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Examining the Coach-Athlete Relationship as a Predictor of NCAA Student-athlete Satisfaction

Chairperson: Veronica Johnson

The purpose of this non-experimental study was to investigate NCAA student-athletes' perceptions of the quality of their current coach-athlete relationship as well as ratings of student-athlete satisfaction. An additional aim was to determine if student-athlete perceptions of the quality of the coach-athlete relationship had a predictive relationship with their ratings of athlete satisfaction. A total of 387 NCAA student-athletes of all levels completed measures of coach-athlete relationship quality and athlete satisfaction. Respondents indicated generally positive perceptions of their relationship with their coach and reported moderately high levels of satisfaction. There were statistically significant differences between groups based on sport type and NCAA division. The coach-athlete relationship was clearly linked with athlete satisfaction and regression analyses indicated that coach-athlete relationship quality significantly predicted ratings of athlete satisfaction. Implications for sport coaches, the NCAA, and coach education outlets were also discussed.

Table of Contents

List of Tables and Figures

Chapter One: Introduction

In the ever-changing climate of intercollegiate athletics, student-athletes continue to face unique obstacles (Gayles, 2009). As many young individuals approach the end of their high school careers they look toward college as the next logical step in their development as people. Many factors—including location, academics, reputation, and cost—influence students' decisions for choosing a specific university. Unlike most senior high school students, however, college bound student-athletes must consider an additional, and equally crucial, element when choosing which school to attend. That consideration is founded in one of the single most influential individuals in student-athletes' careers: their coach (Ayer, 2015).

Throughout the recruiting process, student-athletes interact regularly with would-be coaches and oftentimes a decision to attend a given school is based largely on the student-athletes' impressions of the coach (Gabert, Hale, & Montalvo, 1999). Put another way, the quality of the interpersonal relationship between the coach and prospective student-athlete carries great weight in the student-athletes' decision. With this in mind, it seems rational to conclude that the nature of the coach-athlete relationship would have a profound impact on the student-athlete throughout his/her career at the university. Unfortunately, little is known about many aspects of the coach-athlete relationship in NCAA student-athletes and the kinds of effects it has on student-athlete satisfaction and well-being. This study seeks to shed light on this gap in understanding.

Background of the Problem

Modern student-athletes are a distinct population on university campuses that encounters unique challenges compared to the general student body. Like their non-athlete peers, these

students are expected to perform well in the classroom but face the added pressure of maintaining athletic eligibility. This task can become difficult during busy times in the semester because NCAA sport participation can involve up to 20 hours of practice/competition per week. Balancing these academic and athletic demands is challenging for many student-athletes, particularly the freshmen class (Parham, 1993). Compounding these requirements are the difficulties of maintaining social relationships, coping with the effects of injury, and facing career termination decisions. Thankfully, most NCAA institutions offer academic, financial, and personal support services to help athletes overcome these realities and still enjoy their college experience. Despite these offerings, however, many student-athletes still struggle with a sense of overall purpose and their ratings of satisfaction and well-being often suffer (Gayles, 2009).

Athlete satisfaction is defined as "a positive affective state resulting from a complex evaluation of the structures, processes, and outcomes associated with the athletic experience" (Chelladurai & Riemer, 1997, p. 135). This positive affective state is largely considered an antecedent for important psychological outcomes as well as a prerequisite for peak performance. Because such a broad spectrum encompasses the student-athlete experience, several factors are believed to influence an individual's satisfaction in sport including: team culture, role clarity, and leadership (i.e., coaches). Not surprisingly, the coach is considered to have a profound impact on athlete satisfaction and appropriate leadership behaviors are linked with more positive satisfaction ratings (Riemer & Chelladurai, 1995).

As researchers continue to examine interpersonal issues in sport, the coach-athlete relationship stands as a central pillar in the quest for understanding how inter-individual dynamics affect not only sport participants, but athletic performance as well. Despite recent advancements in this domain since the year 2000, the coach-athlete relationship is ripe for

investigation (Poczwardowski, Barrot, & Jowett, 2006). More specifically, studying the perception of coach-athlete dyads among NCAA student-athletes is an area that is not well understood, especially in terms of how those interpersonal dynamics might affect the student-athlete's overall satisfaction with their college experience.

Problem Statement

Although the general body of knowledge regarding the coach-athlete relationship has grown in recent years, few researchers have examined the student athlete's perceptions of the coach-athlete relationship. Most research in this domain includes participants from international populations and does not take into account the unique aspects of collegiate athletics in the United States. This contextual factor represents a clear gap in the literature and, more importantly, if left unexamined, is a topic that could have negative implications for overall student-athlete satisfaction and well-being. Without a greater understanding of the coach-athlete relationship via academic inquiry, potential strategies for improving the quality of student-athlete experiences may be left undiscovered to the detriment of future NCAA sport participants.

Purpose of the Study

To provide clear direction for the present study, a statement was developed to help focus the investigation. The purpose of this study was to investigate NCAA student-athletes' perceptions of the quality of their current coach-athlete relationship as well as ratings of student-athlete satisfaction. An additional aim was to determine if student-athlete perceptions of the quality of the coach-athlete relationship have a predictive relationship with their ratings of athlete satisfaction.

Research Questions

1. What are NCAA student-athletes' perceptions of the quality of their current coach-athlete relationship? 1b. Are there differences between subgroups (gender, sport type, competitive division, year in school)?

2. What are NCAA student-athletes' perceptions of their overall satisfaction within the athletic domain? 2b. Are there differences between subgroups (gender, sport type, competitive division, year in school)?

3. Do ratings of the quality of the coach-athlete relationship predict student-athletes' ratings of satisfaction? 3b. If so, to what degree?

HYPOTHESIS

H1: Ratings of coach-athlete relationship quality will have a statistically significant positive predictive relationship with ratings of student-athlete satisfaction.

H_0: There is no statistically significant relationship between ratings of coach-athlete relationship quality and ratings of student-athlete satisfaction.

Definition of Terms

For the purpose of this study, the following terms were defined:

Student-Athlete. "An individual who engages in, is eligible to engage in or may be eligible in the future to engage in any intercollegiate sport" (O.R.S., c.525 §1, 2005).

Coach-Athlete Relationship. "A situation in which a coach's and an athlete's cognitions, feelings, and behaviors are mutually and causally interrelated" (Jowett & Poczwardowski, 2007,

p. 4). For the purposes of this study, the quality of the coach-athlete relationship will be assessed only from the student-athletes' perspective.

Athlete Satisfaction. "A positive affective state resulting from a complex evaluation of the structures, processes, and outcomes associated with the athletic experience" (Chelladurai & Riemer, 1997, p. 135)

Delimitations

To set boundaries on the study, certain parameters were chosen as delimitations. First, rather than examine the coach-athlete dyad, itself, as the unit of analysis, only athlete perceptions were obtained. Although many other entities may benefit from sport (i.e. fans, coaches, institutions), the foundational intent of athletic competition is to benefit the participants and the satisfaction of those competitors may be the strongest indicator of the success of an organization. Additionally, participants had to be members of a varsity sports team at an institution sanctioned by the National Collegiate Athletic Association (NCAA) in the United States. The results of this study are generalizable to the NCAA student-athlete population as a whole.

Although there are many variables that impact athlete satisfaction, the coach-athlete relationship was specifically targeted because of its central prominence in an athlete's sporting experience and the researcher's personal coaching background. Qualitative procedures have been identified as a meaningful way to analyze this topic but were not used in this study because they are not intended for generalization. Furthermore, the selected data collection instruments were chosen because of their generally accepted reliability and validity as well as widespread usage in the literature.

Limitations

Although the sample was a delimiting factor in this study it also represented a limitation as it only included NCAA student-athletes. Research is clearly needed in this area but more information could be collected from other groups (i.e. youth athletes, interscholastic athletes, and elite athletes) also to provide a well-rounded picture of the situation. Ideally, the study would have included a more heterogeneous population of athletes to compare between levels. Additionally, garnering the coaches' perspectives might have led to a more complete picture of this phenomenon.

Another limitation lies in the instruments that were used. Electronic survey research relies on participants to self-report and investigators have no way of assessing honesty or even knowing whether the intended subjects are the actual respondents. Participants that submitted the questionnaire may have had inherent differences from those athletes who did not complete the survey. Furthermore, it is difficult to know whether the results were due to the variable itself or the weight of the responses. Longitudinal designs would be beneficial to elucidate some of the weaknesses of a cross-sectional design.

A final methodological concern to address regarding survey research is the risk of self-report bias. Even though online questionnaires are a generally accepted and convenient approach to surveying large populations (Prince, Adamo, Hamel, Hardt, Gorber, & Tremblay, 2008), this type of method bias represents a potential limitation. Although some scholars claim that this research approach is not problematic in the slightest, many others believe these effects need to be minimized (Podsakoff, MacKenzie, & Podsakoff, 2012). In relation to the current study, a potential method bias could have arose when comparing two constructs that were both assessed using self-report measures. More specifically, NCAA student-athletes' perceptions of both the

quality of the coach-athlete relationship and their ratings of athlete satisfaction were collected via self-report measures. Because the method of assessment was the same for both measures (i.e. self-report), the relationship between variables may be inflated due to common method variance, which challenges the validity of subsequent conclusions. As such, it becomes important to consider ways to mitigate this type of method bias.

As Podsakoff and colleagues (2012) contend, method bias is more likely to be present in survey data when participants are unable to provide accurate responses because of insufficient motivation or an inability to complete the task. For example, if NCAA student-athletes in this study suspected that their coaches might gain access to their responses, they may have deferred to a more socially desirable rating (Krosnick, 1999) rather than provided a truthful perception of their current relationship with their coach. Fortunately, both procedural and statistical techniques exist to remedy the effects of this method bias and promote greater validity and reliability.

To ensure honest responses from participants, anonymity was guaranteed and self-expression encouraged (Podsakoff et al., 2012). Such an approach was especially applicable in the present study because a primary goal was to garner individual perceptions of student-athletes *without* the influence of their respective coaches. Additionally, if method bias remains a concern after such procedural steps are taken, researchers can then examine the self-report bias, itself, as a single-common-method-factor through statistical analysis as outlined by Podsakoff, MacKenzie, Lee, and Podsakoff (2003). However, it is also important to acknowledge that despite the potential influence of method bias, some self-report measures still provide more accurate estimates of population constructs than other, more direct assessments (Podskadoff & Organ, 1986).

Significance of the Study

The described study has several significant implications for the NCAA, and student-athlete experiences. To date, little empirical data exists on perceptions of the coach-athlete relationship from student-athletes at NCAA institutions. Most research in this domain includes participants from international populations and does not consider the unique aspects of collegiate athletics in the United States. This study will add to the general body of knowledge in this area but, more specifically, provide a description of this phenomenon in an understudied population. Additionally, the findings of this study could inform future coach education initiatives by providing further evidence of the importance of fostering a healthy interpersonal relationship with student-athletes. Coaches fulfill many roles in a student-athlete's experience and recognizing the implications that athlete satisfaction can have on subsequent sport performance could motivate coaches, and the NCAA, to promote training that cultivates relationship-building skills.

Summary

The coach-athlete relationship is an emerging topic in the literature but much remains unknown regarding this phenomenon, especially as it pertains to the experiences of NCAA student-athletes. Through this lens a purpose statement was derived to better direct this quantitative approach, and research questions were developed to focus the inquiry further. Any delimitations and limitations were discussed to identify the bounds that surround this study. Finally, the significance of this project was mentioned and centers on the notion that understanding the influence of coach-athlete interactions on student-athlete satisfaction is worthy of exploration and will add to the current body of literature.

Chapter Two: Review of Literature

The current scholarly body of knowledge provides the platform from which any future study must be built and the current investigation seeks to add to that knowledge base. Before contributions can be made, researchers must have a good understanding of what is already known and the following review represents the prevailing thoughts regarding this topic. This chapter is divided into the following sections: (a) experiences of student-athletes, (b) athlete satisfaction, (c) the coach-athlete relationship, and (d) a chapter summary.

Experiences of Student-Athletes

Student-athletes are widely recognized as a distinct subpopulation on college campuses with unique challenges and experiences (Gayles, 2009; Parham, 1993). The National Collegiate Athletic Association (NCAA) is responsible for the oversight of most intercollegiate sport participation in the United States, and oversees the academic and athletic development of over 460,000 student-athletes (NCAA, 2016). As such, the NCAA considers a student-athlete someone who is currently enrolled in college, participating in regular practice sessions, and whose enrollment was solicited by a member of the athletic staff or another representative with the ultimate aim of participating in intercollegiate athletics. Interestingly, the label of "student-athlete" has been challenged in recent years (McCormick & McCormick, 2006) as this group of college attendees may identify more with their athletic endeavors (i.e. "athlete-student") than their academic pursuits (Kissinger & Miller, 2009). However, in a study examining perceptions of 930 Division-1 student-athletes, 75% of participants claimed they still would have attended college had they not been athletes (Potuto & O'Hanlon, 2007). Not surprisingly, the majority of

NCAA student-athletes believe their college athletic experience has a positive impact on various aspects of their development (NCAA, 2016).

Parham (1993) identified six distinct challenges faced by student-athletes. These include: (a) balancing athletic and academic responsibilities, (b) balancing social activities with the isolation of athletic responsibilities, (c) balancing athletic successes and/or failures with emotional stability, (d) balancing physical health and injury with the need to continue competing, (e) balancing the demands of relationships with entities such as coaches, teammates, parents, and friends; and (f) addressing the termination of one's college athletics career. Although these obstacles are readily acknowledged, some student-athletes may lack the general resilience it takes to manage these unique demands (Kissinger & Miller, 2009). As such, investigative efforts have occurred to better understand the ideal environment that leads to positive student-athlete outcomes.

With the overall mission of promoting and enhancing student-athlete well-being, the NCAA has taken a leading role in understanding the antecedents for their success. In a study funded by the NCAA, many factors were identified as influencing academic success, athletic success, and athletic identity, including interactions with athletic personnel (e.g. coaches; Rankin, Merson, Sorgen, McHale, Loya, & Oseguera, 2011). These authors reported that 'climate matters' and positive perceptions of climate lead to improved outcomes for student-athletes. Further still, the need is recognized for administrators to continually assess program effectiveness to ensure that sport competitors are engaged in meaningful endeavors throughout their college experience (Weight, Navarro, Huffman, & Smith-Ryan, 2014). An individual who has an undeniable role in promoting these experiences with student-athletes is their coach (Paule-Koba, & Farr, 2013).

Additionally, the level of competition is another component to consider when examining positive intercollegiate sport participation outcomes. The NCAA sanctions three different divisions, each with its own distinctions. At the Division-1 level, more sports are offered at each institution and a greater spotlight (e.g. media, funding) is shone on athletic performance. For student-athletes at Division-2 institutions, athletic scholarships are still offered but external funding is lower and the general emphasis is more balanced between athletics and academics. In the Division-3 realm, no athletic scholarships are provided for students and individuals participate in sport primarily as a way to enrich their college experience (Watt & Moore, 2001). Indeed, this contention holds up when examining the results of a large-scale study showing that Division-3 student-athletes spend more time on academics and less time on athletics than their Division-1 and Division-2 counterparts (NCAA, 2016). Even still, most student-athletes appear to have greater time commitments than non-athletes but still manage to attain higher graduation rates (NCAA, 2016) and experience comparable levels of growth and satisfaction (Richards & Aries, 1999).

The outcomes of intercollegiate sport participation are linked with health and well-being (Cowley, 1990). Therefore, it becomes important to acknowledge potentially negative consequences of college athletic involvement. Intuitively, psychological and physical responses to stress are common in these individuals and can affect emotional stability (Watson & Kissinger, 2007). Perhaps the greatest stress inducer involves difficulties with time management (Carodine, Almond, & Gratto, 2000) due to the dual commitment of attending to athletic requirements and academic demands (Singh & Surujlal, 2006). Such a workload can not only lead to psychological difficulties but also physical exhaustion (Van Zyl, Surujlal, & Singh,

2009). To counter these stresses, some student-athletes experience social isolation and are more prone to alcohol abuse (Ford, 2007).

To help student-athletes work through these challenges, the NCAA offers several support systems including academic services, financial assistance, wellness support, and personal and professional development opportunities (NCAA, 2016). Faculty members and coaches are also encouraged to learn about the struggles of these individuals to better respond to their needs (Watt & Moore, 2001). Based on the results of a study with team sport athletes, participation in athletics can actually lead to the development of positive stress-coping mechanisms among student-athletes (Wolf-Wendel, Toma, & Morphew, 2001). Ultimately, though, participation in collegiate athletics results in a number of both positive and negative consequences for student-athletes. The ability to balance these factors may directly lead to the individual's overall sense of satisfaction.

Athlete Satisfaction

While performance outcomes represent the societal 'measuring stick' of success in sport, an athlete's satisfaction should also be considered. In fact, it has been suggested that the ultimate effectiveness of an athletic organization should be based not on performance, but on the satisfaction of the athletes (Riemer & Chelladurai, 1998). Because competition results can be influenced by uncontrollable factors (e.g. officiating, opponents, luck), performance measures may not be as meaningful as more subjective perspectives. Indeed, Martens (2012) recommended that coaches, in particular, adopt an 'Athletes First, Winning Second' philosophy. Such an attitude suggests that the satisfaction of the athlete's experience is more important than the sporting outcome, despite the societal emphases on winning.

Chelladurai and Riemer (1997) defined athlete satisfaction as "a positive affective state resulting from a complex evaluation of the structures, processes, and outcomes associated with the athletic experience (p. 135)." These authors further contend that athlete satisfaction should be a primary goal of college athletic departments and should be assessed on multiple dimensions. More specifically, athlete satisfaction can be categorized into facets of processes (i.e. day-to-day experiences) and outcomes (i.e. performance measures). Furthermore, the processes (e.g. leadership style of coach) can directly affect ratings of satisfaction but also conjunctively lead to outcomes (e.g. winning), which naturally influence perceptions of contentment.

Chelladurai and Riemer (1997) contend that processes and outcomes can function at the team or individual level and can be task- or socially-oriented. For example, the team record (i.e. wins/losses), a task-oriented *team* outcome, can affect an athlete's satisfaction but so can the achievement of individual goals, a task-oriented *individual* outcome. Another example is the perception of equitable treatment from the coach, a task-oriented team process, and the relational support from the coach, a socially-oriented individual process. Each of these subjective measures affects an individual athlete's satisfaction ratings on many levels. As such, these facets can serve as measures for research examining this construct. (For a more exhaustive classification of these facets of athlete satisfaction, the reader is encouraged to review the work of Chelladurai and Riemer, 1997).

To further develop the measurement of athlete satisfaction, Riemer and Chelladurai (1998) extended their earlier research to create a psychometrically sound instrument for use with intercollegiate athletes. This three-stage process began with the creation of an initial questionnaire based on the qualitative responses of athletes. After refining the questions using confirmatory factor analysis, a larger sample was used to revise the scale down to 15 subscales

with a total of 56 items. The final stage included further confirmatory analysis and the establishment of appropriate validity and reliability. The end result is a comprehensive tool for measuring the different dimensions of athlete satisfaction that can serve as the ultimate indication of an organization's effectiveness (Riemer & Chelladurai, 1998).

Despite the apparent utility of the aforementioned instrument, research on athlete satisfaction remains somewhat limited (Burns, Jasinski, Dunn, & Fletcher, 2012). However, many studies have added to the general understanding of this phenomenon, particularly with regards to the antecedents that lead to satisfaction. In a study examining the effects of role ambiguity on satisfaction, Eys, Carron, Bray, and Beauchamp (2003) found lower perceptions of role ambiguity were related to higher ratings of athlete satisfaction. In another investigation, athletes indicated a high need for role clarity which was positively related to satisfaction scores (Bray, Beauchamp, Eys, & Carron, 2005). These findings highlight the need for coaches to clearly communicate athlete responsibilities as a way to boost satisfaction of team members. Indeed, effective intra-team communication is strongly related to athlete satisfaction (Sullivan & Gee, 2007).

Another aspect thought to influence athlete satisfaction is the respective climate in which sport participants are involved. Balaguer, Duda, and Crespo (1999) found that perceptions of a 'task-involving' goal environment were significantly linked with multiple levels of satisfaction. On the flip side, an 'ego-involving' goal environment was related to greater *dis*satisfaction with the coach, in particular. The distinction between task and ego involvement are rooted in goal perspective theory (Duda, Chi, Newton, & Walling, 1995). A task-involving objective is aimed at a specific technique/process (e.g. proper tennis serve) while an ego-involving goal targets an outcome (e.g. best serve on team). The work of Jowett, Shanmugam, and Caccoulis (2012)

corroborate these findings in their work with Greek-Cypriot athletes, which indicates that task cohesion is a stronger predictor of athlete satisfaction than social cohesion. Furthermore, collective efficacy (i.e. a group process) may mediate team cohesion and athlete satisfaction.

Another environmental component that may affect athlete satisfaction is the type of sport or level of competition. In a study evaluating NCAA student-athlete satisfaction with athletic trainers, Unruh, Unruh, Moorman, and Seshadri (2005) found that women in high-profile sports had the highest satisfaction scores while men in low-profile sports had the lowest ratings. Medical support as well as community, financial, and academic support are all thought to affect perceptions of satisfaction among athletes (Singh & Surujlal, 2006). Perhaps the most influential person in cultivating these positive sporting climates is an athlete's coach.

Chelladurai (1984) studied satisfaction in a large sample of Canadian intercollegiate athletes and found that coaching behaviors characterized by a task-oriented approach resulted in higher ratings of athlete satisfaction. Furthermore, congruence between athletes' perceptions of leadership behavior and their preferences for such treatment was revealed to be an important component in understanding individual contentment. Substantiating these results are findings of Weiss & Friedrichs (1986) indicating that leader behavior dimensions are predictive of a team's win/loss record and satisfaction. Interestingly, coaches who had a winning history, were hired at a younger age, and had less playing experience were associated with more satisfied athletes. This finding suggests that effective coaching requires more than just past experience as a sport competitor. Although the measure of satisfaction in these studies was not consistent, these results clearly implicate the impact coaches can have on their athletes' satisfaction. Such leadership influences will be subsequently discussed.

