIST OF REFERENCES

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