As is the case for much research in sport literature, leadership (i.e., coaching) remains a primary topic for investigation. In a seminal review paper, Chelladurai (1990) compared coach-athlete interaction structures between two youth swimming teams. The Multidimensional Model of Leadership (MML) was proposed as a platform for understanding leader behavior on five dimensions: (1) training and instruction, (2) democratic behavior, (3) autocratic behavior, (4) social support, and (5) positive feedback. Not surprisingly, the areas of training/instruction, social support, and positive feedback were related to higher levels of athlete satisfaction. Extending this model to Division-1 NCAA student-athletes, Riemer and Chelladurai (1995) realized that there may be a need for different leadership dynamics within the same team. This result suggests that the individual relational components between a coach-athlete dyad are unique and may have an effect on satisfaction. Additionally, the primary limitation in studying satisfaction at that time is that no psychometrically sound instrument yet existed, which illustrates the need for future investigation into these constructs with more valid measures.

In recent years, leadership has been further linked with satisfaction as well as team cohesion and organizational citizenship behavior in NCAA student-athletes (Aoyagi, Cox, & McGuire, 2008). Indeed, the Athlete Satisfaction Questionnaire (Riemer & Chelladurai, 1998) continues to demonstrate relevance as a measure of the experiences of sport participants. Eys, Loughead, and Hardy (2007) recognized that athletes can also be leaders, and team members' perceptions of peer leader dispersion can account for 10% of the variance on ratings of satisfaction. Such a finding points to the possibility of group-level effects (e.g. group norms) which appear to be a potential confounding variable on satisfaction with leadership (Karreman, Dorsch, & Riemer, 2009). However, these authors noted a lower group-level effect in the area of social support from the coach, which indicates the individual nature of this construct. Again, the

relational component between coach and athlete appears to be a unique contributor to athlete satisfaction. Ultimately, though, because satisfaction is associated with sport attrition (Cox, 2007; Schmidt & Stein, 1991) and also considered a prerequisite to peak performance (Karreman, Dorsch & Riemer, 2009), the need is clear for a better understanding of its antecedents in general but also as they specifically relate to the coach-athlete relationship.

The Coach-Athlete Relationship

As researchers continue to examine interpersonal issues in sport, the coach-athlete relationship stands as a central pillar in the quest for understanding how inter-individual dynamics affect not only participant experiences, but athletic performance. Indeed, interactions between coaches and athletes are widely recognized as an important antecedent to both positive and negative sport outcomes (Choi, Cho, & Huh, 2013; Jowett, 2003; Lafreniere, Jowett, Vallerand, & Carbonneau, 2011; Poczwardowski, Barrot, & Jowett, 2006). Moreover, the importance of the coach-athlete relationship is acknowledged at the level of youth sports (Barnett, Smoll, & Smith, 1992) all the way up to elite international competition (Jowett & Cockerill, 2003). Because of its centrality in the athletic domain, this interpersonal dyad has garnered increased attention in recent years as scholars have called for more extensive analysis of the topic (Wylleman, 2000; Poczwardowski et al., 2006).

Nature of the Coach-Athlete Relationship. For many athletes, the quality of the coach-athlete relationship characterizes their entire athletic experience (Poczwardowski, Barott, & Henschen, 2002). Not only does this interpersonal dimension affect performance outcomes, but it also influences several psychological processes (Jowett & Poczwardowski, 2007). Interestingly, this interplay between process and outcomes is not mutually exclusive. The

relationship, itself, influences and is influenced by both the process and the outcomes. For example, a coach-athlete relationship may be viewed more positively if it is highly successful (i.e. winning is a common result) rather than unsuccessful. Alternatively, a partnership that may not experience much success in terms of achievement may still be viewed favorably if it is effective (i.e. focus is on positive growth and personal effort). Further still, the dyad that functions well interpersonally may be more likely to achieve greater performance outcomes which would subsequently lead to even more favorable inter-individual dynamics, creating a positive cycle (which, of course, could also function in the opposite direction). Jowett (2005) initially described these ideas of 'effective vs ineffective' and 'successful vs unsuccessful' relationships; they can result in a number of combinations that capture the fundamental nature of the coach-athlete relationship. Generally, these partnerships are usually formed with the basic goals of performance enhancement as well as personal growth and development and, although the individual characteristics will inevitably vary from dyad to dyad, the foundation is almost always built around these constructs.

To better operationalize the coach-athlete relationship, Jowett and Poczwardowski (2007) broadly defined it "as a situation in which a coach's and an athlete's cognitions, feelings, and behaviors are mutually and causally interrelated" (p. 4). Scholars have documented the prevalence of each of these factors individually (Jowett, 2007) as well as in combination (Isoard-Gauther, Trouilloud, Gustafsson, & Guillet-Descas, 2016) in relation to both processes and outcomes of the partnership. Situational conditions are also believed to affect the relationship (Rhind, Jowett, & Yang, 2012) in ways that can alter effective and affective reactions of dyad members. For example, the coach-athlete relationship is largely characterized as 'emotional in tone' (Jowett & Cockerill, 2003; Salminen & Liukkonen, 1996) but the magnitude of those

feelings may be different if the dyad is involved in a team sport rather than an individual one. More specifically, individual sport athletes (e.g. track & field, tennis) report feeling closer to their coaches than do athletes from team sports (Rhind et al., 2012). The importance of other contextual factors (e.g. gender, competition level, etc.) that may affect the nature of the coach-athlete partnership are also recognized (Vergeer, 2000).

As Rogers (1957) contends in psychotherapy literature, the relationship (in this case the coach-athlete), serves as the platform for all meaningful change that a client will experience. Moreover, the therapeutic relationship is believed to account for 30% of the variance in client outcomes (Lambert & Barley, 2001). This affiliation must be built on trust, care, and mutual positive regard (Poczwardowski et al., 2002) rather than one that primarily benefits the coach or organization. Furthermore, effective communication is the medium for meeting athletes' needs in these dyads (LaVoi, 2007). This athlete-centered approach represents a shift away from the traditional view of coaching, which pegs the coach as the central figure in the partnership (Moen & Federici, 2014). Such a transition could prevent abuse in the relationship and promote a more holistic approach to athlete development (Stirling & Kerr, 2009). Ultimately, an athlete-centered paradigm exemplifies the foundational component of this relationship that could lead to improved athlete well-being and performance (Jowett & Cockerill, 2003).

Models of the Coach-Athlete Relationship. Although several models exist, no individual conceptualization has been identified that perfectly captures the essence of the coach-athlete relationship (Ayers, 2015). Some researchers have examined the phenomenon within the parameters of professor-student relationship literature and found this sport dyad to resemble a 'utility friendship' (Drewe, 2002). Others have likened the athletic partnership to that of a parent-child affiliation (Stirling & Kerr, 2009). Because of the natural complexity of social

science research, this relationship can be viewed through a number of different lenses (Poczwardowski et al., 2006). When considered conjunctively, these varying perspectives could lead to a more sophisticated understanding of the coach-athlete relationship.

One of the first efforts at creating a conceptual framework of the coach-athlete relationship was undertaken by Poczwardowski and colleagues (2002). Using a phenomenological qualitative methodology, these researchers identified three major constructs of the relationship including activity, interaction, and care. Activity is a general category that includes such actions as exercising and practicing skills. Interactions are more specific and usually include some component of formal communication between the coach and athlete. Care refers to the meaning by which interactions and activities are initiated. Each of these factors is individually important, but interaction is considered to be the fundamental antecedent to all other phenomena in the partnership. This conclusion is intuitive as it makes sense that coaches and athletes must first interact with each other before any subsequent consequences can be realized. The interaction itself is determined by the nature of the task (i.e. interactions are task-driven; Poczwardowski et al., 2002). For example, a coach may interact differently with an athlete when giving technical instruction compared to emotional support.

Related to this idea of task-driven interactions is another proposed framework for understanding the coach-athlete relationship: a tripartite efficacy perspective (Jackson, Knapp, & Beauchamp, 2009). Both dyad members tend to interact more positively when self-efficacy is high which could directly affect subsequent task outcomes. These authors point out that athlete self-efficacy is linked with improved performance and motivation while coach self-efficacy may play a role in relationship termination. In another study on relational efficacy beliefs, these authors found that 'other-efficacy' (i.e. belief in the other dyad member) was also strongly

related to intra-individual outcomes for athletes (Jackson, Grover, & Beauchamp, 2010). Such findings support the use of efficacy as a conceptual parameter for studying this phenomenon.

With the intention of linking the coach-athlete relationship to a well-developed model of motivation, Mageau and Vallerand (2003) described this partnership in terms of self-determination theory (Deci & Ryan, 1985). According to these authors, coaches can directly influence athlete motivation by impacting their athletes' perceptions of three basic needs: autonomy, competence, and relatedness. Autonomy is the need to feel in control of one's own behaviors and goals. Competence refers to a sense of individual mastery and an aptitude for learning new skills. Relatedness pertains to a sense of belonging and the ability to maintain close relationships with others. Although coaches can impact these constructs in many ways, autonomy-supportive behaviors are believed to positively affect all three simultaneously. For instance, coaches who provide structure and genuinely care about athlete input tend to improve athletes' perceptions of competence (i.e. confidence) and relatedness (i.e. involvement). This idea of autonomy-supporting relationships is connected to the aforementioned tenets of athlete-centered coaching. In an effort to link these ideas, two researchers created the Athlete-Centered Scale (ACS; Moen & Federici, 2014) which is built around Rogers' (1957) framework of three dimensions: congruence, empathy, and positive regard. After examining responses from 382 Norwegian high school athletes, it was determined that the components of self-determination are indeed linked with athlete-centered coaching values (Moen & Federici, 2014) further substantiating the use of an athlete-focused paradigm for understanding this sport dyad.

The most widely accepted framework for describing coach-athlete relationships is derived from interdependence theory. Jowett and Meek (2000) developed a conceptualization that has evolved into the "3+1Cs" model, and includes dimensions of closeness, commitment,

complementarity, and co-orientation (Jowett, 2005; Jowett, 2007). Closeness is characterized by emotions or the affective elements (e.g. liking and trust) in the relationship. Commitment pertains to the coach's and athlete's intentions to maintain the partnership. As for complementarity, the cooperative and responsive behaviors of dyad members exemplify this element. Lastly, co-orientation is determined by collectively considering the direct perspectives (i.e. what one dyad member thinks, feels, acts toward the other) and the meta-perspectives (i.e. what a coach/athlete believes the other dyad member thinks, feels, acts) of dyad members.

Jowett and Cockerill's (2002) co-orientation measure has led to a better understanding of the level of interdependence in coach-athlete dyads; this is because it allows one to determine discrepancies in assumed similarity, actual similarity, and empathic understanding between dyad members. For example, an athlete's direct perspective of closeness may be: "I like my coach." If this direct perspective matches the athlete's meta-perspective (e.g. "My coach likes me") then there is a high level of assumed similarity. In the case of actual similarity, a coach's direct perspective is compared to an athlete's direct perspective on any of the "3Cs" dimensions (e.g. Coach: "I like my athlete." Athlete: "I like my coach"). Lastly, empathic accuracy can be assessed by comparing a coach's direct perspective with an athlete's meta-perspective, and vice versa (e.g. Coach: "I respect my athlete." Athlete: "My coach respects me."). Within this paradigm, scholars have advanced the collective understanding of the coach-athlete relationship and demonstrated the significance of co-orientation as a construct for investigating this topic (Jowett & Clark-Carter, 2006; Lorimer & Jowett, 2009a; Lorimer & Jowett, 2009b).

Experts in the field have developed both direct (Jowett & Ntoumanis, 2004) and meta-perspective (Jowett, 2005) versions of an instrument to assess the quality of the coach-athlete relationship. Indeed, the use of the "3+1Cs" framework for examining this interpersonal

relationship is widespread and includes links to previously mentioned models including self-determination theory (Choi, Cho, & Huh, 2013) and relational efficacy (Jackson, Grover, & Beauchamp, 2010). In fact, the survey itself, the Coach-Athlete Relationship Questionnaire (CART-Q; Jowett & Ntoumanis, 2004) has been shown to have cross-cultural validity in a study that examined its psychometric properties in seven countries (Yang & Jowett, 2012). Such a finding illustrates the universality of the coach-athlete relationship and its significance in sporting contexts.

Extending the benefit of this instrument, the designers created a longer version of the questionnaire to provide a more detailed assessment of the coach-athlete partnership (Rhind & Jowett, 2010). Although the original survey may not capture as much detail of the phenomenon, one of the primary strengths of the pioneering questionnaire is its brief length as it only consists of 11 items. This structural quality makes the instrument easy to administer and even include with other assessment measures. The CART-Q (Jowett & Ntoumanis, 2004) has been utilized to examine links between the "3+1Cs" and team cohesion (Jowett & Chaundy, 2004), passion in sport (Lafreniere, Jowett, Vallerand, Donahue, & Lorimer, 2008), achievement goals (Adie & Jowett, 2010), and athlete burnout (Isoard-Gautheur et al., 2016). This widespread utility demonstrates the fundamental acceptance of the "3+1Cs" model and corresponding instruments as the leading paradigm for understanding the coach-athlete relationship.

Although the "3+1Cs" model is a useful framework for conceptualizing the basic descriptive components (i.e. quality) of the coach-athlete relationship, it does not capture the actual mechanics of *how* coaches and athletes maintain quality in the dyad. With this in mind, Rhind and Jowett (2010) conducted a qualitative study to identify various maintenance strategies that dyad members use to achieve harmony in the partnership. After analyzing the interviews,

seven primary themes were organized into what the authors deem the "COMPASS model." The identified categories include: Conflict Management (proactive/reactive strategies), Openness (non-sport communication), Motivation (effort, fun), Positivity (adaptability, fairness), Advice (sport communication, constructive feedback), Support (assurance, sport-specific support, personal support), and Social networks (socializing, shared network). While data in this study was retrospective and not generalizable, these researchers used this model to develop a quantitative measure to aid in the understanding of maintenance strategies within the coach-athlete dyad (Rhind & Jowett, 2012). During initial validation of the instrument, two themes from the COMPASS model (positivity and advice) were not supported and subsequently replaced with preventative strategies and assurance. Even though this survey needs further validation, the Coach-Athlete Relationship Maintenance Questionnaire (CARM-Q) represents a promising tool for advancing knowledge on this topic.

Barriers in the Coach-Athlete Relationship. The literature clearly identifies the coach-athlete relationship as a central component in the sporting arena. It is necessary to not only understand what constitutes a high-quality coach-athlete relationship, but also the potential mediating variables that could influence such perceptions. In an early study examining this sport dyad, Carron and Bennett (1977) identified noticeable differences between compatible partnerships compared to incompatible partnerships. Such distinctions pertain largely to the degree of inclusion behaviors (i.e. association) between dyad members but clearly illustrate the need to more fully comprehend the specific variables that affect the quality of this relationship. In a follow-up investigation, Horne and Carron (1985) realized that the perceived amount of reward behavior (e.g. positive feedback) from the coach, accounted for most of the variance between compatible and incompatible dyads. Jowett and Cockerill (2002) contend, however,

that the only dimension that differentiates between a compatible and incompatible partnership is the need to be close to and part of the other. Because of this apparent disparity, it becomes important to consider even more perspectives.

With the goal of encouraging more research in this area, Poczwardowski and colleagues (2006) provided several suggestions for investigating the many components of the coach-athlete relationship. Embedded within their recommendations is a potential platform for further delineating some of the relevant obstacles in this sporting dyad. Every individual in a given relationship has a unique background that will necessarily influence his/her perceptions and behaviors. Such individual or personal factors constitute an important consideration when examining the coach-athlete dyad (Poczwardowski et al., 2006). Both the social and situational aspects surrounding the relationship become equally important in understanding the barriers to a quality coach-athlete affiliation. With this framework in mind, the next section will include an examination of studies aimed at distinguishing the effects of these personal, social, and situational factors on the relationship.

One of the more obvious individual differences to consider in this discussion is gender. Male and female athletes do, in fact, differ in their expectations of leader behavior of coaches. Males tend to prefer more autocratic and social supportive leader behavior while females expect to be more involved in the decision-making process (Chelladurai & Saleh, 1978). Such distinctions are important because a coach's ability to match his/her style with these different needs may affect the athletes' satisfaction. In a study investigating moderators of the coach-athlete relationship, Jowett and Nezlek (2011) found gender makeup of the dyad to be a significant moderator to interdependence in terms of the previously mentioned model developed by Jowett and Meek (2000). More specifically, the weakest level of interdependence was found

in female-coach male-athlete dyads. Although several cultural constructs surrounding coaching gender may be confounding variables, this finding clearly illustrates the effect this individual characteristic can have on the partnership. Salminen and Liukkonen (1996) also noted gender differences in leadership behaviors, stating that female coaches' self-perceptions of their actions aligned more closely with athletes' ratings of such behavior than their male counterparts.

Personality is another factor thought to influence relational perceptions in the coach-athlete relationship. Jackson, Dimmock, Gucciardi, and Grover (2011) demonstrated the interactional effects that the 'Big Five' personality traits (Neuroticism, Agreeableness, Conscientiousness, Openness, Extraversion) can have on dyadic compatibility. Highly neurotic individuals are more susceptible to anxiety, depression, and irritability. Agreeable people are trusting, cooperative, and collegial. Conscientiousness relates to a person's reliability, diligence, and organization. Openness to experience pertains to one's tendency to be inquisitive and receptive to other's ideas. Extraversion relates to being outgoing and sociable. With regards to the aforementioned study, conflicting personality styles were found to have a destabilizing effect on the relationship while similar levels of extraversion between dyad members was thought to lead to optimal relational outcomes. Further evidence of this general idea is offered by Jowett, Yang, and Lorimer (2012) in a study that found agreeableness to be the main personality factor related to quality of the coach-athlete partnership.

Individual efficacy variables are naturally another consideration for coach-athlete functionality (Jackson, Knapp, & Beauchamp, 2009). It makes sense that a person's self-perceptions would affect his/her ability to develop and maintain relationships. In support of this contention, Kenow and Williams (1999) found a positive relationship between the self-confidence of athletes and dyadic compatibility. Although these results do not illustrate cause

and effect, the link between variables is substantiated in the work of Jackson, Grover, and Beauchamp (2010), who found high self-efficacy to predict greater interdependence between dyad members in terms of complementarity (i.e. cooperative behaviors).

Social self-efficacy has been linked with interpersonal attachment style (Corcoran & Mallinckrodt, 2000). Ainsworth and Bowlby (1991) developed attachment theory which posits that individuals fall into two broad categories of attachment in relationships: secure and insecure. Generally, secure individuals are comfortable with close relationships while insecure people can be anxious about abandonment or even avoid intimate connection altogether. In their work investigating attachment theory with regards to the coach-athlete relationship, Davis and Jowett (2014) found secure attachment styles to predict components of relational compatibility. Secure athletes were more likely to value the importance of the coach-athlete dyad and experience less interpersonal conflict. Such a conclusion lends credence to the idea of using attachment theory as a way to understand potential barriers in this athletic partnership.

An inherent power differential in this relationship is another social factor that could affect coach-athlete compatibility. Coaches possess legitimate authority over athletes which can act as a 'double-edged sword' (Stirling & Kerr, 2009). The power structure can have a significant impact on the quality of the partnership when outside pressures to perform, on both coaches and athletes, are included. It is important to consider the level and type of sport within which the dyad functions. For example, individual sport athletes (e.g. track & field, tennis) report higher levels of interdependence than team sport athletes (e.g. basketball; Rhind et al., 2012). Within these different team structures are also individual roles. A team captain has a unique leadership role on a team and his/her perceptions of the coach-athlete relationship may differ significantly from another athlete who plays on the practice squad. The culture of the sponsoring organization

(e.g. recreational, collegiate, elite) can also foster social expectations that result in different perceptions of interdependence between lower- and higher-level competitors (Jowett & Nezlek, 2011).

Perhaps the greatest limitation to any study examining the coach-athlete relationship is the fact that the relationship itself is dynamic and ever changing (Jowett, 2005; Jowett & Poczwardowski, 2007). Without more longitudinal research designs, every new discovery of this dyad only represents a snapshot in time and subsequent interpretations are limited to the context in which they were derived. Fortunately, this idea actually captures the essence of how situational factors play an important role in the quality of this partnership. Poczwardowski and colleagues (2006) acknowledge how the phase of the relationship can affect both dyad members and they recognize the potential implications this variable could have on study results. The time of season (e.g. offseason, pre-competition, competition, peaking) is identified as another situational variable that could affect relational perceptions (Olympiou, Jowett, & Duda, 2008). As one might expect, the duration of the coach-athlete relationship has also been distinguished as a situational factor in this discussion. Lorimer and Jowett (2009a), however, found relationship duration to have no association with empathic accuracy, which signifies the need for further examination.

The Coach-Athlete Relationship Process. As the importance of the coach-athlete dyad becomes more evident, an essential aspect remains underexplored: the relationship process. Although a wealth of knowledge has emerged on this topic, little is known about how the relationship is co-created. Coach education initiatives have limited knowledge, in terms of evidence-based approaches, aimed at teaching relational expertise (LaVoi, 2007). As previously mentioned, several personal, social, and situational factors can affect relationship development

and advance understanding in this area. Mageau and Vallerand (2003) acknowledged the fact that sport cultures often promote a more controlling-style of coaching, which naturally affects the relationship process. Generally, athletes prefer a coach who supports their autonomy rather than act authoritarian, but these authors recognize that every athlete is individual and requires different treatment. So the question becomes: How do coaches identify these individual differences in athletes and decide on an individualized coaching approach for these competitors? This inquiry speaks directly to the relationship process and represents a large gap in understanding how relational expertise develops.

A promising avenue for advancing understanding of the coach-athlete relationship is found in the construct of empathic accuracy described by Jowett and Cockerill (2002). Each dyad member's ability to accurately infer similarities between individuals (e.g. Athlete: "My coach likes me." Coach: "I like my athlete.") is considered to be a measure of empathic understanding (i.e. co-orientation). Coaches rely more on similarities (actual and assumed) with athletes to draw accurate inferences but athletes don't have to rely on these similarities to infer their coaches' perceptions accurately (Jowett & Clark-Carter, 2006). It seems that athletes are more adept at 'reading' their coaches and it has been recommended that coaches make efforts to improve in this aspect of relational process (Lorimer & Jowett, 2009b).

The primary vehicle for cultivating positive coach-athlete partnerships is effective communication (Ayer, 2015). Jowett (2003) examined a once-flourishing dyad that broke down shortly after a world-class performance at the Olympics. The culprit lay in the different perceptions of dyad members and the lack of communication about these differences. This disparity in empathic understanding can lead to frustration and disrupt other components of the relationship (i.e. the "3Cs") as well as important relational outcomes. Essentially,

communication is the catalyst for effective co-orientation (Jowett, 2007) and could be a defining characteristic for understanding relational process in this dyad.

The development of the previously described COMPASS model (Rhind & Jowett, 2010) represents another important step toward understanding the mechanics of the coach-athlete relationship. The maintenance strategies in this framework provide a clearer picture of *how* this partnership is built and have been linked with relationship quality (Rhind & Jowett, 2011). Because of the ever-changing nature of the dyad, both coaches and athletes need to continually monitor their interactions to promote a fulfilling and enduring relationship (Lorimer & Jowett, 2014).

The Role of the Coach. In the world of sport there are few individuals who have as great an impact on athletes as their coaches. Because of the inherent power differential in these sporting dyads, the coach may play a more crucial role in the overall quality of the relationship than we currently understand. Both supportive and unsupportive coaching behaviors are linked with the quality of the partnership (Nicholls, Levy, Jones, Meir, Radcliffe, & Perry, 2016). Such behaviors can affect athletes' perceptions of the coach-created motivational climate, which is also connected to relational quality (Olympiou, Jowett, & Duda, 2008). Olympiou et al. (2008) found that greater task-involving, or cooperative, climates were more strongly related to interdependence. This conclusion aligns with Martens (2014) recommendation that coaches should adopt a more cooperative style when interacting with athletes. These coaching behaviors are likely to result in increased levels of athlete satisfaction (Baker, Yardley, & Cote, 2003) which also has been linked to the coach-athlete relationship (Jowett & Ntoumanis, 2004). Unfortunately, not all coaches engage in behaviors that will foster a healthy dyad.

In a study examining patterns of communication in the coach-athlete partnership, Kassing and Infante (1999) found that when coaches communicated aggressively, athletes tended to demonstrate less sportspersonship, have less satisfaction with coaches, and experience less success. The negative effects of coaching behavior are not limited to aggressive communication. Gearity and Murray (2011) identified five themes of poor coaching that resulted in negative psychological effects in athletes: poor teaching by the coach, being uncaring, being unfair, inhibiting athletes' mental skills, and negatively affecting ability of athletes to cope. Cases of emotional abuse have been documented even at the elite levels of sport (Stirling & Kerr, 2013) despite the fact that one might expect only the most qualified coaches would hold these positions. One potential explanation for the prevalence of these behaviors is how coaches view leadership.

There seems to be a shift toward a more athlete-centered paradigm in coaching leadership in recent years. Moen, Giske, and Hoigaard (2015) found that a majority of sampled coaches believe that their athletes expect involvement leadership while a lesser portion thought athletes wanted servant leadership. The distinction between these two styles is found in how the coach views his/her role. Involving athletes in the training process is generally considered a positive coaching behavior and so is allowing athletes to take responsibility for their own development (i.e. servant leadership). Substantiating this claim, Hampson and Jowett (2014) found that effective leadership behaviors positively contributed to collective efficacy. It seems that a combination of these leadership factors and the coach-athlete relationship can predict an athlete's positive developmental experience (Vella, Oades, & Crowe, 2013). Coaches would do well to engage in leadership activities that focus on creating an environment characterized by supporting, respecting, and caring for their athletes.

Several other strategies exist that may help coaches foster a healthy interpersonal relationship with their trainees. Coaching passion appears to have an effect on the coach-athlete dyad. Lafreniere and colleagues (2011) determined that harmonious, or non-contingent, passion was associated with a favorable relationship while obsessive, or contingent, passion positively predicted coaches' controlling behaviors toward athletes. Such coaching desires are most likely rooted in each coach's philosophy which should be continually revised and updated to maintain effectiveness (Martens, 2014). In a study examining coach-athlete interactions in real time, Erickson, Cote, Hollenstein, and Deakin (2011) discovered that the coach of a more successful team (i.e. the team won more) used more positive communication techniques (e.g. a 'positive sandwich') than the coach of a less successful team. Coaches may be more likely to verify an athlete's self-concept (Jowett, 2008) and better foster the relationship by using feedback opportunities in this manner.

Perhaps the most compelling argument for coaches to actively cultivate a healthy relationship with athletes, is the impact such an encounter can have on sport participation. Youth sport, in particular, tends to have high rates of turnover and many children drop out of sport because of experiences they have with coaches (Butcher, Lindner, & Johns, 2002). Barnett, Smoll, and Smith (1992) sought to determine if a formal coach education program would have an effect on youth sport attrition. The results showed that youth sport participants who played for trained coaches rated these coaches far more positively than those in the control group (i.e. untrained coaches). Additionally, 95% of the youths who played for trained coaches came back to participate the next year while only 74% who played for untrained coaches were involved in sport the following season. In light of these and other findings, the need for coach education becomes increasingly clear. Smoll and Smith (2006) further developed their empirically-based

Coach Effectiveness Training (CET) to inform coach education initiatives and provide a platform for enhancing coaching practice. Such an evidence-based approach represents a valuable format for coaches who recognize the importance of fostering healthy coach-athlete relationships. The appearance of negative coaching behaviors remains prevalent and coach education in general represents a prime strategy for improving the quality of this sporting dyad.

Summary

After reviewing the relevant literature, it becomes apparent that more research is needed to fully understand the many factors that affect a student-athlete's experience. Intercollegiate sport participants represent a distinct group of athletes and context remains an important consideration when studying sport phenomena. While the NCAA plays a predominant role in ensuring the well-being of many student-athletes in the United States, much is unknown about the specific factors that lead to a satisfied athlete. Because satisfaction is considered a better indicator of an individual's experience than performance, garnering the perceptions of current student-athletes represents an area ripe for investigation.

Furthermore, the widespread acceptance of the Athlete Satisfaction Questionnaire (Riemer & Chelladurai, 1998) illustrates the utility of that instrument as a means for examining this topic. The link between coaching leadership behavior and athlete satisfaction is well recognized and coaches play an important role in a participant's experience. More specifically, the effects of coaching behavior can be differentiated based on the type of interaction. A particular aspect thought to affect athlete satisfaction diverges from traditional coaching actions and is more relational in nature (i.e. social support). The research supports that the coach-athlete relationship is linked with several important sport outcomes.

Most studies conducted in the past 15 years have been carried out beyond the borders of the United States. Even still, the CART-Q (Jowett & Ntoumanis, 2004) has been validated across many countries and represents a primary tool for studying these dyads. Other researchers have begun combining the use of the CART-Q and ASQ in both descriptive and correlational studies to draw comparisons between subgroups (e.g. gender; Jowett & Clark-Carter, 2006) and identify associations among relational components and athlete satisfaction (Jowett & Nezlek, 2011). Despite these recently established links between coach-athlete relationship quality and athlete satisfaction (Lorimer & Jowett, 2009), to date, no researchers have employed these types of methodologies with the NCAA student-athlete population. The need remains for more exploratory/descriptive studies in this area as well as sophisticated correlational approaches.

Many factors influence the quality of a coach-athlete relationship including personal, social, and situational factors which further illustrates the need to consider other contexts. The coach holds an influential position in these sporting dyads and much research has focused on that perspective. Researchers, however, are beginning to shift their attention away from coaches and target the primary beneficiaries of sport (i.e. athletes) because the repercussions of poor coach-athlete relationships may lead to dissatisfied athletes who leave sport altogether. Therefore, the purpose of this study was to investigate NCAA student-athletes' perceptions of the quality of their current coach-athlete relationship as well as ratings of student-athlete satisfaction. An additional aim was to determine if student-athlete perceptions of the quality of the coach-athlete relationship have a predictive relationship with their ratings of athlete satisfaction.

Chapter Three: Methodology

The heart of every research project is a rationally-based methodology. Such a design ultimately serves as the structure of the study to systematize the inquiry. Scholars from the coach-athlete relationship literature suggest basing a proposed methodology on the specific research questions asked (Poczwardowski, Barrot, & Jowett, 2006; Vergeer, 2000). When considering the purpose of this study (i.e. to describe and predict variables) it becomes obvious that quantitative designs were most fit to answer the main lines of inquiry. Although causal-comparative tactics are demonstrated in the literature as a way to analyze the coach-athlete relationship with respect to important sport outcomes (Barnett, Smoll & Smith, 1992), the third research question in this study clearly pointed to a correlational design with the aim of establishing a relationship between two variables. Because correlational research so naturally aligns with survey research (Shaughnessy, Zechmeister, & Zechmeister, 2015), it seemed appropriate to employ a survey within the correlational paradigm.

An essential consideration in survey research is whether to use a cross-sectional or longitudinal design. Cross-sectional studies seek to capture a snapshot of participant characteristics at a given point in time (Shuttleworth, 2010). While such an approach does not allow inferences of causality, the general design is efficient (Sedgwick, 2014). Furthermore, one can assess several outcomes conjunctively and even estimate the prevalence of such outcomes because participants are sampled from the whole population (Levin, 2006). In relation to the current study, a cross-sectional design was desirable because there is a scarcity of information (Mann, 2003) on NCAA student-athletes in general.

For this non-experimental quantitative study, the researcher conducted a descriptive analysis on NCAA student-athletes' perceptions of their current coach-athlete relationship as well as their overall ratings of athlete satisfaction. Additionally, through a correlational approach, ratings of the quality of the coach-athlete relationship were examined to assess their association with the overall level of student-athlete satisfaction. Data was collected through an anonymous survey.

Participants

All NCAA student-athletes in the United States represented the target population. A cluster sampling technique was used to ensure adequate representation across divisions. More specifically, there are 99 NCAA conferences in the United States. Out of those conferences 32 are at the Division 1 level, 24 are at the Division 2 level, and 43 are at the Division 3 level. To ensure a representative sample of each division, 25% of the conferences in each division were randomly selected, resulting in eight Division 1 conferences, six Division 2 conferences, and 11 Division 3 conferences. Then, one institution from each of these conferences (8 Division 1, 6 Division 2, and 11 Division 3) was randomly selected for inclusion in the study, totaling 25 NCAA institutions. Of the total number of student-athletes at each of these institutions, 25% of them were randomly selected to receive an email with an informed consent form and anonymous survey link. A primary strength of this sampling approach is that it allows generalization to the population, which was a goal of the present study.

A total of 552 student-athletes responded to the survey out of the 2,233 who received the questionnaire, resulting in a 24.7% response rate. After removing incomplete data sets, 387 responses were fit for analysis. With a total NCAA student-athlete population of 460,000 this

sample size exceeds the minimum of 384 needed to satisfy the *a priori* condition of α=0.05. All data analyses were conducted with SPSS statistical analysis software.

Of the 387 student-athletes who participated, 231 were female and 156 were male. Most respondents were Caucasian (84.8%) while participants of African-American and Hispanic background made up 5.2% and 5.4%, respectively. A larger number of lowerclassmen (123 freshmen and 98 sophomores) completed surveys compared to upperclassmen (86 juniors and 70 seniors) as shown in Figure 1.

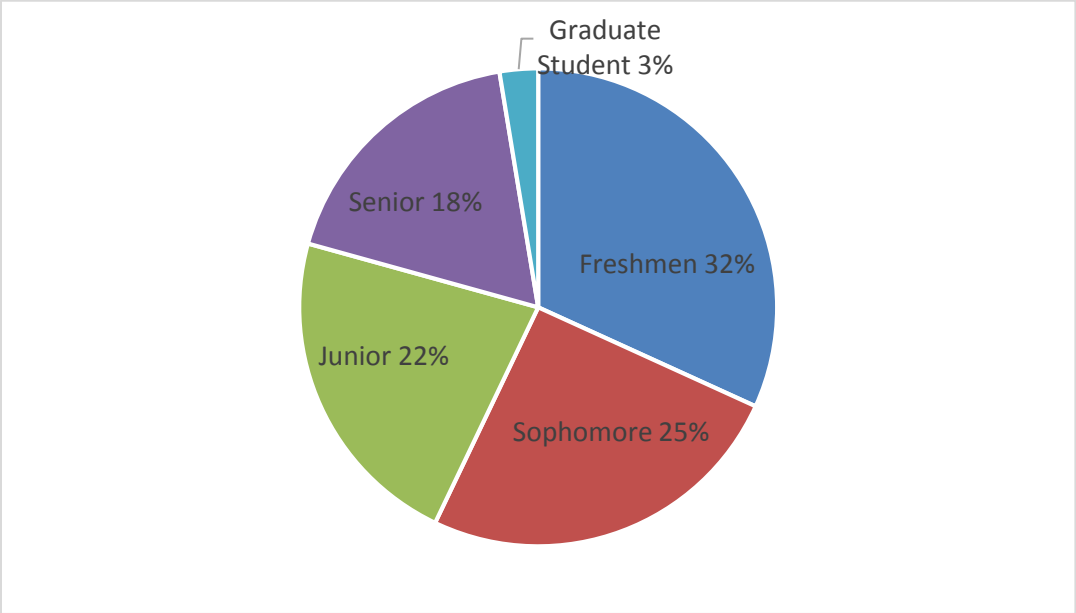

Figure 1 – *Demographics by Year in School*

Additionally, 51.4% of all respondents competed at the NCAA Division-3 level while 31.5% competed in Division-1 and 17.1% competed in Division-2, as shown in Table 1.

Table 1
Demographics by Division and Gender

NCAA Level	Male	Female	%
Division 1	48	74	31.5
Division 2	19	47	17.1
Division 3	89	110	51.4
Totals (N = 387)	156	231	100.0

While participants were asked to indicate the specific NCAA sport in which they competed, responses to this question were collapsed into the categories of 'individual sport' or 'team sport' based on the criteria set forth by the NCAA. With 20 NCAA sports represented ranging from bowling to swimming, over half of the participants (56.1%) competed in team sports while the rest were involved in individual sports (43.9%) as shown in Table 2.

Table 2
Response Based on Sport Type

Sport Type	n	%
Team Sport	217	56.1
Individual Sport	170	43.9
Totals (N=387)	387	100.0

Most of the NCAA student-athletes in this study competed under the tutelage of a male coach (70.8%) while the remainder participated under the direction of a female coach (29.2%). Of those coaches, 93% were Caucasian. Furthermore, 73.6% of participants indicated that their current primary coach was the person they came to their university to play for while 26.4% said the opposite. A small number of respondents (7.5%) had transferred to their current institution from another school.

Instruments

Coach-Athlete Relationship Questionnaire. The most widely used platform for examining this interpersonal dyad is the Coach-Athlete Relationship Questionnaire (CART-Q; Jowett & Ntoumanis, 2004). This self-report assessment tool was initially developed in the United Kingdom but has since been shown to be valid and reliable in seven countries, including the United States (Yang & Jowett, 2012). The psychometric properties of this instrument have been established for assessing both coaches' and athletes' perceptions of the quality of the coach-

athlete relationship in terms of interdependence. In the present study, the athlete direct and meta-perspective versions were used.

Overall, this brief 11-item survey measures the quality of the coach-athlete relationship on three different constructs of interdependence: closeness (e.g. "I like my coach"), commitment (e.g. "I am close to my coach"), and complementarity ("When I am coached by my coach, I am ready to do my best"). The response scale (Likert) for these measures ranges from 1 ("strongly disagree") to 7 ("strongly agree"). The widespread utility of this instrument lends credence to its use with populations such as NCAA student-athletes, because of its basic descriptive properties but also because of its established link with other sporting outcomes. The need to examine the quality of the coach-athlete relationship and its association with the quality of overall athlete experiences/outcomes has been established (Poczwardowski et al., 2006).

Reliability and Validity. The initial CART-Q underwent various analyses to assess validity of the instrument as well as internal consistency. The survey was modified after it was reviewed by a panel of experts, which doubled as a means of establishing content validity. Each subscale demonstrated convergent validity with high factor loadings and statistically significant p-values. Although the primary factors had high correlations, discriminant validity was established by demonstrating that fit indexes were better when the "3Cs" were conceptualized separately rather than collectively. The authors concluded that the coach-athlete relationship can be conceptualized along three dimensions within a higher-order dimension.

Confirmatory factor analysis supported construct validity for the multidimensional model. As a criterion for establishing predictive validity, the authors chose general satisfaction because of its presumed link with interpersonal relationships. All three constructs were

associated with the two-item responses on satisfaction in a theoretically meaningful way. Internal consistency was assessed on each subscale and all three Cronbach alpha scores exceeded 0.80 which surpasses the minimum level of 0.70 set forth by Nunnally and Bernstein (1994). Since this initial validation, other researchers have demonstrated the test-retest reliability of the CART-Q (Jowett, 2009).

Athlete Satisfaction Questionnaire. Riemer and Chelladurai (1998) developed the Athlete Satisfaction Questionnaire (ASQ) to assess athlete perceptions of satisfaction on multiple dimensions. This instrument is designed specifically for use with intercollegiate athletes as a way for organizations to measure effectiveness of coaches and administrators. The ASQ is included in the Appendix and consists of 56 items that assess important components of an athlete's experience in sport, including: performance, leadership, the team, the organization, and the individual.

The survey includes 15 different subscales that could affect an athlete's ratings of satisfaction including: individual performance, team performance, ability utilization, strategy, personal treatment, training and instruction, team task contribution, team social contribution, ethics, team integration, personal dedication, budget, medical personnel, academic support services, and external agents. Responses are rated on a Likert scale from 1 ("strongly disagree") to 7 ("strongly agree"). Demographic information was also collected with these surveys to compare responses between subgroups. Level of competition (Division), gender, year in school, and type of sport (team or individual) were the primary areas of interest. For the complete demographic survey see Appendix A. The CART-Q surveys are in Appendix B and the ASQ is in Appendix C.

Reliability and Validity. Several steps were taken to establish the ASQ's reliability and validity. In the initial construction of the survey, items were based on other scales and former athletes' responses to open-ended questions. An expert panel as well as student subjects then assessed the items for readability, which were then revised after a pilot study. Further refinements were made using confirmatory factor analysis in an effort to demonstrate construct validity. Item-to-total correlations were assessed as well as additional confirmatory factor analysis which suggested a model of good-fit and construct validity of the scale. Criterion-validity was also apparent because of significant correlations between most of the 15 subscales and dimensions on the Negative Affectivity Scale (Levin & Stokes, 1989). For reliability, the internal consistency coefficients ranged from 0.78 to 0.95 (mean = 0.88) which satisfies the criteria set forth by Nunnally and Bernstein (1994).

Procedures

Once IRB approval was obtained at the University of Montana, participant emails were acquired through each institution's directory service on the respective university websites. In the instance that an institution did not have a public search directory, another school was randomly selected from the same conference. After student-athlete emails were collected, an electronic informed consent form, which included the survey link, was emailed to the randomly selected participants. The link led to a questionnaire built in Qualtrics survey software. Participant names were not linked with their responses. After the initial survey was sent, reminders were given to each participant ten days after the initial email and then again twenty days after the initial contact.

Data Analysis

Descriptive statistics were conducted to generate an overall 'picture' of the data and address the first two research questions regarding coach-athlete relationship quality and ratings of athlete satisfaction. For establishing relationships between constructs, it was important to determine the number of predictors/variables. For this study, the independent variables were perceptions of the quality of the coach-athlete relationship in terms of closeness, commitment, and complementarity, while the dependent variable was ratings of athlete satisfaction. To determine individual associations between these variables, the levels of measurement were also considered.

Understanding the level of measurement is important because it influences the decision to use either parametric or non-parametric statistics. To clarify these gauges, Stevens (1946) developed a classification system of different scales that include nominal, ordinal, interval, and ratio categories. Because both instruments in this study included Likert (1932) data, the level of measurement was not immediately clear. Fortunately, Boone and Boone (2012) provide recommendations for determining which scale to use. Based on these authors' rationale, the instruments in this study (ASQ and CART-Q) are characterized by interval/continuous data because composite scores, rather than individual survey items, were used for analysis. As such, the appropriate parametric test was a Pearson *r* correlation which establishes both the direction and magnitude of relationships between variables. More specifically, a Pearson *r* correlation was conducted to determine relationships, if any, between overall ratings of athlete satisfaction and the three dimensions of the coach-athlete relationship (i.e. closeness, commitment, complementarity), as well as a composite score of the quality of the coach-athlete relationship.

Furthermore, four subscales in the ASQ explicitly refer to coaching (Ability Utilization, Strategy, Personal Treatment, and Training/Instruction) which could contribute to the observed association between the coach-athlete relationship and overall athlete satisfaction. To eliminate this possible effect, these four subscales were removed from the ASQ overall score and a new correlation was conducted to determine if the association between measures still existed.

Additionally, the three constructs of the CART-Q (i.e. the "3Cs") could collectively indicate a predictive relationship with athlete satisfaction. Each of these variables could be analyzed collectively in addition to the individual analysis. To determine the aggregate influence of these factors on ratings of athlete satisfaction (i.e. using the "3Cs" as multiple predictors) a standard multiple regression was used. This approach was used to determine the unique variance in the dependent variable that each of the independent variables explains.

Several specific examples of these correlational approaches are present in the coach-athlete relationship literature which served as models to legitimize this rationale. Burns, Jasinski, Dunn, and Fletcher (2012) used both a multiple regression and Pearson *r* correlation to determine links between athlete identity and athlete satisfaction. These authors compiled the 15 facets of the Athlete Satisfaction Questionnaire (Riemer & Chelladurai, 1998) into one composite score and the current study included this same approach for analysis. Other authors have also used correlations and multiple regressions to study this phenomenon (Baker, Yardley, & Cote, 2003; Nicholls, Levy, Jones, Meir, Radcliffe, & Perry, 2016).

For determining differences between subgroups on measures of coach-athlete relationship and athlete satisfaction, one must determine the number of groups from which one wishes to compare means. In this study, the primary subgroups of interest were athlete gender, sport type

(team or individual), competition level (Division-1, Division-2, or Division-3), and year in school (freshmen, sophomore, junior, or senior). Because most student-athletes were expected to identify as either male or female, an independent two samples *t*-test was appropriate for comparing average scores between these groups as well as type of sport. However, it was recognized that some respondents may not identify in terms of binary gender. For the comparison between divisions and year in school, a one-way ANOVA was more fitting because there were more than two groups (Pallant, 2013).

Assumptions

Every kind of statistical analysis carries with it certain assumptions for it to be valid. Because the chosen analyses are parametric, there are some common assumptions that pertain to all the tests. The first assumption is the level of measurement, which has already been discussed and is presumed to be interval, with regards to the instruments under investigation. In terms of measuring differences between sub-groups (i.e. gender, sport type, division, year in school), those variables represented nominal categories that were compared on measures of the instruments (interval data). Second, one must consider the independence of observations (Pallant, 2013), meaning each response should not be influenced by any other measurement. In this study, respondents had the opportunity to complete the questionnaire at their convenience so it was assumed that no other participant was present to influence their responses. Additionally, the questionnaires were counterbalanced to negate any possible order effect. The next underlying component of these tests is a presumed normal distribution. Because the sample size was well over 300, normality of responses can be assumed in this study because this number clearly satisfies the central limit theorem (Privatera, 2015).

In addition to the aforementioned assumptions, correlations and multiple regressions also assume linearity (the relationship between variables is linear), related pairs (participants must provide responses for both variables) and homoscedasticity (the variability of the independent and dependent variables should be similar; Pallant, 2013). It's also important to note that large sample sizes without extreme outliers are needed for multiple regression. In the instance that outliers were identified, they were removed before this test was conducted. For independent sample *t*-tests and one-way ANOVAs, additional assumptions include a need for random sampling and homogeneity of variance (samples are obtained from populations of equal variance). Both of these elements were presumed in the current study. An alpha level of $p<0.05$ was used for all statistical tests.

A final assumption was that ratings of the coach-athlete relationship, with the "3Cs" as predictors, were the *independent* variables in the correlation/regression analysis. Although it is intuitive that a quality coach-athlete relationship may lead to higher ratings of athlete satisfaction, the association is likely reciprocal. Any interpretation regarding the predictive properties of the independent variable with respect to the dependent variable should be understood with this assumption in mind.

Summary

In this chapter the research questions were reviewed and an additional sub-question was identified to further direct the study. A description of the participant inclusion criteria was included to ensure a representative sample that can lead to generalizations to the population. Data analysis procedures were also detailed to provide a clear path for the researcher. The approach to analyze the data included Pearson *r* correlations and multiple regression as well as

independent sample *t* tests and one-way ANOVA. Finally, conditions of reliability and validity were described to validate the future generalizability of any implications determined from the data.

Chapter Four: Results

The purpose of this study was to investigate NCAA student-athletes' perceptions of the quality of their current coach-athlete relationship as well as ratings of student-athlete satisfaction. An additional aim was to determine if student-athlete perceptions of the quality of the coach-athlete relationship had a predictive relationship with their ratings of athlete satisfaction. In this chapter, descriptive statistics will be presented to address the first two research questions followed by inferential statistics that answer the respective sub-questions. Lastly, correlational statistics will be presented to address research question three and answer the research hypothesis. Additional post-hoc analyses are also included to further explore variables of interest.

Descriptive Statistics

Research question one stated: What are NCAA student-athletes' perceptions of the quality of their current coach-athlete relationship? 1b. Are there differences between subgroups (gender, sport type, competitive division, year in school)? To answer this question, participants were asked to complete two versions of the 11-item CART-Q to assess their perceptions of the quality of their current coach-athlete relationship. The direct perspective measures the student-athletes' personal assessment of the coach-athlete relationship (i.e. from their point of view) while the meta perspective measures how the student-athletes think their coaches view the interpersonal dyad. Scores were reported on a 7-point Likert scale with higher scores indicating better quality of the coach-athlete relationship.

Responses to the direct perspective CART-Q resulted in an overall mean score of 5.69 (SD = 1.19). Within the 11-item questionnaire are three subscales including four Closeness items (e.g. 'I like my coach;' 'My coach likes me'), three Commitment items (e.g. 'I am

committed to my coach;' 'My coach is committed to me'), and four Complementarity items (e.g. 'When I am coached by my coach, I adopt a friendly stance;' 'My coach adopts a friendly stance'). Of the direct perspective subscales, Commitment received the lowest mean score of 5.40 (SD = 1.37) while Complementarity and Closeness were higher at 5.75 (SD = 1.17) and 5.86 (SD = 1.25), respectively. The meta perspective responses had similar results with an overall mean score of 5.53 (SD = 1.20). Once again, Commitment received the lowest mean rating at 5.34 (SD = 1.30) while Complementarity and Closeness had higher means of 5.54 (SD = 1.25) and 5.66 (SD ± 1.25), respectively, as shown in Table 4.

Table 4
CART-Q direct and meta perspective scores

Scale	Mean	Standard Deviation
Direct – Overall	5.69	1.19
Direct – Closeness	5.86	1.25
Direct – Commitment	5.40	1.37
Direct – Complementarity	5.75	1.17
Meta – Overall	5.53	1.20
Meta – Closeness	5.66	1.25
Meta – Commitment	5.34	1.30
Meta – Complementarity	5.54	1.25
Totals (N=387)		

Note: Responses were on a 7-point Likert scale (where 1 indicates poor coach-athlete relationship quality and 7 indicates good coach-athlete relationship quality)

Research question two stated: What are NCAA student-athletes' perceptions of their overall satisfaction within the athletic domain? 2b. Are there differences between subgroups (gender, sport type, competitive division, year in school)? For responses to the ASQ, the overall satisfaction rating of this sample of NCAA student-athletes was 5.09 (SD = 0.91). Although the overall rating of satisfaction is the primary variable of interest, the ASQ contains 15 different subscales that were also analyzed. Participants in this sample appeared most satisfied with their Personal Dedication (M = 5.84, SD = 0.93), measured across four items. The subscale with the

lowest rating was found over three items measuring athletes' satisfaction with their team Budget (M = 4.05, SD = 1.68). A complete list of the ASQ subscale scores is found in Table 5.

Table 5
ASQ subscale scores (sorted in descending order of Means)

Subscale	Mean	Standard Deviation
Personal Dedication	5.84	0.93
Team Social Contribution	5.51	1.22
Ethics	5.51	1.10
Medical Personnel	5.45	1.41
Team Task Contribution	5.34	1.13
Team Integration	5.27	1.26
Personal Treatment	5.18	1.42
Academic Support Services	5.12	1.31
Ability Utilization	4.99	1.42
Strategy	4.97	1.41
Individual Performance	4.92	1.38
Team Performance	4.62	1.58
External Agents	4.41	1.39
Training and Instruction	4.14	1.44
Budget	4.05	1.68
Totals (N=387)		

Note: Responses were on a 7-point Likert Scale (where 1 indicates "Not at all Satisfied" and 7 indicates "Extremely Satisfied")

Additional descriptive data were collected to generate a deeper understanding of the population. When asked to rate how much they agree with the following statement: "I plan to stay here and graduate;" most respondents either strongly agreed (66.7%) or agreed (17.6%), while 1% disagreed and 6.7% strongly disagreed. Most participants reported a self-estimated grade point average (GPA) of either a 3.00-3.49 (37.2%) or a 3.50-4.00 (43.2%) while the remaining respondents specified a GPA lower than 2.99. With respect to whether the student-athletes had ever received All-Conference Honors for their athletic performance, 75.7% said they had "Never Received All-Conference Recognition." Of the other participants, 14.0% had earned

1st Team All-Conference, 4.1% earned 2nd Team All-Conference, and 6.2% earned Honorable Mention, as shown in Table 3.

Table 3
Demographics by GPA and All-Conference Honors

GPA	1st Team	2nd Team	Honorable Mention	Never Received All-Conference	%
Less than 2.0	0	0	0	3	0.8
2.00-2.49	3	0	0	8	2.8
2.50-2.99	8	4	3	47	16.0
3.00-3.49	23	5	10	106	37.2
3.50-4.00	20	7	11	129	43.2
Totals (N=387)	54	16	24	293	100.0

Inferential Statistics

Inferential statistics were conducted to address the sub-questions of the first two research questions. More specifically, independent sample t-tests were run to examine any differences in responses to either the CART-Q or ASQ between males and females, sport types (i.e. individual and team) and race/ethnicity (i.e. white and diverse). Additional independent sample t-tests were used to explore differences in responses between participants who had a male coach compared to those who had a female coach. Furthermore, a one-way ANOVA was completed to determine differences between competition level (i.e. NCAA division) and year in school (i.e. freshman, sophomore, etc.). When significant differences were noted, a Tukey HSD post-hoc test was conducted to determine which groups differed as indicated by the ANOVA.

Gender Differences. Mean scores for male and female participants were compared across both direct and meta perspectives of the CART-Q, including overall scores and the subscales of Closeness, Commitment, and Complementarity. Overall ratings from the ASQ were also analyzed between this subgroup. Males had higher mean scores than females on every scale

of the CART-Q as well as a higher overall rating of satisfaction. However, none of these differences reached the $p < .05$ level of statistical significance with results shown in Table 6.

Table 6
Results of t-tests and Descriptive Statistics: CART-Q and ASQ by Gender

	Participant Gender							
	Male			Female				
Measure	M	SD	n	M	SD	n	t	df
CART-Q								
Direct – Overall	5.75	1.19	156	5.66	1.20	231	0.795	385
Direct – Closeness	5.95	1.20	156	5.81	1.28	231	1.134	385
Direct – Commitment	5.45	1.32	156	5.36	1.40	231	0.659	385
Direct – Complementarity	5.78	1.25	156	5.73	1.12	231	0.443	385
Meta – Overall	5.60	1.17	156	5.48	1.22	231	0.926	385
Meta – Closeness	5.72	1.23	156	5.62	1.27	231	0.835	385
Meta – Commitment	5.42	1.24	156	5.29	1.34	231	0.931	385
Meta - Complementarity	5.61	1.22	156	5.50	1.27	231	0.886	385
ASQ								
Overall Satisfaction	5.12	0.90	156	5.07	0.92	231	0.561	385

Note: Equal variances were assumed

Sport Type Differences. Overall and subscale scores on the CART-Q as well as overall scores on the ASQ were analyzed to determine differences between team sport and individual sport participants. There were statistically significant differences, at the $p < .05$ level of significance, between team sport and individual sport student-athletes on all measures, with individual sport participants reporting higher ratings on the ASQ and CART-Q instruments. Effect size was calculated using the formula for Cohen's *d* (Cohen, 1988). All effect sizes ranged from small to moderate based on Cohen's criteria (small effect size: $d = 0.20$, medium effect size: $d = 0.50$, large effect size: $d = 0.80$). The mean scores on the Complementarity subscale of the CART-Q meta perspective had the largest effect size ($d = 0.41$) between the two groups. Complete results of the test are shown in Table 7.

Table 7
Results of t-tests and Descriptive Statistics: CART-Q and ASQ by Sport Type

	Sport Type								
	Team Sport			Individual Sport					
Measure	M	SD	n	M	SD	n	t	df	*d*
CART-Q									
Direct – Overall	5.52	1.27	217	5.92	1.05	170	-3.33***	385	0.34
Direct – Closeness	5.68	1.36	217	6.09	1.05	170	-3.24***	385	0.34
Direct – Commitment	5.22	1.44	217	5.63	1.25	170	-2.93**	385	0.30
Direct – Complementarity	5.58	1.24	217	5.97	1.08	170	-3.30***	385	0.34
Meta – Overall	5.35	1.27	217	5.75	1.07	170	-3.28***	385	0.34
Meta – Closeness	5.50	1.33	217	5.86	1.11	170	-2.81**	385	0.29
Meta – Commitment	5.20	1.35	217	5.52	1.21	170	-2.43*	385	0.25
Meta - Complementarity	5.32	1.32	217	5.82	1.10	170	-3.97***	385	0.41
ASQ									
Overall Satisfaction	4.96	0.98	217	5.26	0.77	170	-3.29***	385	0.34

Note: Equal variances were assumed. *p < .05, **p < .01, ***p < .001

Race/Ethnicity Differences. With 328 respondents who identified as Caucasian and no more than 21 participants in any other ethnic group, respondents were pooled together to form two groups for this analysis: "White" and "Diverse." The Diverse group included 59 participants and was compared to White respondents on all measures of the CART-Q and overall scores on the ASQ. Diverse respondents scored higher on all scales except the variable of Commitment on the CART-Q direct perspective. There were no statistically significant differences between White and Diverse athletes on any measures.

Coach Gender Differences. Participants were asked to indicate the gender of their current primary coach (the one with whom they spend the most time) resulting in 274 respondents indicating they had a male coach while 113 played for a female coach. These two groups were analyzed to compare means on all measures of the CART-Q as well as overall satisfaction on the ASQ. Participants who had male coaches reported higher ratings on every

measure of coach-athlete relationship quality as well as athlete satisfaction. However, none of the differences reached the level of statistical significance. Results of the test are shown in Table 8.

Table 8
Results of t-tests and Descriptive Statistics: CART-Q and ASQ by Coach Gender

	Coach Gender							
	Male			Female				
Measure	M	SD	n	M	SD	n	t	df
CART-Q								
Direct – Overall	5.76	1.14	274	5.55	1.32	113	1.54	385
Direct – Closeness	5.94	1.17	274	5.69	1.41	113	1.77	385
Direct – Commitment	5.45	1.30	274	5.27	1.53	113	1.21	385
Direct – Complementarity	5.80	1.14	274	5.63	1.23	113	1.36	385
Meta – Overall	5.59	1.16	274	5.40	1.29	113	1.42	385
Meta – Closeness	5.71	1.22	274	5.53	1.33	113	1.32	385
Meta – Commitment	5.37	1.28	274	5.27	1.33	113	0.66	385
Meta - Complementarity	5.62	1.19	274	5.35	1.38	113	1.93	385
ASQ								
Overall Satisfaction	5.14	0.87	274	4.98	0.99	113	1.52	385

Note: Equal variances were assumed.

Division Differences. To analyze differences between participants of the three NCAA competition levels (Division-1, Division-2, Division-3), a one-way ANOVA was conducted to compare responses on all measures of coach-athlete relationship quality as well as athlete satisfaction. There were statistically significant differences on all scales. More specifically, for the three NCAA divisions, there were statistically significant differences between divisions at the $p < .05$ level for the CART-Q direct perspective subscales of Closeness ($F(2, 384) = 6.03$, $p = .003$, $\eta^2 = 0.03$), Commitment ($F(2,384) = 5.06$, $p = .007$, $\eta^2 = 0.026$), and Complementarity ($F(2,384) = 6.75$, $p = .001$, $\eta^2 = 0.034$). Similarly, there were statistically significant differences between divisions at the $p<.05$ level for the CART-Q meta perspective subscales of Closeness ($F(2,384) = 4.41$, $p = .013$, $\eta^2 = 0.022$), Commitment ($F(2,384) = 5.45$, $p = .005$, $\eta^2 = 0.028$), and

Complementarity ($F(2,384) = 7.11$, $p = .001$, $\eta^2 = 0.036$). ANOVA values for the overall CART-Q direct and meta perspectives are shown in Table 9 along with the overall values for measures of athlete satisfaction.

Table 9
Results of ANOVA test statistics: CART-Q and ASQ by Division

Scale		Sum of Squares	df	Mean Square	F	η^2
CART-Q						
	Between Groups	18.16	2	9.08	6.55*	0.03
Direct - Overall	Within Groups	532.53	384	1.39		
	Total	550.67	386			
	Between Groups	17.33	2	8.67	6.16*	0.03
Meta – Overall	Within Groups	540.70	384	1.41		
	Total	558.03	386			
ASQ						
	Between Groups	9.43	2	4.72	5.87*	0.03
Overall Satisfaction	Within Groups	308.75	384	0.80		
	Total	318.18	386			

Note: *$p < 0.01$

The magnitude of differences was calculated using the formula for Eta squared. Cohen (1988) classifies .02 as a small effect, .06 as a medium effect, and .14 as a large effect for this measure of effect size. All differences found by the ANOVA test constitute a small to medium effect.

To further delineate these differences, Post-hoc comparisons were conducted using a Tukey HSD test. Participants who compete at the NCAA Division-3 level reported higher scores than both Division-1 and Division-2 participants on all variables. In fact, Division 3 participants reported significantly higher mean scores than their Division 2 counterparts on all measures ($p < .05$) and the only measures that were *not* significantly higher than Division 1 participants were on the measures of the CART-Q direct perspective subscale of Commitment and the CART-Q meta perspective subscales of Closeness and Commitment. No statistically significant differences were seen between Division-1 and Division-2 participants. Multiple comparison

results are shown in Table 10. A depiction of the results for overall scores on the CART-Q and ASQ is shown in Figure 2.

Table 10
Descriptive Results of ANOVA Post-Hoc Comparisons: CART-Q and ASQ across Divisions

	NCAA Competition Level					
	Division 1		Division 2		Division 3	
Measure	M	SD	M	SD	M	SD
CART-Q						
Direct – Overall	5.56	1.28	5.34	1.37	5.89**	1.03
Direct – Closeness	5.70	1.33	5.54	1.49	6.07**	1.07
Direct – Commitment	5.29	1.47	5.02	1.48	5.59*	1.24
Direct – Complementarity	5.63	1.28	5.39	1.31	5.94**	1.01
Meta – Overall	5.34	1.32	5.20	1.26	5.73**	1.07
Meta – Closeness	5.56	1.38	5.34	1.35	5.83*	1.11
Meta – Commitment	5.22	1.38	4.98	1.37	5.54*	1.18
Meta - Complementarity	5.35	1.39	5.22	1.26	5.77**	1.12
ASQ						
Overall Satisfaction	4.99	0.84	4.85	0.96	5.24**	0.91

Note: *Statistically different from D2 only, **Statistically different from D1 and D2, $p < .05$

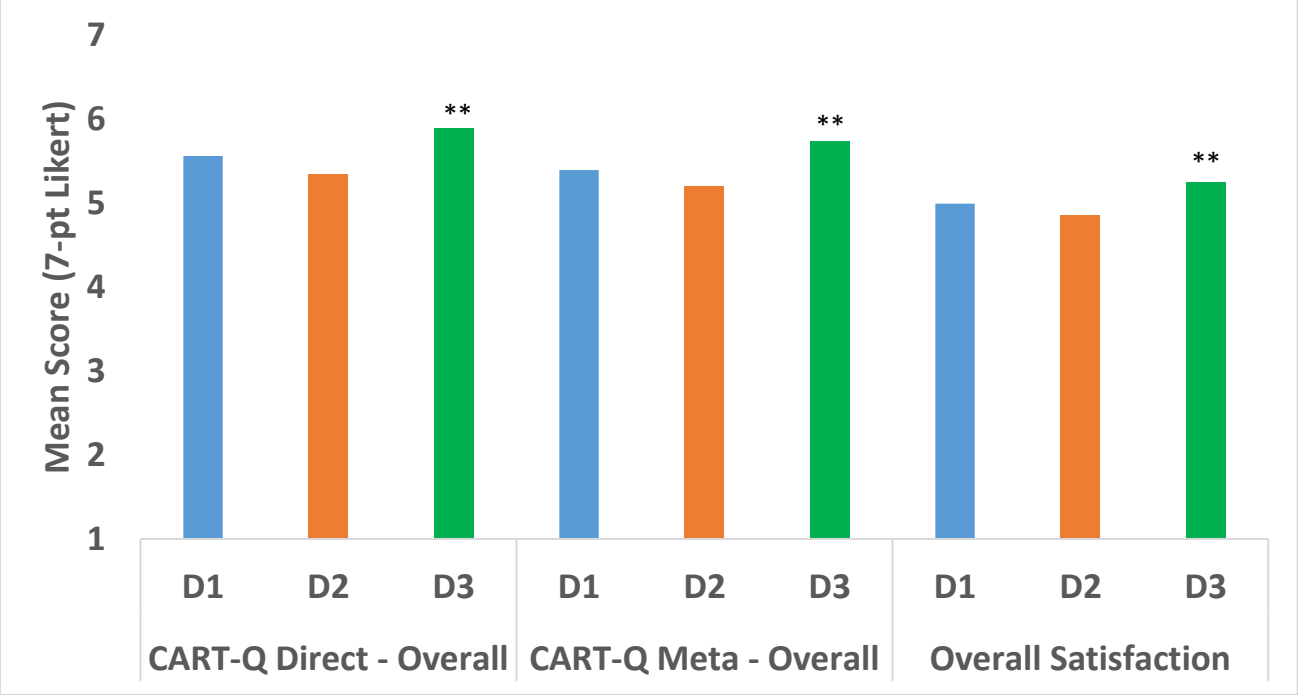

Figure 2 - *Differences between NCAA Divisions on overall CART-Q and ASQ scales.*
*** - Difference statistically significant from D1 and D2*

Differences by Year in School. To analyze differences between participants based on their year in school (i.e. freshman, sophomore, etc.), a one-way ANOVA was conducted to compare responses on all measures of coach-athlete relationship quality as well as athlete satisfaction. Participants from the freshmen and senior classes reported higher mean scores than sophomore and junior respondents on all measures of coach-athlete relationship quality as well as athlete satisfaction. Furthermore, the small number of graduate students in the study (n = 10) had the highest ratings on any measure. However, there were no statistically significant differences on any of the scales between student-athletes of different academic classes.

Correlational Analyses

An overall aim of this study was to determine if a relationship exists between measures of the coach-athlete relationship and athlete satisfaction. Research question three stated: Do ratings of the quality of the coach-athlete relationship predict student-athletes' ratings of satisfaction? 3b. If so, to what degree? In line with this inquiry, the following hypothesis was tested:

H1: Ratings of coach-athlete relationship quality will have a statistically significant positive predictive relationship with ratings of student-athlete satisfaction.

H_0: There will be no statistically significant relationship between ratings of coach-athlete relationship quality and ratings of student-athlete satisfaction.

A Pearson product-moment correlation coefficient was used to determine any associations between all scales of the CART-Q direct and meta perspectives and the overall score from the ASQ. There was a strong positive correlation between all measures of coach-athlete relationship quality and overall athlete satisfaction at the $p < .01$ level, with higher ratings of the

coach-athlete relationship associated with higher ratings of athlete satisfaction. Table 11 has complete results.

Table 11
Pearson Product-moment Correlations Between the CART-Q and ASQ

Scale	1	2	3	4	5	6	7	8	9
CART-Q									
1. Direct – Overall	1	.971	.945	.942	.953	.801	.784	.843	**.713**
2. Direct – Closeness		1	.898	.869	.827	.778	.754	.819	**.686**
3. Direct – Commitment			1	.816	.861	.812	.826	.818	**.704**
4. Direct – Complementarity				1	.758	.706	.670	.774	**.652**
5. Meta – Overall					1	.964	.938	.947	**.695**
6. Meta – Closeness						1	.879	.863	**.665**
7. Meta – Commitment							1	.821	**.640**
8. Meta - Complementarity								1	**.673**
ASQ									
9. Overall Satisfaction									1

Note: All correlations are statistically significant at the $p < .01$ level

To further explore the relationship between quality of the coach-athlete relationship and athlete satisfaction, additional Pearson product-moment correlation coefficients were used. More specifically, four subscales in the ASQ explicitly refer to coaching (Ability Utilization, Strategy, Personal Treatment, and Training/Instruction) which could have contributed to the observed association between the coach-athlete relationship and overall athlete satisfaction. To eliminate this possible effect, these four subscales were removed from the ASQ overall score and a new correlation was conducted to determine if the association between measures still existed. Although the strength of the relationship between variables was reduced, there was still a strong positive correlation between all measures of coach-athlete relationship quality, except Meta-Commitment which was a moderately positive relationship ($r = .475$, $n = 387$, $p < .001$), and athlete satisfaction (no coaching) at the $p < .01$. Higher ratings of the coach-athlete relationship associated with higher ratings of athlete satisfaction. Complete results are in Table 12.

Table 12

Pearson Product-moment Correlations Between the CART-Q and ASQ (No Coaching Scales)

Scale	1	2	3	4	5	6	7	8	9
CART-Q									
1. Direct – Overall	1	.971	.945	.942	.953	.801	.784	.843	**.583**
2. Direct – Closeness		1	.898	.869	.827	.778	.754	.819	**.554**
3. Direct – Commitment			1	.816	.861	.812	.826	.818	**.558**
4. Direct – Complementarity				1	.758	.706	.670	.774	**.554**
5. Meta – Overall					1	.964	.938	.947	**.532**
6. Meta – Closeness						1	.879	.863	**.515**
7. Meta – Commitment							1	.821	**.475**
8. Meta - Complementarity								1	**.521**
ASQ									
9. Satisfaction- No Coaching									1

Note: All correlations are statistically significant at the $p < 0.01$ level

An additional Pearson product-moment correlation was used to determine if a stronger correlation existed between measures of the coach-athlete relationship and a composite score of the four coaching subscales of the ASQ (Ability Utilization, Strategy, Personal Treatment, and Training/Instruction). For this analysis, the other 11 ASQ subscales (non-coaching) were not included. There was a strong positive correlation between all measures of coach-athlete relationship quality and the overall score of the four coaching-specific subscales of the ASQ at the $p < .01$ level, with higher ratings of the coach-athlete relationship associated with higher ratings of athlete satisfaction. Full results are in Table 13.

Table 13

Pearson Product-moment Correlations Between the CART-Q and ASQ (Coaching Scales)

Scale	1	2	3	4	5	6	7	8	9
CART-Q									
1. Direct – Overall	1	.971	.945	.942	.953	.801	.784	.843	**.755**
2. Direct – Closeness		1	.898	.869	.827	.778	.754	.819	**.735**
3. Direct – Commitment			1	.816	.861	.812	.826	.818	**.768**
4. Direct – Complementarity				1	.758	.706	.670	.774	**.662**
5. Meta – Overall					1	.964	.938	.947	**.782**
6. Meta – Closeness						1	.879	.863	**.739**
7. Meta – Commitment							1	.821	**.740**
8. Meta - Complementarity								1	**.750**
ASQ									
9. Satisfaction- Coaching									1

Note: All correlations are statistically significant at the $p < .01$ level

Regression Analyses

To specifically address research question three and explore the relationships between the independent and dependent variables, a standard multiple regression was used to determine how measures of coach-athlete relationship quality predict ratings of athlete satisfaction (i.e. using the "3Cs" as multiple predictors). This approach was used to determine the unique variance in the dependent variable (i.e. athlete satisfaction) that each of the three independent variables explains. Two separate regressions were used for the CART-Q direct perspective and meta perspective. Preliminary analyses were conducted to ensure no violation of the assumptions of normality, linearity, multicollinearity and homoscedasticity.

Results of the first multiple regression indicated that the three CART-Q direct perspective predictors explained 51.3% of the variance in athlete satisfaction ($R^2 = 0.513$, $F(3, 383) = 136.70$, $p < .001$), therefore the null hypothesis was rejected. Furthermore, it was found that ratings of Commitment significantly predicted athlete satisfaction ($\beta = 0.43$, $p < .001$), as did Complementarity ($\beta = 0.17$, $p < .05$). Both Commitment and Complementarity subscales make a statistically significant unique contribution to the variance explained by the model. See Table 14 for summary results.

Table 14
Multiple Regression Results: CART-Q direct perspective subscales and ASQ

Predictor	*B*	*SE B*	β
Direct – Closeness	0.12	0.07	0.16
Direct – Commitment	0.28	0.05	0.43**
Direct - Complementarity	0.13	0.06	0.17*

Note: $R^2 = .513$ (*p < .05, **p < .001)

Results of the second multiple regression with the three CART-Q Meta perspective predictors explained 48.1% of the variance (R^2 = .481, F(3, 383) = 120.21, p < .001) leading to a rejection of the null hypothesis. Unlike the direct perspective, ratings on the subscale of Meta-Commitment did not predict athlete satisfaction (β = 0.15, p = .06), but both Meta-Closeness (β = .23, p < .05) and Meta-Complementarity (β = .35, p < .001) made statistically significant unique contributions to the variance in athlete satisfaction. Summary results are in Table 15.

Table 15
Multiple Regression Results: CART-Q meta perspective subscales and ASQ

Predictor	*B*	*SE B*	β
Meta – Closeness	0.17	0.07	0.23*
Meta – Commitment	0.11	0.06	0.15
Meta – Complementarity	0.26	0.06	0.35**

Note: R^2 = .481 (*p < .05, **p < .001)

Regression Analysis with and without ASQ Coaching Subscales. As mentioned previously, the ASQ has four subscales that explicitly refer to coaching and could partially explain the observed association between coach-athlete relationship quality and overall ratings of satisfaction. Therefore, a standard multiple regression was conducted to determine how much variance the subscales of the CART-Q direct and meta perspectives can account for in ratings of athlete satisfaction with and without the four ASQ 'coaching' subscales. Results of the first regression, without the ASQ coaching subscales, indicated that the direct perspective predictors (i.e. the "3Cs") explain 33.7% of the variance in athlete satisfaction (R^2 = 0.337, F(3, 383) = 66.31, p < .001). Furthermore, the predictors of Commitment (β = 0.27, p = .006) and Complementarity (β = 0.26, p = .002) had similar unique contributions to ratings of satisfaction while Closeness (β = 0.09, p = .423) did not uniquely contribute. Summary results are shown in Table 16.

Table 16

Multiple Regression Results: CART-Q direct perspective subscales and ASQ (No coaching)

Predictor	*B*	*SE B*	β
Direct – Closeness	0.06	0.07	0.09
Direct – Commitment	0.16	0.06	0.27*
Direct - Complementarity	0.19	0.06	0.26*

Note: R^2 = .337, *p < .01

Next, a regression analysis was conducted with the subscales of the CART-Q meta perspective entered as predictors of athlete satisfaction (without the coaching subscales). Results of the test showed that coach-athlete relationship quality predicted 28.3% of the variance in athlete satisfaction (R^2 = 0.283, F(3, 383) = 51.67, p < .001). For this analysis, the predictor of Meta-complementarity was the greatest single contributor to athlete satisfaction (β = 0.29, p = .001). A summary of the results is presented in Table 17.

Table 17

Multiple Regression Results: CART-Q meta perspective subscales and ASQ (No coaching)

Predictor	*B*	*SE B*	β
Meta – Closeness	0.17	0.07	0.25*
Meta – Commitment	0.01	0.06	0.02
Meta – Complementarity	0.20	0.06	0.29**

Note: R^2 = .283, *p < .05, **p < .001

To investigate the relationship between the CART-Q predictors and ratings of athlete satisfaction from only the four ASQ coaching subscales, two standard multiple regressions were conducted. The first test was conducted with the direct perspectives subscales entered as predictors of athlete satisfaction (coaching subscales only). Results of the analysis indicated that the three predictors accounted for 59.7% of the variance seen in satisfaction (R^2 = 0.597, F(3, 383) = 191.98, p < .001) as measured by a composite score of the four coaching subscales. It

was found that Commitment made the largest unique contribution to the variance ($\beta = 0.56$, $p < .001$). A summary of the test is shown in Table 18.

Table 18
Multiple Regression Results: CART-Q direct perspective subscales and ASQ (Only coaching)

Predictor	*B*	*SE B*	β
Direct – Closeness	0.23	0.09	0.22*
Direct – Commitment	0.07	0.07	0.56**
Direct - Complementarity	0.07	0.07	0.02

Note: $R^2 = .597$, *p < .05, **p < .001

For the multiple regression with the CART-Q meta perspective subscales as predictors, results showed that the "3Cs" predicted 61.1% of the variance in athletes' satisfaction with their coaches ($R^2 = 0.611$, $F(3, 383) = 202.94$, $p < .001$). Measures of Meta-Complementarity made the single greatest contribution to the observed variance ($\beta = 0.37$, $p < .001$). Summary results are shown in Table 19.

Table 19
Multiple Regression Results: CART-Q meta perspective subscales and ASQ (Only coaching)

Predictor	*B*	*SE B*	β
Meta – Closeness	0.17	0.08	0.17*
Meta – Commitment	0.29	0.07	0.30**
Meta – Complementarity	0.37	0.07	0.37**

Note: $R^2 = .611$, *p < .05, **p < .001

Post-Hoc Analyses

After addressing the research questions, supplementary analyses were conducted to explore additional questions of interest. More specifically, four standard multiple regressions were conducted with the data set split by gender, sport type, division, and year in school. The purpose of these analyses was to identify any observable differences in the contributions of each predictor variable between groups.

Regression Analysis Across Gender. The three CART-Q subscales of the direct perspective were entered as predictors of student-athlete satisfaction scores on the ASQ with the data set split by gender. Results of the test showed that the "3 C's" explained 53.9% of the variance in athlete satisfaction for males (R^2 = .539, F(3, 152) = 61.51, p < .001) and 51.6% of the variance for females (R^2 = .516, F(3, 227) = 82.67, p < .001). Scores on the Commitment subscale had the largest unique contribution to athlete satisfaction for males (β = 0.68, p < .001) while scores on the Closeness subscale were the best predictor for satisfaction in females (β = 0.44, p < .001). Summary results are shown in Table 20.

Table 20
Multiple Regression Results: CART-Q direct perspective subscales and ASQ across Gender

	Participant Gender					
	Male			Female		
Predictor	*B*	*SE B*	β	*B*	*SE B*	β
Direct – Closeness	-0.17	0.11	-0.22	0.31	0.09	0.44**
Direct – Commitment	0.46	0.08	0.68**	0.13	0.08	0.20
Direct – Complementarity	0.22	0.09	0.31*	0.09	0.08	0.12

Note: R^2*(males)* = .539, R^2 *(females)* = .516, *p < .05, **p < .001

The three CART-Q subscales of the meta perspective were also entered into a multiple regression model to determine predictive properties on athlete satisfaction for each gender. Results indicated that the predictor variables from the meta perspective account for a smaller percentage of the variance in males (R^2 = .46, F(3, 152) = 44.95, p < .001) than the direct perspective while maintaining similar predictive properties for females (R^2 = .511, F(3, 227) = 81.16, p < .001). The subscale of Meta-Closeness had the largest unique contribution to athlete satisfaction for males (β = 0.39, p < .05) while Meta-Complementarity was the greatest predictor for female participants (β = 0.55, p < .001). Summary results are shown in Table 21.

Table 21
Multiple Regression Results: CART-Q meta perspective subscales and ASQ across Gender

	Participant Gender					
	Male			Female		
Predictor	*B*	*SE B*	β	*B*	*SE B*	β
Meta – Closeness	0.28	0.12	0.39*	0.11	0.08	0.15
Meta – Commitment	0.20	0.10	0.27*	0.03	0.07	0.04
Meta – Complementarity	0.04	0.09	0.05	0.40	0.07	0.55**

Note: R^2*(males)* = .46, R^2 *(females)* = .511, *p < .05, **p < .001

Regression Analysis Across Sport Type. For this analysis, the data set was split by sport type and multiple regressions were conducted using the three subscales of the CART-Q direct and meta perspectives, respectively, as predictor variables for athlete satisfaction. Results of the first regression, with the direct perspective subscales as predictors, showed that ratings of coach-athlete relationship quality accounted for 51.0% of the variance in athlete satisfaction for team sport student-athletes (R^2 = .51, F(3, 213) = 75.86, p < .001) and 50.1% of the variance in individual sport participants (R^2 = .501, F(3, 166) = 57.52, p < .001). The subscale of Commitment was the greatest contributor to the variance seen in team sport athletes (β = 0.55, p < .001) while Complementarity was the strongest predictor for satisfaction in individual sport respondents (β = 0.34, p < .01). Summary results are shown in Table 22.

Table 22
Multiple Regression Results: CART-Q direct perspective subscales and ASQ across Sport Type

	Sport Type					
	Team			Individual		
Predictor	*B*	*SE B*	β	*B*	*SE B*	β
Direct – Closeness	0.07	0.09	0.10	0.16	0.11	0.21
Direct – Commitment	0.38	0.08	0.55**	0.12	0.08	0.20
Direct – Complementarity	0.07	0.08	0.09	0.26	0.09	0.34*

Note: R^2*(team)* = .510, R^2 *(individual)* = .501, *p < .01, **p < .001

For the multiple regression with the CART-Q meta perspective subscales, ratings of the coach-athlete relationship accounted for 48.8% of the variance in athlete satisfaction for team sport participants (R^2 = .488, F(3, 213) = 69.49, p < .001) and 44.0% of the variance for individual sport athletes (R^2 = .44, F(3, 166) = 45.27, p < .001). The primary contributor to athlete satisfaction for team sport respondents was Meta-Complementarity (β = 0.42, p < .001) while Meta-Closeness was the greatest predictor for individual sport participants (β = 0.43, p = .001). Summary results are shown in Table 23.

Table 23
Multiple Regression Results: CART-Q meta perspective subscales and ASQ across Sport Type

	Sport Type					
	Team			Individual		
Predictor	*B*	*SE B*	β	*B*	*SE B*	β
Meta – Closeness	0.05	0.10	0.07	0.30	0.09	0.43**
Meta – Commitment	0.19	0.09	0.26*	0.07	0.07	0.12
Meta – Complementarity	0.31	0.07	0.42***	0.11	0.09	0.16

Note: R^2*(team)* = .488, R^2*(individual)* = .440, *p < .05, **p < .01, ***p < .001

Regression Analysis Across Division. To further investigate the association between coach-athlete relationship quality and athlete satisfaction, the data set was split by NCAA division. With the subscales of the CART-Q direct perspective entered as predictor variables, the first multiple regression was conducted. Results of the test indicated that coach-athlete relationship quality accounted for 39.8% of the variance in athlete satisfaction for Division-1 participants (R^2 = .398, F(3, 118) = 27.70, p < .001), 61.5% of the variance for Division-2 student-athletes (R^2 = .615, F(3, 62) = 35.54, p < .001), and 55.4% of the variance seen in Division-3 ratings of satisfaction (R^2 = .554, F(3, 195) = 82.87, p < .001). Furthermore, the subscale of Commitment was the greatest unique contributor to athlete satisfaction for both Division 2 participants (β = 0.42, p = .009) and Division 3 respondents (β = 0.49, p < .001).

None of the three predictor variables had a statistically significant and unique contribution to the variance in athlete satisfaction in Division-1 participants. Summary results are shown in Table 24.

Table 24
Multiple Regression Results: CART-Q direct perspective subscales and ASQ across Divisions

	NCAA Competition Level								
	Division-1			Division-2			Division-3		
Predictor	*B*	*SE B*	β	*B*	*SE B*	β	*B*	*SE B*	β
Direct – Closeness	0.25	0.14	0.40	0.31	0.14	0.48*	-0.02	0.10	-0.02
Direct – Commitment	0.11	0.10	0.19	0.34	0.13	0.42**	0.36	0.07	0.49***
Direct – Complementarity	0.05	0.09	0.07	-0.15	0.13	-0.21	0.28	0.08	0.31**

Note: R^2*(Div-1)* = .398, R^2*(Div-2)* = .615, R^2*(Div-3)* = .554, *p < .05, **p < .01, ***p < .001

With the CART-Q meta perspective subscales entered as predictor variables, results of the second multiple regression across divisions showed that coach-athlete relationship quality accounted for 38.6% of the variance in athlete satisfaction for Division-1 athletes (R^2 = .386, F(3, 118) = 26.324, p < .001), 56.8% of the variance for Division-2 participants (R^2 = .568, F(3, 62) = 29.50, p < .001), and 49.3% of the variance seen in respondents competing at the Division-3 level (R^2 = .493, F(3, 195) = 65.06, p < .001). Like the test with the direct perspective subscales as predictors, none of the meta perspective subscales had a unique contribution to overall variance for Division-1 participants. Scores on the Meta-Complementarity subscale were the greatest contributor to ratings of athlete satisfaction for both Division 2 athletes (β = 0.46, p = 0.013) and Division 3 respondents (β = 0.38, p < .001). See Table 25 for a summary of the results.

Table 25
Multiple Regression Results: CART-Q meta perspective subscales and ASQ across Divisions

	NCAA Competition Level								
	Division-1			Division-2			Division-3		
Predictor	*B*	*SE B*	β	*B*	*SE B*	β	*B*	*SE B*	β
Meta – Closeness	0.20	0.11	0.33	0.21	0.15	0.30	0.14	0.10	0.18
Meta – Commitment	0.06	0.09	0.10	0.02	0.12	0.03	0.15	0.09	0.20
Meta – Complementarity	0.14	0.09	0.28	0.35	0.14	0.46*	0.31	0.08	0.38**

Note: R^2*(Div-1)* = .386, R^2*(Div-2)* = .568, R^2*(Div-3)* = .493, *p < .05, **p < .001

Regression Analysis Across Year in School. To identify any noticeable differences in the unique contributions of each predictor variable between participants of different academic classes, the data set was split by respondents' year in school (i.e. freshman, sophomore, etc.). A multiple regression was conducted with the three subscales of the CART-Q direct perspective entered as predictor variables for athlete satisfaction. Results of the test showed that coach-athlete relationship quality accounts for 49.3% of the variance in athlete satisfaction for freshmen participants (R^2 = .493, F(3, 119) = 40.57, p < .001), 58.9% of the variance seen in sophomores (R^2 = .589, F(3, 94) = 47.26, p < .001), 50.7% of the variance for juniors (R^2 = .507, F(3, 82) = 30.19, p < .001), and 50.3% of the variance in satisfaction for senior athletes (R^2 = .503, F(3, 66) = 24.32, p < .001). The subscale of Commitment made the greatest unique contributions to ratings of satisfaction for freshmen (β = 0.41, p = .011), sophomores (β = 0.53, p < .001), and juniors (β = .59, p = .005). None of the "3 C's" made a statistically significant unique contribution to athlete satisfaction for senior participants. Summary results for this analysis are shown in Tables 26 and 27, split by underclassmen and upperclassmen.

Table 26

Multiple Regression Results: CART-Q direct perspective subscales and ASQ - Year in School

	Academic Class					
	Freshmen			Sophomore		
Predictor	*B*	*SE B*	β	*B*	*SE B*	β
Direct – Closeness	0.05	0.14	0.06	0.16	0.14	0.19
Direct – Commitment	0.30	0.12	0.41*	0.38	0.09	0.53**
Direct – Complementarity	0.23	0.11	0.27*	0.07	0.11	0.09

Note: R^2*(freshmen)* = .493, R^2 *(sophomore)* = .589, *p < .05, **p < .001

Table 27

Multiple Regression Results: CART-Q direct perspective subscales and ASQ - Year in School

	Academic Class					
	Junior			Senior		
Predictor	*B*	*SE B*	β	*B*	*SE B*	β
Direct – Closeness	0.07	0.13	0.11	0.13	0.17	0.19
Direct – Commitment	0.36	0.12	0.59*	0.07	0.12	0.12
Direct – Complementarity	0.03	0.10	0.03	0.34	0.17	0.44

Note: R^2*(junior)* = .507, R^2 *(senior)* = .503, *p < .01

A second multiple regression was conducted, with the data set split by participants' year in school, using the three subscales of the CART-Q meta perspective as the predictor variables for athlete satisfaction. Results of the test indicated that coach-athlete relationship quality accounted for 48.0% of the variance in freshmen ratings of satisfaction ($R^2 = 0.48$, $F(3, 119) = 38.55$, $p < .001$), 54.4% of the variance seen in sophomores ($R^2 = 0.544$, $F(3, 94) = 39.54$, $p < .001$), 50.6% of the variance in junior students' satisfaction ($R^2 = 0.506$, $F(3, 82) = 30.05$, $p < .001$), and 46.8% of satisfaction ratings from participants in their senior year ($R^2 = 0.468$, $F(3, 66) = 21.27$, $p < .001$). The predictor of Meta-complementarity was the largest unique contributor to satisfaction for sophomores ($\beta = 0.37$, $p = .004$) and seniors ($\beta = 0.44$, $p = .035$). Athlete satisfaction among freshmen was best predicted by Meta-closeness ($\beta = 0.48$, $p = .002$) while Meta-commitment was the strongest predictor for junior athletes' satisfaction ($\beta = 0.47$, p

= .013). Summary results for this test are shown in Tables 28 and 29, split by lowerclassmen and upperclassmen.

Table 28
Multiple Regression Results: CART-Q meta perspective subscales and ASQ - Year in School

	Academic Class					
	Freshmen			Sophomore		
Predictor	*B*	*SE B*	β	*B*	*SE B*	β
Meta – Closeness	0.37	0.12	0.48**	0.07	0.13	0.09
Meta – Commitment	-0.17	0.10	-0.24	0.25	0.12	0.33*
Meta – Complementarity	0.36	0.11	0.46***	0.28	0.09	0.37**

Note: R^2*(freshmen)* = .480, R^2 *(sophomore)* = .544, *p < .05, **p < .01, ***p < .001

Table 29
Multiple Regression Results: CART-Q meta perspective subscales and ASQ - Year in School

	Academic Class					
	Junior			Senior		
Predictor	*B*	*SE B*	β	*B*	*SE B*	β
Meta – Closeness	0.01	0.14	0.01	0.15	0.16	0.21
Meta – Commitment	0.31	0.12	0.47*	0.05	0.13	0.07
Meta – Complementarity	0.18	0.11	0.27	0.30	0.14	0.44*

Note: R^2*(junior)* = .506, R^2 *(senior)* = .468, *p < .05

Summary

After removing incomplete data from the spreadsheet, a total of 387 participant responses underwent a comprehensive statistical analysis. Basic descriptive statistics were presented to generate an overall picture of the data and answer the first two research questions. The demographic characteristics of gender, sport type, NCAA division, and year in school were the primary classifications for testing. Inferential statistics were conducted to determine differences between these groups and address the sub-questions for research questions one and two.

Additionally, Pearson product-moment correlations were used to identify associations between the coach-athlete relationship and athlete satisfaction. To explore this relationship

further and answer the third research question, a standard multiple regression was utilized to test the null hypothesis and determine if the subscales of the CART-Q had a statistically significant positive predictive relationship with ratings of athlete satisfaction. The test results supported the alternative hypothesis and subsequently led to a rejection of the null hypothesis. Additional regression analyses were conducted to further investigate the predictive properties of the CART-Q subscales with respect to athlete satisfaction.

Chapter Five: Discussion

The results of this study provide a much-needed contribution to the general body of knowledge and set the foundation for future inquiry. Over the past 15 years, most research on the coach-athlete relationship has been conducted outside the United States and the current findings represent a novel contribution. NCAA student-athletes embody a unique role in American sport and yet remain an understudied population. This study provides insight on NCAA student-athletes' perceptions of the quality of their current coach-athlete relationship as well as ratings of satisfaction. Furthermore, evidence is provided to suggest that ratings of coach-athlete relationship quality have a predictive relationship with ratings of athlete satisfaction. These findings will be discussed in more detail throughout this chapter. Limitations of the study will also be addressed in the following pages.

The Coach-Athlete Relationship

Research question one stated: What are NCAA student-athletes' perceptions of the quality of their current coach-athlete relationship? 1b. Are there differences between subgroups (gender, sport type, competitive division, year in school)? Overall, participants reported high ratings of relationship quality (i.e. interdependence) with their coaches from both direct and meta perspectives on the CART-Q. The subscale of Closeness had the highest individual rating, suggesting that NCAA student-athletes like and trust their coaches to a substantial degree. These findings indicate a generally strong interpersonal connection between participants and their coaches which provides support for the status quo in NCAA coach development.

Interestingly, men and women did not significantly differ in ratings of coach-athlete relationship quality. Such a result runs counter to other investigations that found females

reported higher levels of interdependence than males (Jowett & Don Carolis, 2003, as cited in Jowett & Nezlek, 2011). Additionally, it has been claimed that women assume greater similarity, between their own perceptions of commitment and their coaches' perceptions of commitment, than men (Jowett & Clark-Carter, 2006). Clearly, there is evidence for gender differences in the coach-athlete relationship even though the current results do not support this contention. This apparent contradiction may be attributable to cultural context as the population in this study was different from others reported (i.e. American v. European). More research is needed to further elucidate this idea.

A less surprising finding was the significant differences in perceptions of coach-athlete relationship quality between team sport athletes and individual sport athletes. Participants who competed in individual sports, such as tennis and cross-country, reported feeling closer to and more committed to their coaches than team sport athletes (e.g. basketball and football), which confirms previous findings reported in the literature (Rhind, Jowett, & Yang, 2012). The current study also noted differences in complementary behavior with coaches between individual and team sport participants, which runs counter to results in the aforementioned citation. Additionally, individual sport athletes believed their coaches were closer, more committed, and complementary to them than their team sport counterparts.

These differences between team and individual sport athletes indicate that situational factors can have a profound impact on the coach-athlete relationship. The very nature of individual sports compared to team sports is different. Success in team sports relies largely on group cooperation and cohesion. To promote a shared vision, team sport coaches may foster more of a collective relationship with their athletes rather than on an individual basis. Contrastingly, individual sport coaches may spend more time interacting one-on-one with

athletes which could bolster those athletes' perceptions of the relationship. Ultimately, though, these findings suggest that team sport athletes may benefit in the future from coaches who work to develop stronger relationships with their athletes.

Although Diverse participants reported higher ratings of coach-athlete relationship quality than White participants, the difference was not statistically significant. The lack of difference on racial lines may be because collegiate sport teams are historically more diverse than the general population (Lapchick, Hoff, & Kaiser, 2013) and are better at developing interracial relationships. It is also possible that no significant difference was observed simply because there were fewer Diverse participants in the sample. Although much still needs to be done to ensure racial equality in the future of collegiate athletics (Harper, Williams, & Blackmon, 2013), the findings of this study suggest that coach-athlete relationship quality is not influenced by racial differences.

In a similar vein, participants with male coaches reported no statistically significant differences in relationship interdependence than participants with female coaches. This result may seem surprising to some because coaching continues to be a male-dominated profession (Cunningham, 2016). More specifically, the status quo might shape athlete perceptions to be more favorable to male coaches even with an influx of women in the profession. Supporting this idea, Jowett and Nezlek (2011) found that coach-athlete relationships consisting of female coaches and male athletes had lower ratings of interdependence than all other combinations. However, the lack of difference in the present study suggests that female coaches may be able to overcome potential stigmas that some believe lead to weaker connections with athletes.

Participants from Division-3 institutions differed from their Division-2 counterparts on all measures of coach-athlete relationship quality and all but two measures from Division-1 respondents. These results suggest that there may be inherent differences in the Division-3 student-athlete population. Of course, it is recognized that Division-3 sport competitors do not receive athletic scholarships and spend less time on athletics than higher level student-athletes (NCAA, 2016). However, this distinction might lead one to wrongly imply that their relationships with their coaches would be underdeveloped.

The recruiting regulations at NCAA Division-3 institutions are less stringent than other divisions, which opens the way for a stronger coach-athlete relationship from the start because coaches can communicate with prospective athletes more freely. Furthermore, both coaches and student-athletes recognize that sport participation at the Division-3 level is more about personal enrichment than a springboard to professional athletics. Perhaps this focus on self-fulfillment and personal success is the reason for stronger coach-athlete relationships at this level. However, it is important to acknowledge that Division-3 competitors do strive for performance excellence in competition just as much as athletes at other levels.

Another finding that was somewhat surprising is that ratings of coach-athlete relationship quality did not differ between participants of different academic levels (e.g. freshman, sophomore, etc.). One might expect upperclassmen to report higher levels of interdependence with their coaches because the duration of the relationship is longer. In fact, Jowett and Clark-Carter (2006) found athletes in established relationships to have higher levels of assumed similarity with their coaches in terms of commitment than athletes in newly formed relationships. Additionally, Jowett (2008) observed relationship duration to be the only variable to have

significant moderating effects between athletes' perceptions of the coach-athlete relationship and their physical self-concept.

It is unclear why the current results indicated no difference between older athletes and younger athletes. A possible explanation is participant expectancy, especially with respect to lowerclassmen. Freshmen student-athletes may idealize the relationship because everything is new and exciting while more mature participants may have higher ratings because the relationship has developed higher interdependence over time. More research is needed to further investigate this dimension.

Athlete Satisfaction

Research question two stated: What are NCAA student-athletes' perceptions of their overall satisfaction within the athletic domain? 2b. Are there differences between subgroups (gender, sport type, competitive division, year in school)? Student-athletes in this study reported positive perceptions of their college experience as indicated by moderately high ratings of overall satisfaction and their disposition to "stay and graduate." This finding substantiates the findings of Potuto and O'Hanlon (2007) as well as general statements made by the NCAA (2016). Although this result suggests that NCAA student-athletes are content with their experiences in collegiate sport, it is important to note specific dimensions that received lower ratings of satisfaction, especially those that pertain to coaching. The area that participants were most dissatisfied was the team budget allotted by the athletic department. Although many factors affect financial support for collegiate sport teams it appears that this sample of student-athletes believed they were underfunded. However, it is likely that the higher number of

Division-3 participants, relative to the other divisions, skewed this result as there is generally less financial support for these programs.

The second-lowest dimension was participants' satisfaction with the training and instruction received from their coaches. This observation represents a topic worthy of discussion. Historically, coach education initiatives have focused on the *what* of coaching (Cote & Gilbert, 2009) rather than the *how* of coaching. The *what* is essentially the technical principles that coaches must understand about their sport; the *how* pertains to the actual delivery of that knowledge to athletes. The results of this study suggest that coaches may need more work on the *how* if they want to coach highly satisfied sport participants. Interestingly, coaches *are* interested in learning how to teach, not just what to teach (McCullick, Belcher, & Schempp, 2005), which suggests that they may be aware of their need to improve in this area. Taken together, it would appear that NCAA student-athletes want better training and instruction, and their coaches may already be taking steps to improve that deficiency.

Although examining the individual dimensions of athlete satisfaction is beyond the scope of this study, it should also be mentioned that participants were most satisfied with their personal contributions to their teams. Such a finding may be explained by individual bias in their attributional process (Mezulis, Abramson, Hyde, & Hankin, 2004) but it seems like participants believe they are making valuable contributions to the success of their programs. Furthermore, results suggest that participants believed their teammates contributed to their development as people, as evidenced by the second-highest dimension of satisfaction: team social contribution. These observations indicate a strong sense of self-belief on the part of participants and other-belief with respect to their peers.

It would be interesting to compare these perceptions with those of their coaches. Lorimer and Jowett (2009a) found that coaches and athletes averaged less than 40% accuracy when trying to determine what the other was thinking during a training session. With the current population, student-athletes appear to be only moderately satisfied with several dimensions of their overall experience. Are their coaches aware of these perceptions? It is intuitive to think that the coaches would want highly satisfied athletes on every dimension, so it is possible, and probably likely, that the coaches do not know. As such, these findings could serve as useful feedback for NCAA coaches who wish to improve the experiences of their student-athletes.

In terms of gender differences in overall satisfaction, males reported slightly higher ratings but the difference was not statistically significant. Baker, Yardley, and Cote (2003) showed that males experienced greater satisfaction with their coaches than females which suggests that even though the discrepancy in the current study was not significant, there may be more to this story. Female participants outnumbered male student-athletes by 75 and it is possible the weight of responses influenced the level of statistical significance. Another explanation for this finding may be that Title IX initiatives are actually working and female student-athletes are content with the opportunities afforded them in collegiate sport. More research is needed to examine these claims.

Individual sport athletes reported significantly higher ratings of satisfaction than team sport participants. The effect size was classified as small-moderate which indicates a worthwhile level of statistical importance. Baker and colleagues (2003) found that individual sport athletes reported greater satisfaction than team sport athletes with respect to their coaches. The fact that all analyses across the two sport types in this study resulted in statistically significant differences clearly illustrates the importance of contextual factors for NCAA student-athletes. Individual

sport athletes do not have to rely on teammates or game-time decisions by their coaches to be successful, rather, they must only rely on themselves. Contrastingly, team sport athletes must navigate the inter-team dynamics from teammates and coaches to reach their potential which could explain the lower ratings of satisfaction.

As an emerging area in the coaching literature (Lyle & Cushion, 2010), context is a key component to understanding satisfaction in sport. Naturally, coaches of team sports need slightly different skills than coaches of individual sports but the results of this study suggest that team sport coaches may be wise in adopting some of the techniques used by individual sport coaches. Adopting such skills could result in greater athlete satisfaction which could, in turn, positively affect both performance and non-performance outcomes. Future investigations should be aimed at further delineating the differences between individual sport athletes and team sport athletes. Then specific recommendations can be provided to coaches to foster greater athlete satisfaction.

Like perceptions of the coach-athlete relationship, Diverse participants reported greater levels of satisfaction than White participants, but the difference was not statistically significant. This finding runs counter to other research that highlights some of the challenges faced by ethnic minorities, especially those on predominantly white college campuses (Melendez, 2008). A detailed discussion of racial injustice in collegiate athletics is beyond the scope of this study but others have demonstrated the need for more investigation in this area (Agyemang, Singer, & DeLorme, 2010; Hyatt, 2003). The fact that Diverse participants in this study reported similar levels of satisfaction to White participants should be encouraging to the NCAA and member institutions who are trying to promote racial equality and persistence among ethnic minorities.

Participants with male coaches reported slightly higher levels of satisfaction than individuals with female coaches, but the difference was not statistically significant. The similar ratings of satisfaction are promising for future female coaches who recognize the social stigma surrounding women in sport, especially those who may be coaching male athletes. Future investigations should explore the subscales of the ASQ in addition to overall satisfaction to determine if any significant differences exist across the gender dimension. Furthermore, Fasting and Pfister (2000) showed that female athletes preferred female coaches, which suggests that matching may be an important component to consider in future studies.

Division-3 participants reported significantly greater levels of satisfaction compared to both Division-1 and Division-2 athletes. This finding contradicts early research in this area which found athletes from larger institutions were more satisfied than those at smaller institutions (Weiss & Friedrichs, 1986). However, more recent investigations indicated that Division-3 athletes had less salient athletic identities (Rankin et al., 2011) and reported higher levels of satisfaction with their athletic experience than Division-1 participants (Paule-Koba & Farr, 2013), which is consistent with results of the current study. Overall, there appears to be an innate characteristic of the Division-3 system that promotes athlete satisfaction.

An overarching goal of the NCAA is to promote student-athlete well-being (NCAA, 2016) at all levels but it appears that Division-3 student-athletes are somehow better served than those at higher levels. This finding is counterintuitive in the sense that there is much more emphasis placed on athletics for participants at upper divisions. For example, Division-1 student-athletes receive the greatest budgets, most advanced facilities, and more academic support than Division-3 student-athletes and yet are not as satisfied with their experience. This contradiction certainly warrants further investigation but also might suggest that the NCAA

should employ more elements of the Division-3 system for all student-athletes. Additionally, an examination of the ASQ subscales might prove fruitful in distinguishing where the major differences lie.

Participants of different academic years (e.g. freshman, sophomore, etc.) reported similar levels of satisfaction with no statistically significant differences observed. This result runs counter to another study that found older athletes reported greater satisfaction with their coach (Baker et al., 2003). However, it has been demonstrated that few Division-1 student-athletes believe they are receiving poor support or wish they were attending another college (Potuto & O'Hanlon, 2007). Such a result may also have applications to lower level schools. For example, in the current study only a handful of total participants indicated that they may be considering transferring to another university. This overarching observation could explain why there are no differences between students of various academic years. More specifically, most are already satisfied with their experience regardless of their year in school. Little research exists in this area so these conclusions need to be tested in future studies.

The Coach-Athlete Relationship as Predictor of Athlete Satisfaction

Research question three stated: Do ratings of the quality of the coach-athlete relationship predict student-athletes' ratings of satisfaction? 3b. If so, to what degree? The research hypothesis predicted that coach-athlete relationship quality would have a statistically significant positive predictive relationship with ratings of student-athlete satisfaction and results of correlational analyses supported this hypothesis. All measures of coach-athlete relationship quality had strong positive correlations with overall athlete satisfaction, with higher ratings of interdependence associated with higher ratings of athlete satisfaction. The strongest correlation

was observed between athletes' overall *self*-perceptions of the coach-athlete relationship and satisfaction. This finding underlines the importance of considering the athletes' perspective in sport research (Poczwardowski et al., 2006; Wylleman, 2000).

Additionally, the present study confirms the findings of Lorimer and Jowett (2009a), who found that athletes' meta-perspectives of the coach-athlete relationship were significantly and positively associated with ratings of satisfaction. Believing their coaches are trusting, committed, and friendly is perhaps an obvious contributor to athletes' satisfaction, but this finding has implications for coaches. It is possible for coaches to have different perceptions of the relationship than athletes but the most important component is that the athletes' perception matches their preferences (Chelladurai, 1984). More specifically, the athletes' perceptions of coach empathy may be a mechanism that connects coach-athlete relationship quality with satisfaction (Jowett et al., 2012). Coaches may be able to promote athlete satisfaction by developing and practicing empathy with their athletes. This conclusion is ripe for future investigation.

Overall, though, greater interdependence was linked with more satisfied athletes, which is substantiated in other populations (Jowett & Nezlek, 2011). Taken together, these findings demonstrate a positive relationship between constructs from both direct and meta perspectives. The coach-athlete relationship is clearly linked with NCAA student-athlete satisfaction. However, some subscales on the ASQ specifically refer to coaching and could have artificially inflated this association. To test this possibility, the four 'coaching subscales' of the ASQ were removed and Pearson coefficients were re-calculated. Indeed, coach-athlete relationship quality still had a strong positive correlation with athlete satisfaction on every measure, except meta-commitment, which was a moderately positive association.

This finding has far-reaching implications as it illustrates the magnitude of coaches' influence on their athletes. Not only is the coach-athlete relationship connected to athletes' satisfaction with specific coaching subscales, but the association still exists on non-coaching measures of their experience (e.g. ethics, individual performance, academic support services, etc.). These results suggest that the coach-athlete relationship does, in fact, occupy a central role in overall NCAA student-athlete experiences.

To assess the predictive qualities of the coach-athlete relationship with respect to athlete satisfaction, a standard multiple regression was conducted. With the "3Cs" of interdependence entered as multiple predictors, athlete self-perceptions (i.e. direct perspective) of the coach-athlete relationship accounted for 51.3% of the variance in ratings of satisfaction. The single greatest contributor to athlete satisfaction was Commitment to their coach, followed by Complementarity as the other significant predictor. Since the Commitment subscale refers to the cognitive elements of the coach-athlete relationship, it appears that the way athletes *think* about the relationship is of paramount importance. If they believe they are close to, committed to, and have a promising career with their coach, then they are likely to report high ratings of satisfaction. Such a finding demonstrates the importance of athletes' own thought processes but also that coaches should try to understand and even target athlete thinking patterns. By seeking to encourage athlete commitment to the relationship, coaches may be able to positively affect athlete satisfaction.

Interestingly, with the Meta perspective subscales as predictors, Commitment did *not* make a significant contribution to athlete satisfaction. This suggests that athlete contentment is not affected by whether participants believe their coaches are committed to them. As such, it appears that satisfaction is influenced more by athletes' own commitment to the relationship than

their coaches' commitment. The component of the Meta perspective that was the single greatest contributor to ratings of athlete satisfaction was Complementarity (Closeness was also a significant predictor but to a lesser extent). Sport participants may experience higher levels of satisfaction when their coaches are at ease, respond to athletes' efforts, are ready to do their best, and adopt a friendly stance. Perceptions of coaching behavior are clearly an important aspect of athlete satisfaction and coaches would be wise to enact behaviors that are perceived positively by their athletes.

To assess the predictive qualities of the coach-athlete relationship and athlete satisfaction *without* the four 'coaching subscales' of the ASQ, another multiple regression was used. The "3Cs" of interdependence significantly predicted 33.7% of the variance in athlete satisfaction with non-coaching measures. Athlete Commitment and Complementarity made similar significant contributions to the observed variance while Closeness did not demonstrate a predictive quality. With the Meta perspective subscales as predictors, Complementarity and Closeness were significant contributors to athlete satisfaction. Taken together, these results follow the same pattern as when the four 'coaching subscales' *were* included in the analysis. Athletes' commitment to and behavior toward their coach significantly predicted their satisfaction. Additionally, if they think their coaches like, trust, and respect them while also adopting complementary behaviors, then athletes are more likely to experience high levels of satisfaction in all areas of their collegiate athletic career.

Additional analyses were conducted to identify any observable differences in the predictive properties of coach-athlete relationship quality between sub-groups. With the data set split by gender, self-perceptions (i.e. direct perspective) of coach-athlete relationship quality significantly predicted ratings of athlete satisfaction for both men and women. However,

striking differences were apparent in the single greatest predictor for each gender. For men, Commitment made the single most unique contribution to athlete satisfaction. For women, Closeness was the greatest contributor. On the Meta perspective, the best predictor for male athlete satisfaction was Closeness (Commitment was also a unique contributor). For female athletes, Complementarity was the single greatest predictor.

These results represent a novel contribution to the coaching literature, as no study to date has demonstrated such a clear distinction of coach-athlete relationship preferences on the basis of gender. Although it fits a traditional gender stereotype, the findings of this analysis suggest that male athlete satisfaction is more affected by the cognitive elements (i.e. Commitment) of the coach-athlete relationship while female athlete satisfaction is more influenced by the affective/emotional elements (i.e. Closeness). Men may experience more satisfaction when they are committed to their coach while women may have greater satisfaction when they like and respect their coach. Interestingly, though, it appears that male athletes *do* want their coaches to like them, and their perceptions of whether their coach likes them (i.e. Closeness) was the greatest predictor of satisfaction from the Meta perspective. Furthermore, female participants seem to want their coaches to adopt Complementary behaviors, as this Meta subscale made the largest contribution for women.

Coaches of co-ed sports could especially benefit from these findings. Many practitioners treat their athletes the same regardless of gender while others recognize subtle differences. Certainly, there must be some sociocultural layers that influenced these observations but coaches should be aware of these results nonetheless. Female athlete satisfaction was affected by how close they felt to their coaches and how well their coaches adopted certain behaviors. Male

athlete satisfaction was influenced by their commitment to their coaches and whether they believed their coaches liked, trusted, and respected them.

Coaches of women's sports should be responsive to their athletes' efforts and adopt a friendly, relaxed stance. Such a position will likely promote a sense of closeness within their athletes, which could lead to greater levels of satisfaction. Coaches of men's sports should make a concerted effort to communicate their trust and respect for their athletes. In return, it is likely that their athletes will feel more committed to the relationship, thus bolstering their perceptions of satisfaction. Of course these recommendations apply to coaches of any gender, but the findings of this study suggest that there may be specific aspects of the relationship that are more important to certain groups. Future research should examine these claims.

As for the analysis with the data set split by sport type, relationship interdependence (i.e. the "3Cs") significantly predicted athlete satisfaction for both team and individual sport athletes. On the direct perspective, Commitment was the single greatest predictor of satisfaction for team sport athletes while Complementarity was the strongest contributor for individual sport participants. For the Meta version, Complementarity accounted for most of the variance in team sport athlete satisfaction while Closeness was the best predictor for individual sport athletes. It appears that team sport athlete satisfaction may be influenced by their commitment to their coach as well as the degree of complementary behavior they believe their coach exhibits. Individual sport participants may experience greater satisfaction if they, themselves, adopt complementary behaviors toward their coach and believe their coach likes, trusts, and respects them.

These findings provide support for context-specific coaching styles regarding sport type. Team sport coaches may be well served to demonstrate behaviors that are responsive to their

athletes' efforts and show that they are ready to do their best. Such an approach could lead to more commitment from their athletes and, together, boost satisfaction. Individual sport coaches should recognize that if they convey liking, trust, and respect to their athletes, satisfaction may increase. Additionally, if these athletes believe their coach is close to them, they may use more complementary behaviors, which also may positively affect satisfaction. Overall, though, the aspects of the coach-athlete relationship that predict ratings of athlete satisfaction for team and individual sport athletes are different, and coaches may need to tailor their approaches to promote athlete satisfaction.

After splitting the data set by NCAA division, coach-athlete relationship quality significantly predicted ratings of athlete satisfaction for all three divisions respectively. Interestingly, though, none of the "3Cs", individually, significantly predicted athlete satisfaction for Division-1 athletes on either the direct or meta perspectives. This finding suggests that the overall quality of the coach-athlete relationship has more of an aggregate influence on athlete satisfaction for this population and the contributions are shared among the subscales. Alternatively, there may be other aspects of the Division-1 athletic experience that are more salient to levels of satisfaction than the coach-athlete relationship. However, overall relationship quality *did* significantly predict athlete satisfaction so more research is needed to confirm these possibilities.

For Division-2 participants, both Closeness and Commitment (i.e. direct perspective) made unique contributions to the variance observed in athlete satisfaction. Complementarity was the single greatest predictor on the Meta subscales for Division-2 athletes. As for competitors at the Division-3 level, Commitment and Complementarity had the largest influence on satisfaction from the direct perspective while Complementarity was the greatest contributor on the Meta

perspective. It appears that both Division-2 and Division-3 participants may experience more satisfaction when they are committed to the relationship and they believe their coach adopts complementary behaviors. Furthermore, if Division-2 athletes feel close to their coach they may be more satisfied with their experience. Division-3 participants may experience greater satisfaction if they adopt complementary behaviors toward their coaches.

The results of this analysis further highlight the situational characteristics of athletes at different levels. It has been acknowledged that coaches can enhance athlete satisfaction by matching their styles with athlete preferences (Riemer & Chelladurai, 1995). In this study, predictive qualities of the coach-athlete relationship for Division-2 and Division-3 athletes were somewhat similar but starkly contrasted those of Division-1 participants. The job requirements of coaches at each of these levels are unique which may influence athlete satisfaction. Furthermore, ratings of satisfaction for athletes of each division seem to be affected by different aspects of the coach-athlete relationship. NCAA coaches could benefit by targeting the specific components of the relationship that lead to satisfied athletes at their respective divisions. Replication studies are needed to confirm these contentions.

The final post-hoc analysis was a standard multiple regression with the data set split by participants' year in school (e.g. freshman, sophomore, etc.). Coach-athlete relationship quality significantly predicted athlete satisfaction for students at every academic level. For the direct perspective, Commitment was the single greatest predictor for freshmen, sophomore, and junior classes. None of the "3Cs" made a unique contribution to satisfaction for senior athletes. For self-perceptions, it appears that athlete satisfaction may be a function of commitment to the relationship for freshmen, sophomore, and junior athletes. If these participants are committed to their coaches, then they may be more likely to experience greater satisfaction. (It should be

noted that Complementary behavior was also a significant contributor to ratings of athlete satisfaction for freshmen athletes.)

For the Meta perspective, there were more discrepancies between the academic classes. Both Closeness and Complementarity were the two greatest contributors to athlete satisfaction for freshmen while Complementarity and Commitment, respectively, exhibited more influence for sophomores. Participants in their junior year reported Commitment as the strongest predictor of satisfaction while seniors' satisfaction was best predicted by Complementarity. All classes, except juniors, appear more likely to experience satisfaction when their coach adopts a friendly stance, is responsive to their efforts, and seems at ease. Interestingly, freshmen athletes were the only respondents whose satisfaction appeared to depend on whether they thought their coach liked, trusted, and respected them. This finding may be due to the natural insecurities that come with being a new member of a team and the desire to be accepted by the coach.

For juniors', and sophomores', to a lesser degree, satisfaction was best predicted by whether they believed their coach was committed to them. It is unclear why this only appears in the middle two classes. Perhaps it is because freshmen are more concerned with being accepted by their coach in a novel setting and seniors are looking toward the future and are more established outside of athletics (i.e. they do not need their coaches to be committed to them). On the other hand, sophomores and juniors have made friends with teammates and peers so they don't rely as much on whether their coach likes them but their future is still undetermined (i.e. they do need their coach to be committed to them). Future investigations should try to clarify these differences. Overall, though, it appears there are many similarities between participants of different academic classes on which aspects of the coach-athlete relationship predict athlete satisfaction. The few noted differences provide more evidence for contextually different

coaching approaches to best meet the needs of individual athletes, and coaches should be aware of these findings.

Limitations

Although the results of this study make a novel contribution to the literature, it is not without its limitations. First, the sample only included NCAA student-athletes and the results are not generalizable outside this population. Also important to note is that this is the first study to employ these methodologies with this population so the findings need to be confirmed through replication studies. Furthermore, additional research is needed with other sport participants (i.e. youth, high school, and professional) to better understand contextual factors.

Second, the data collection procedures relied on self-report measures which represents a threat to external validity. Of course, procedural steps were taken to minimize the risk of self-report bias, but even though the CART-Q and ASQ are widely accepted as valid and reliable instruments, the results need to be compared to more objective measures. An important limitation to acknowledge is that coaches' perceptions of the coach-athlete relationship were not collected in this study. Future investigations should garner these perspectives for a more holistic understanding of the variables of interest.

Additionally, data collection took place early in participants' spring semester and the major limitation of this cross-sectional approach is that it does not infer causality. The sampling procedure does support generalization to the population but more longitudinal and experimental studies are needed to substantiate the major claims of the present study. Lastly, the primary statistical analyses were correlational and results should be interpreted with caution. Although

the findings of this study are intriguing they do not imply cause and effect. Any conclusions drawn from these results should acknowledge this limitation.

Implications and Future Directions

The findings of this study provide evidence that certain subgroups of NCAA student-athletes have better relationships with their coaches and experience more satisfaction. More specifically, individual sport athletes had higher perceptions of the coach-athlete relationship and reported higher ratings of satisfaction than their team sport counterparts. Team sport coaches may benefit from adopting some of the techniques used by individual sport coaches. In turn, the athletes on these teams may experience greater interdependence with their coaches and feel more satisfied. To promote this idea, the NCAA could investigate the differences between team and individual sport coaches and institute professional development opportunities aimed at enhancing student-athlete experiences. Furthermore, coach education outlets of all levels could include training that capitalizes on these discoveries by adding relationship-building skills as part of the curriculum. Future studies should seek to identify the specific constructs that caused the observed differences between team and individual sport athletes' responses.

Division-3 participants may also have better relationships with their coaches as well as higher ratings of satisfaction than respondents at other levels. The NCAA, specifically, could benefit from these findings and adopt more aspects of the Division-3 model for all of its sanctioned institutions. Additionally, coaches at this lower level should be encouraged to share their expertise at professional development venues to promote these qualities at all NCAA divisions. More research is needed on all NCAA student-athletes, but Division-2 and Division-3 competitors are even less studied than Division-1 participants. The work of independent

researchers in conjunction with NCAA-sponsored projects could lead to a more complete understanding of the Division-3 experience and better promote those qualities at other levels.

Perhaps the most noteworthy implication of this study is the clear association between coach-athlete relationship quality and athlete satisfaction. This is the first study to demonstrate such a correlation within NCAA student-athletes and it makes a novel contribution to the literature. Although this finding does not demonstrate cause-and-effect, it is possible that coach-athlete relationship quality may be an antecedent to athlete satisfaction. Sport coaches embody a central role in student-athlete experiences and it is logical to conclude that the relationship between these individuals is a key determinant in athlete satisfaction. In fact, both coach-athlete relationship quality and athlete satisfaction have been linked with burnout and attrition in sport (Isoard-Gautheur et al., 2016; NCAA, 2016; Schmidt & Stein, 1991).

Coaches need to recognize that a one-size-fits-all approach may not be effective and there is a need for different leadership approaches within the same team (Riemer & Chelladurai, 1995). By tailoring their coaching style to fit the unique needs of each individual athlete, coaches may improve their relationship and positively affect athletes' ratings of satisfaction, which may keep athletes in sport longer. With student-athlete well-being as a central tenet of its mission, the NCAA could encourage coaches to engage in continuing education aimed at enhancing the coach-athlete relationship. Researchers have shown that these types of trainings can be effective (Barnett et al., 1992; Smoll & Smith, 2006). Moreover, future research should examine current relationship maintenance strategies to identify the skills used by effective coaches. Rhind and Jowett (2010) developed the COMPASS model as a framework for enhancing the coach-athlete relationship and more work is needed to link such strategies with important sport outcomes (e.g. performance, satisfaction etc.).

Summary

The results of this study represent a novel contribution to the general body of knowledge on sport coaching and NCAA student-athlete experiences. Perceptions of coach-athlete relationship quality were generally positive among this population and participants indicated a moderately high level of satisfaction. Some differences between sub-groups emerged which indicates the presence of contextual factors that should be examined in future studies. Most notably was the clear association between coach-athlete relationship quality and athlete satisfaction. Furthermore, evidence was presented to suggest that coach-athlete relationship interdependence may be a predictor of athlete satisfaction.

Several limitations were described that should be readily acknowledged when interpreting the results of this study. Nevertheless, the results represent a framework for future investigations that could inform the NCAA and coach education outlets. Most importantly, though, are the implications for sport coaches who occupy a central role in student-athlete experiences. These practitioners are in the position to positively nurture the coach-athlete relationship, which could ultimately lead to better outcomes for athletes. Therefore, it may be wise for sport coaches to engage in professional development aimed at fostering healthy relationship skills.

References

Adie, J. and Jowett, S. (2010). Meta-Perceptions of the Coach-Athlete Relationship, Achievement Goals, and Intrinsic Motivation Among Sport Participants. *Journal of Applied Social Psychology*, *40*(11), 2750-2773.

Agyemang, K., Singer, J. N., & DeLorme, J. (2010). An exploratory study of black male college athletes' perceptions on race and athlete activism. *International Review for the Sociology of Sport*.

Ainsworth, M. S., & Bowlby, J. (1991). An ethological approach to personality development. *American psychologist*, *46*(4), 333.

Antonini Philippe, R., Sagar, S. S., Huguet, S., Paquet, Y., & Jowett, S. (2011). From teacher to friend: the evolving nature of the coach-athlete relationship. *International Journal of Sport Psychology*, *42*(1), 1-23.

Aoyagi, M., Cox, R., and McGuire, R. (2008). Organizational Citizenship Behavior in Sport: Relationships with Leadership, Team Cohesion, and Athlete Satisfaction. *Journal of Applied Sport Psychology, 20*, 25-41.

Ayer, N. (2015). Interpersonal Dynamics in Sport. *Illuminare*, 13, 26-38.

Baker, J., Yardley, J., and Cote, J. (2003). Coach Behaviors and Athlete Satisfaction in Team and Individual Sports. *International Journal of Sport Psychology*, *34*, 226-239.

Balaguer, I., Duda, J.L., & Crespo, M. (1999). Motivational climate and goal orientations as predictors of perceptions of improvement, satisfaction and coach ratings among tennis players. *Scandinavian Journal of Medicine and Science in Sports*, *9*, 381-388.

Barnett, N.P., Smoll, F.L., & Smith, R.E. (1992). Effects of Enhancing Coach-Athlete Relationships on Youth Sport Attrition. *The Sport Psychologist, 6,* 111-127.

Bray, S., Beauchamp, M., Eys, M., and Carron, A. (2005). Does the Need for Role Clarity Moderate the Relationship between Role Ambiguity and Athlete Satisfaction? *Journal of Applied Sport Psychology, 17,* 306-318.

Burns, G., Jasinski, D., Dunn, S., and Fletcher, D. (2012). Athlete identity and athlete satisfaction: The noncomformity of exclusivity. *Personality and Individual Differences, 52,* 280-284.

Carodine, K., Almond, K. F., & Gratto, K. K. (2001). College student athlete success both in and out of the classroom. *New directions for student services, 2001*(93), 19-33.

Carron, A. & Bennett, B. (1977). Compatibility in the coach-athlete dyad. *The Research Quarterly, 48*(4), 671-679.

Chelladurai, P. (1984). Discrepancy Between Preferences and Perceptions of Leadership Behavior and Satisfaction of Athletes in Varying Sports. *Journal of Sport Psychology, 6,* 27-

Chelladurai, P. (1990). Leadership in sports: A review. *International Journal of Sport Psychology, 21,* 328-354.

Chelladurai, P. & Riemer, H.A. (1997). A Classification of Facets of Athlete Satisfaction. *Journal of Sport Management, 11,* 133-159.

Chelladurai, P. and Saleh, S.D. (1978). Preferred leadership in sports. *Canadian Journal of Applied Sport Sciences, 3*(2), 85-92.

Choi, H., Cho, S., & Huh, J. (2013). The Association Between the Perceived Coach-Athlete Relationship and Athletes' Basic Psychological Needs. *Social Behavior and Personality*, *41*(9), 1547-1556.

Cohen, J. (1988), *Statistical Power Analysis for the Behavioral Sciences, 2nd Edition.* Hillsdale, N.J.: Lawrence Erlbaum.

Côté, J., & Gilbert, W. (2009). An integrative definition of coaching effectiveness and expertise. *International Journal of Sports Science & Coaching*, *4*(3), 307-323.

Cowley, W. H. (1999). Athletics in American colleges. *The Journal of Higher Education*, *70*(5), 494-503.

Cox, R. H. (2007). *Sport psychology: Concepts and applications* (No. Ed. 6). McGraw-Hill.

Cunningham, G. B. (2016). Women in coaching. *Women in Sports Coaching*, 223.

Davis, L. and Jowett, S. (2014). Coach-athlete attachment and the quality of the coach-athlete relationship: implications for athlete's well-being. *Journal of Sports Sciences, 32(15),* 1454-1464

Drewe, S. (2002). The Coach-Athlete Relationship: How Close is Too Close? *Journal of the Philosophy of Sport*, *29*(2), 174-181.

Duda, J. L., Chi, L., Newton, M. L., & Walling, M. D. (1995). Task and ego orientation and intrinsic motivation in sport. *International journal of sport psychology*.

Eys, M., Carron, A., Bray, S., and Beauchamp, M. (2003). Role ambiguity and athlete satisfaction. *Journal of Sports Sciences, 21,* 391-401.

Eys, M., Loughead, T., and Hardy, J. (2007). Athlete leadership dispersion and satisfaction in interactive sport teams. *Psychology of Sport and Exercise, 8,* 281-296.

Erickson, K., Cote, J., Hollenstein, T., & Deakin, J. (2011). Examining coach-athlete interactions using state space grids: An observational analysis in competitive youth sport. *Psychology of Sport and Exercise, 12,* 645-654.

Fasting, K., & Pfister, G. (2000). Female and male coaches in the eyes of female elite soccer players. *European Physical Education Review*, *6*(1), 91-110.

Ford, J. A. (2007). Alcohol use among college students: a comparison of athletes and nonathletes. *Substance use & misuse*, *42*(9), 1367-1377.

Gaston-Gayles, J. L. (2004). Examining academic and athletic motivation among student athletes at a Division I university. Journal of College Student Development, 45(1), 75-83.

Gayles, J. (20052009). The Student Athlete Experience. *New Directions for Institutional Research, 144,* 33-41.

Gearity, B.T. & Murray, M.A. (2011). Athletes' experiences of the psychological effects of poor coaching. *Psychology of Sport and Exercise*, *12,* 213-221.

Hampson, R., & Jowett, S. (2014). Effects of coach leadership and coach–athlete relationship on collective efficacy. *Scandinavian journal of medicine & science in sports*, *24*(2), 454-460.

Harper, S. R., Williams Jr, C. D., & Blackman, H. W. (2013). Black male student-athletes and racial inequities in NCAA Division I college sports. *Center for the Study of Race & Equity in Education*.

Horne, T. and Carron, A.V. (1985). Compatibility in Coach-Athlete Relationships. *Journal of Sport Psychology, 7,* 137-149.

Hyatt, R. (2003). Barriers to persistence among African American intercollegiate athletes: A literature review of non-cognitive variables. *College Student Journal*, *37*(2), 260-276.

Isoard-Gautheur, S., Trouilloud, D., Gustafsson, H., & Guillet-Descas, E. (2016). Associations between the perceived quality of the coach-athlete relationship and athlete burnout: An examination of the mediating role of achievement goals. *Psychology of Sport and Exercise*, *22*, 210-217.

Jackson, B., Dimmock, J., Gucciardi, D., & Grover, J. (2011). Personality traits and relationship perceptions in coach-athlete dyads: Do opposites really attract? *Psychology of Sport and Exercise, 12*, 222-230.

Jackson, B., Grover, J., and Beauchamp, M. (2010). Relational efficacy beliefs and relationship quality within coach-athlete dyads. *Journal of Social and Personal Relationships*, *27*(8), 1035-1050.

Jackson, B., Knapp, P., and Beauchamp, M. (2009). The Coach-Athlete Relationship: A Tripartite Efficacy Perspective. *The Sport Psychologist, 23*, 203-232.

Jowett, S. (2007). Coach-athlete relationships ignite sense of groupness. *Group dynamics in exercise and sport psychology: Contemporary themes*, 63-76.

Jowett, S. (2007). Interdependence Analysis and the 3+ 1Cs in the Coach-Athlete Relationship.

Jowett, S. (2008). Moderator and mediator effects of the association between the quality of the coach-athlete relationship and athletes' physical self-concept. *International Journal of Sports Science and Coaching, 2(1),* 1-20.

Jowett, S. (2005). On repairing and enhancing the coach-athlete relationship. *The psychology of coaching*, 14-26.

Jowett, S. (2009). Valildating coach-athlete relationship measures with the nomological network. *Measurement in Physical Education and Exercise Science, 13*(1), 34-51.

Jowett, S. (2003). When the "Honeymoon" Is Over: A Case Study of a Coach-Athlete Dyad in Crisis. *The Sport Psychologist*, *17*, 444-460.

Jowett, S. and Chaundy, V. (2004). An Investigation Into the Impact of Coach Leadership and Coach-Athlete Relationship on Group Cohesion. *Group Dynamics: Theory, Research, and Practice, 8(4),* 302-311.

Jowett, S. & Clark-Carter, D. (2006). Perceptions of empathic accuracy and assumed similarity in the coach-athlete relationship. *British Journal of Social Psychology*, *45*, 617-637.

Jowett, S. and Cockerill, I. (2003). Olympic medallists' perspective of the athlete-coach relationship. *Psychology of Sport and Exercise, 4,* 313-331.

Jowett, S., & Cockerill, I. (2002). Incompatibility in the coach-athlete relationship. *Solutions in sport psychology*, 16-31.

Jowett, S., & Poczwardowski, A. (2007). Understanding the Coach-Athlete Relationship.

Jowett, S., & Nezlek, J. (2011). Relationship interdependence and satisfaction with important outcomes in coach-athlete dyads. *Journal of Social and Personal Relationships*, 1-15.

Jowett, S. and Ntoumanis, N. (2004). The Coach-Athlete Relationship Questionnaire (CART-Q): development and initial validation. *Scandinavian Journal of Medicine and Science in Sports, 14*, 245-257.

Jowett, S., Shanmugam, V., & Caccoulis, S. (2012). Collective efficacy as a mediator of the association between interpersonal relationships and athlete satisfaction in team sports. *International Journal of Sport and Exercise Psychology*, *10*(1), 66-78.

Jowett, S., Yang, X., and Lorimer, R. (2012). The Role of Personality, Empathy, and Satisfaction with Instruction within the Context of the Coach-Athlete Relationship. *International Journal of Coaching Science, 6*(2), 2-20.

Karreman, E., Dorsch, K., and Riemer, H. (2009). Athlete Satisfaction and Leadership: Assessing Group-Level Effects. *Small Group Research, 40(6)*, 720-737.

Kassing, J. and Infante, D. (1999). Aggressive communication in the coach-athlete relationship. *Communication Research Reports, 16(2)*, 110-120.

Kenow, L. & Williams, J.M. (1999). Coach-Athlete Compatibility and Athlete's Perception of Coaching Behaviors. *Journal of Sport Behavior*, *22*, 251-259.

Kissinger, D. B., & Miller, M. T. (2009). The contemporary college student athlete as a subpopulation. College student-athletes: Challenges, opportunities, and policy implications, 1-

Lafreniere, M., Jowett, S., Vallerand, R., and Carbonneau, N. (2011). Passion for coaching and the quality of the coach-athlete relationship: The mediating role of coaching behaviors. *Psychology of Sport and Exercise, 12*, 144-152.

Lafreniere, M., Jowett, S., Vallerand, R., Donahue, E., and Lorimer, R. (2008). Passion in Sport: On the Quality of the Coach-Athlete Relationship. *Journal of Sport and Exercise Psychology, 30*, 541-560.

Lapchick, R., Hoff, B., & Kaiser, C. (2013). The 2010 racial and gender report card: College sport. *The Institute for Diversity and Ethics in Sport*.

LaVoi, N. (2007). Expanding the Interpersonal Dimension: Closeness in the Coach-Athlete Relationship. *International Journal of Sports Science and Coaching, 2(4)*, 497-512.

Lorimer, R., & Jowett, S. (2009a). Empathic accuracy in coach–athlete dyads who participate in team and individual sports. *Psychology of Sport and Exercise*, *10*(1), 152-158.

Lorimer, R. & Jowett, S. (2009b). Empathic Accuracy, Meta-Perspective, and Satisfaction in the Coach-Athlete Relationship. *Journal of Applied Sport Psychology*, *21*(2), 201-212.

Lorimer, R., & Jowett, S. (2014). Coaches. *Routledge Companion to Sport and Exercise Psychology: Global Perspectives and Fundamental Concepts*, 171.

Lyle, J., & Cushion, C. (2010). *Sports coaching: Professionalisation and practice*. Elsevier Health Sciences.

Mageau, G. and Vallerand, R. (2003). The coach-athlete relationship: a motivational model. *Journal of Sports Sciences, 21(11)*, 883-904.

Melendez, M. C. (2008). Black football players on a predominantly White college campus: Psychosocial and emotional realities of the Black college athlete experience. *Journal of Black Psychology*, *34*(4), 423-451.

Mezulis, A. H., Abramson, L. Y., Hyde, J. S., & Hankin, B. L. (2004). Is there a universal positivity bias in attributions? A meta-analytic review of individual, developmental, and cultural differences in the self-serving attributional bias. *Psychological bulletin*, *130*(5), 711.

McCormick, R. A., & McCormick, A. C. (2006). Myth of the student-athlete: The college athlete as employee. *Wash. L. Rev.*, *81*, 71.

McCullick, B. A., Belcher, D., & Schempp, P. G. (2005). What works in coaching and sport instructor certification programs? The participants' view. *Physical Education and Sport Pedagogy*, *10*(2), 121-137.

Moen, F. and Federici, R. (2014). The Coach-Athlete Relationship and Self-Determination: Assessing an Athlete Centered Scale in Sport. *International Journal of Learning, Teaching and Educational Research, 7(1)*, 105-118.

Moen, F., Giske, R., and Hoigaard, R. (2015). Coaches' Perceptions of how Coaching Behavior affects Athletes: An Analysis of their Position on Basic Assumptions in the Coaching Role. *International Journal of Learning, Teaching and Educational Research, 11(1),* 180-199.

Nicholls, A.R., Levy, A.R., Jones, L., Meir, R., Radcliffe, J.N., & Perry, J.L. (2016). Committed relationships and enhanced threat levels: Perceptions of coach behavior, the coach-athlete

relationship, stress appraisals, and coping among athletes. *International Journal of Sports Science and Coaching*, *11*(1), 16-26.

Olympiou, A., Jowett, S., and Duda, J. (2008). The Psychological Interface Between the Coach-Created Motivational Climate and the Coach-Athlete Relationship in Team Sports. *The Sport Psychologist*, *22*, 423-438.

Parham, W. D. (1993). The Intercollegiate Athlete A 1990s Profile. The counseling psychologist, 21(3), 411-429.

Paule-Koba, A. L., & Farr, N. E. (2013). Examining the experiences of former DI and D-III nonrevenue athletes. Journal of Issues in Intercollegiate Athletics, 6, 194-215.

Poczwardowski, A., Barott, J.E., & Henschen, K.P. (2002). The Athlete and Coach: Their Relationship and Its Meaning. Results of an Interpretive Study. *International Journal of Sport Psychology*, *33*, 116-140.

Poczwardowski, A., Barrot, J., and Jowett, S. (2006). Diversifying approaches to research on athlete-coach relationships. *Psychology of Sport and Exercise*, *7*, 125-142.

Potuto, J. J. R., & O'Hanlon, J. (2007). National Study of Student-Athletes Regarding their Experiences as College Students. College Student Journal, 41(4), 947.

Privitera, G. J. (2013). *Research methods for the behavioral sciences*. Sage Publications.

Rankin, S., Merson, D., Sorgen, C. H., McHale, I., Loya, K., & Oseguera, L. (2011). Student-Athlete Climate Study (SACS) Final Report. Center for Study of Higher Education.

Rhind, D., Jowett, S., and Yang, S. (2012). A Comparison of Athletes' Perceptions of the Coach-Athlete Relationship in Team and Individual Sports. *Journal of Sport Behavior*, *35*(4), 433-452.

Rhind, D. & Jowett, S. (2012). Development of the Coach-Athlete Relationship Maintenance Questionnaire (CARM-Q). *International Journal of Sports Science & Coaching*, *7*(1), 121-137.

Rhind, D. & Jowett, S. (2010). Initial evidence for the criterion-related and structural validity of the long versions of the Coach-Athlete Relationship Questionnaire. *European Journal of Sport Science*, *10*(6), 359-370.

Rhind, D. J., & Jowett, S. (2010). Relationship maintenance strategies in the coach-athlete relationship: The development of the COMPASS model. *Journal of Applied Sport Psychology*, *22*(1), 106-121.

Rhind, D. J., & Jowett, S. (2011). Linking maintenance strategies to the quality of coach-athlete relationships. *International Journal of Sport Psychology*, *42*(1), 55.

Richards, S. & Aries, E. (1999). The Division III Student-Athlete: Academic Performance, Campus Involvement, and Growth. *Journal of College Student Development*, *40*(3), 211-218.

Riemer, H. and Chelladurai, P. (1998). Development of the Athlete Satisfaction Questionnaire (ASQ). *Journal of Sport & Exercise Psychology, 20*, 127-156.

Riemer, H.A. & Chelladurai, P. (1995). Leadership and Satisfaction in Athletics. *Journal of Sport & Exercise Psychology, 17*, 276-293.

Salminen, S. & Liukkonen, J. (1996). Coach-athlete Relationship and Coaching Behavior in Training Sessions. *International Journal of Sport Psychology, 27*, 59-67.

Schmidt, G. W., & Stein, G. L. (1991). Sport commitment: A model integrating enjoyment, dropout, and burnout. *Journal of sport and exercise psychology*, *13*(3), 254-265.

Singh, P.C. and Surujlal, J. (2006). Athlete Satisfaction at Universities in Gauteng. *South African Journal for Research in Sport, Physical Education and Recreation*, *28*(2), 121-131.

Smoll, F. L., & Smith, R. E. (2006). Enhancing coach-athlete relationships: Cognitive-behavioral principles and procedures. *The sport psychologist's handbook*, 19-37.

Stirling, A. and Kerr, G. (2009). Abused athletes' perceptions of the coach-athlete relationship. *Sport in Society, 12(2),* 227-239.

Stirling, A. and Kerr, G. (2013). The perceived effects of elite athletes' experiences of emotional abuse in the coach-athlete relationship. *International Journal of Sport and Exercise Psychology*, *11*(1), 87-100.

Sullivan, P. J., & Gee, C. J. (2007). The Relationship Between Athletic Satisfaction and Intrateam Communication. *Group dynamics: theory, research, and practice*, *11*(2), 107.

Unruh, S., Unruh, N., Moorman, M., and Seshadri, S. (2005). Collegiate Student-Athletes' Satisfaction with Athletic Trainers. *Journal of Athletic Training, 40*(1), 52-55.

Van Zyl, Y., Surujlal, J., & Singh, C. (2009). An empirical study of university student-athletes' strategies for coping with stress. *African Journal for Physical, Health Education, Recreation and Dance*, *15*(4).

Vella, S., Oades, L., and Crowe, T. (2013). The relationship between coach leadership, the coach-athlete relationship, team success, and the positive developmental experiences of adolescent soccer players. *Physical Education and Sport Pedagogy, 18(5),* 549-561.

Vergeer, I. (2000). Interpersonal Relationships in Sport: From Nomology to Idiography. *International Journal of Sport Psychology*, *31*, 578-583.

Watt, S. K., & Moore, J. L. (2001). Who are student athletes?. *New directions for student services*, *2001*(93), 7-18.

Watson, J. C., & Kissinger, D. B. (2007). Athletic participation and wellness: Implications for counseling college student-athletes. *Journal of College Counseling*, *10*(2), 153-163.

Weight, E., Navarro, K., Huffman, L., & Smith-Ryan, A. (2014). Quantifying the Psychological Benefits of Intercollegiate Athletics Participation. Journal of Issues in Intercollegiate Athletics, 7, 390-409.

Weiss, M.R. & Friedrichs, W.D. (1986). The Influence of Leader Behaviors, Coach Attributes, and Institutional Variables on Performance and Satisfaction of Collegiate Basketball Teams. *Journal of Sport Psychology*, *8*, 332-346.

Wolf-Wendel, L., Toma, J. D., & Morphew, C. C. (2001). There's no" I" in" team": Lessons from athletics on community building. *The Review of Higher Education*, *24*(4), 369-396.

Wylleman, P. (2000). Interpersonal Relationships in Sport: Uncharted Territory in Sport Psychology Research. *International Journal of Sport Psychology*, *31*, 555-572.

Yang, S. X., & Jowett, S. (2012). Psychometric properties of the Coach–Athlete Relationship Questionnaire (CART-Q) in seven countries. *Psychology of Sport and Exercise*, *13*(1), 36-43.

Appendix A

Demographic Survey

1- What is your gender?
   a. Male
   b. Female
   c. Other

2- What is your race/ethnicity?
   a. American Indian or Alaska Native
   b. Asian
   c. Black or African American
   d. Native Hawaiian or Other Pacific Islander
   e. White or Caucasian
   f. Hispanic or Latino

3- What is your year in school?
   a. Freshman
   b. Sophomore
   c. Junior
   d. Senior
   e. Graduate Student

4- What NCAA division do you compete in?
   a. Division I
   b. Division II
   c. Division III

5- What is the PRIMARY sport you participate in?
   a. Baseball
   b. Field Hockey
   c. Football
   d. Basketball
   e. Cross-Country
   f. Track & Field
   g. Fencing
   h. Golf
   i. Gymnastics
   j. Ice Hockey
   k. Lacrosse
   l. Rifle Shooting
   m. Skiing
   n. Soccer
   o. Swimming & Diving
   p. Tennis
   q. Volleyball
   r. Water Polo
   s. Wrestling
   t. Bowling
   u. Beach Volleyball
   v. Equestrian
   w. Rowing
   x. Rugby
   y. Triathlon
   z. Softball

6- What is your approximate grade point average (GPA)?
   a. Less than 2.0
   b. 2.00-2.49
   c. 2.50-2.99
   d. 3.00-3.49
   e. 3.50-4.00

7- Have you ever earned All-Conference Honors for your athletic performance in college? Please select the applicable honor.
   a. 1st Team All-Conference
   b. 2nd Team All-Conference
   c. Honorable Mention
   d. Never Received All-Conference Recognition

8- Please rate how much you agree with the following statement: “I plan to stay here and graduate.”
    a. Strongly Disagree
    b. Disagree
    c. Somewhat Disagree
    d. Neither Agree nor Disagree
    e. Somewhat Agree
    f. Agree
    g. Strongly Agree

9- What is the gender of your primary coach (the one with whom you spend the most time)?
    a. Male
    b. Female
    c. Other

10- What is the race/ethnicity of your primary coach?
    a. American Indian or Alaska Native
    b. Asian
    c. Black or African American
    d. Native Hawaiian or Other Pacific Islander
    e. White or Caucasian
    f. Hispanic or Latino

11- Is your current primary coach the person you came to this university to play for?
    a. Yes
    b. No

12- Did you transfer from another institution to attend the school you are currently at?
    a. Yes
    b. No

Appendix B

The Coach – Athlete Relationship Questionnaire (CART-Q) - *Direct Perspective*

This questionnaire aims to measure the quality and content of the coach-athlete relationship. Please read carefully the statements below and circle the answer 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 your principal coach.

	Strongly Disagree			**Moderately**			**Strongly Agree**
1. I am close to my coach	1	2	3	4	5	6	7
2. I am committed to my coach	1	2	3	4	5	6	7
3. I like my coach	1	2	3	4	5	6	7
4. When I am coached by my coach, I am at ease	1	2	3	4	5	6	7
5. I trust my coach	1	2	3	4	5	6	7
6. I feel that my sport career is promising with my coach	1	2	3	4	5	6	7
7. When I am coached by my coach, I am responsive to his/her efforts	1	2	3	4	5	6	7
8. I respect my coach	1	2	3	4	5	6	7
9. I appreciate my coach's sacrifices in order to improve performance	1	2	3	4	5	6	7
10. When I am coached by my coach, I am ready to do my best	1	2	3	4	5	6	7
11. When I am coached by my coach, I adopt a friendly stance	1	2	3	4	5	6	7

Scoring System:

	items
Closeness	***3,5,8,9***
Commitment	***1,2,6***
Complementarity	***4,7,10,11***

Jowett, S., & Ntoumanis, N. (2004). The Coach - Athlete Relationship Questionnaire (CART – Q): Development and initial validation. *Scandinavian Journal of Medicine and Science in Sports, 14,* 245-257.

The *Coach* – Athlete Relationship Questionnaire (CART-Q) – *Meta Perspective*

This questionnaire aims to measure the quality and content of the coach-athlete relationship. Please read carefully the statements below and circle the answer 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 think your coach feels about you.

	Strongly Disagree			**Moderately**			**Strongly Agree**
1. My coach is close to me	1	2	3	4	5	6	7
2. My coach is committed to me	1	2	3	4	5	6	7
3. My coach likes me	1	2	3	4	5	6	7
4. My coach is at ease	1	2	3	4	5	6	7
5. My coach trusts me	1	2	3	4	5	6	7
6. My coach thinks that his/her sporting career is promising with me	1	2	3	4	5	6	7
7. My coach is responsive to my efforts	1	2	3	4	5	6	7
8. My coach respects me	1	2	3	4	5	6	7
9. My coach appreciates the sacrifices I have made to improve performance	1	2	3	4	5	6	7
10. My coach is ready to do his/her best	1	2	3	4	5	6	7
11. My coach adopts a friendly stance	1	2	3	4	5	6	7

Scoring System:

	items
Meta Closeness	***3,5,8,9***
Meta Commitment	***1,2,6***
Meta Complementarity	***4,7,10,11***

Jowett, S. (in press). Validating coach-athlete relationship measures with the nomological network. *Measurement in Physical Education and Exercise Science.*

Jowett, S. (in press). Factor Structure and Criterion Validity of the Meta-Perspective Version of the Coach-Athlete Relationship Questionnaire (CART-Q). *Group Dynamics: Theory, Research, and Practice.*

Appendix C
Athlete Satisfaction Questionnaire

This study is concerned with satisfaction of athletes. Athletics is an intense situation wherein individuals participate voluntarily and wholeheartedly. An individual may be satisfied to varying degrees with different types of experiences in athletic participation. In the following pages, several items related to athletic participation are listed. Against each item, a response format ranging from 1 (not at all satisfied) to 7 (extremely satisfied) is provided. You are requested to participate in the study and indicate the extent to which you are satisfied with the content of each item. Your honest and spontaneous response to each and every item is vital to the success of the study. Do not think about any one item for too long.

Example:

I was satisfied with...	Not at all Satisfied		Moderately Satisfied			Extremely Satisfied
the number of games we have won.	1	2	3	4	5	6	7

The respondent indicates that she is moderately satisfied with the number of games won.

For the purpose of this study, please recall your experiences during this particular season (or the one just completed), and record your reactions to those experiences.

It is extremely important that you provide a response to every question.

Your participation in this study is voluntary. You may refuse to participate and/or withdraw from participation at any time. You have the right to ask for the return of your responses. Please sign below to indicate your willingness to participate in the study. The anonymity of your responses is guaranteed. Thank you in advance for participating in this study.

_____
Signature of Participant

Athlete Satisfaction Questionnaire

I am satisfied with....	Not at all Satisfied			Moderately Satisfied			Extremely Satisfied
1. how the team works (worked) to be the best.	1	2	3	4	5	6	7
2. my social status on the team.	1	2	3	4	5	6	7
3. the coach's choice of plays during competitions.	1	2	3	4	5	6	7
4. the competence of the medical personnel.	1	2	3	4	5	6	7
5. the degree to which I do (did) my best for the team.	1	2	3	4	5	6	7
6. the degree to which I have reached (reached) my performance goals during the season.	1	2	3	4	5	6	7
7. the degree to which my abilities are (were) used.	1	2	3	4	5	6	7
8. the extent to which all team members are (were) ethical.	1	2	3	4	5	6	7
9. the extent to which teammates provide (provided) me with instruction.	1	2	3	4	5	6	7
10. the funding provided to my team.	1	2	3	4	5	6	7
11. the media's support of our program.	1	2	3	4	5	6	7
12. the recognition I receive (received) from my coach.	1	2	3	4	5	6	7
13. the team's win/loss record this season.	1	2	3	4	5	6	7
14. the training I receive (received) from the coach during the season.	1	2	3	4	5	6	7
15. the tutoring I receive (received).	1	2	3	4	5	6	7
16. my dedication during practices.	1	2	3	4	5	6	7
17. my teammates' sense of fair play.	1	2	3	4	5	6	7
18. the academic support services provided.	1	2	3	4	5	6	7
19. the amount of money spent on my team.	1	2	3	4	5	6	7
20. the degree to which teammates share (shared) the same goal.	1	2	3	4	5	6	7
21. the fairness with which the medical personnel treats all players	1	2	3	4	5	6	7
22. the friendliness of the coach towards me.	1	2	3	4	5	6	7
23. the guidance I receive (received) from my teammates.	1	2	3	4	5	6	7
24. the improvement in my performance over the previous season.	1	2	3	4	5	6	7
25. the instruction I have received from the coach this season.	1	2	3	4	5	6	7

26. the level to which my talents are (were) employed.	1	2	3	4	5	6	7
27. the role I play (played) in the social life of the team.	1	2	3	4	5	6	7
28. the support from the university community.	1	2	3	4	5	6	7
29. the tactics used during games.	1	2	3	4	5	6	7
30. the team's overall performance this season.	1	2	3	4	5	6	7
31. coach's choice of strategies during games.	1	2	3	4	5	6	7
32. my enthusiasm during competitions.	1	2	3	4	5	6	7
33. my teammates' 'sportsmanlike' behavior.	1	2	3	4	5	6	7
34. team member's dedication to work together toward team goals.	1	2	3	4	5	6	7
35. the coach's teaching of the tactics and techniques of my position.	1	2	3	4	5	6	7
36. the constructive feedback I receive (received) from my teammates.	1	2	3	4	5	6	7
37. the degree to which my teammates accept (accepted) me on a social level.	1	2	3	4	5	6	7
38. the extent to which my role matches (matched) my potential.	1	2	3	4	5	6	7
39. the extent to which the team is meeting (has met) its goals for the season.	1	2	3	4	5	6	7
40. the fairness of the team's budget.	1	2	3	4	5	6	7
41. the improvement in my skill level.	1	2	3	4	5	6	7
42. the level of appreciation my coach shows (showed) when I do (did) well.	1	2	3	4	5	6	7
43. the medical personnel's interest in the athletes.	1	2	3	4	5	6	7
44. the personnel of the academic support services (i.e., tutors, counselors).	1	2	3	4	5	6	7
45. the supportiveness of the fans.	1	2	3	4	5	6	7
46. how the coach makes (made) adjustments during competitions.	1	2	3	4	5	6	7
47. my coach's loyalty towards me.	1	2	3	4	5	6	7
48. my commitment to the team.	1	2	3	4	5	6	7
49. the amount of time I play (played) during competitions.	1	2	3	4	5	6	7
50. the extent to which teammates play (played) as a team.	1	2	3	4	5	6	7
51. the local community's support.	1	2	3	4	5	6	7
52. the promptness of medical attention.	1	2	3	4	5	6	7

53. coach's game plans.	1	2	3	4	5	6	7
54. the degree to which my role on the team matches (matched) my preferred role.	1	2	3	4	5	6	7
55. the extent to which the coach is (was) behind me.	1	2	3	4	5	6	7
56. the manner in which coach combines (combined) the available talent.	1	2	3	4	5	6	7

UNIVERSITY OF MONTANA

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Date: January 26, 2017

To: Collin Fehr, Counselor Education
Veronica Johnson, Counselor Education

From: Paula A. Baker, IRB Chair and Manager

RE: IRB #11-17: "Examining the Coach-Athlete Relationship as a Predictor of NCAA Student-Athlete Satisfaction"

Your IRB proposal cited above has been **APPROVED** under the **Exempt** category of review by the Institutional Review Board in accordance with the Code of Federal Regulations, Part 46, section 101. The specific paragraph which applies to your research is:

_X_ (b)(2) Research involving the use of educational tests (cognitive, diagnostic, aptitude, achievement), survey procedures, interview procedures or observation of public behavior, unless: (i) Information obtained is recorded in such a manner that human subjects can be identified, directly or through identifiers linked to the subjects; and (ii) any disclosure of the human subjects' responses outside the research could reasonably place the subjects at risk of criminal or civil liability or be damaging to the subjects' financial standing, employability, or reputation.

University of Montana IRB policy does not require you to file an annual Continuation Report for exempt studies, as there is no expiration date on the approval. However, you are required to notify the IRB of the following:

Amendments: Any changes to the originally-approved protocol must be reviewed and approved by the IRB ***before*** being made (unless extremely minor). Requests must be submitted using Form RA-110.

Unanticipated or Adverse Events: You are required to timely notify the IRB if any unanticipated or adverse events occur during the study, if you experience an increased risk to the participants, or if you have participants withdraw from the study or register complaints about the study. Use Form RA-111.

Please contact the IRB office with any questions at (406) 243-6672 or email irb@umontana.edu.

Form RA-108
(Rev. 09/15)

Institutional Review Board
JAN 10 3 2017
University of Montana

THE UNIVERSITY OF MONTANA-MISSOULA
Institutional Review Board (IRB)
for the Protection of Human Subjects in Research
APPLICATION FOR IRB REVIEW

IRB Protocol No.: 11-17

At the University of Montana (UM), the Institutional Review Board (IRB) is the institutional review body responsible for oversight of all research activities involving human subjects as outlined in the U.S. Department of Health and Human Services' Office of Human Research Protection and the National Institutes of Health, Inclusion of Children Policy Implementation.

Instructions: A separate application must be submitted for each project. IRB proposals are approved for no longer than one year and must be continued annually (unless Exempt). Faculty and students may email the completed form as a Word document to *IRB@umontana.edu.* or submit a hardcopy (no staples) to the Office of the Vice President for Research in University Hall 116. Student applications must be accompanied by email authorization by the supervising faculty member or a signed hard copy. *All fields must be completed. If an item does not apply to this project, write in: N/A.* Questions? Call the IRB office at 243-6672.

1. Administrative Information

Project Title: Examining the Coach-Athlete Relationship as a Predictor of NCAA Student-athlete Satisfaction	
Principal Investigator: Collin Fehr	UM Position: Doctoral Student
Department: Counselor Education	Office location: SG 203
Work Phone:	Cell Phone: 406-880-3693

2. Human Subjects Protection Training

(All researchers, including faculty supervisors for student projects, must have completed a self-study course on protection of human research subjects ***within the last three years*** *and be able to supply the "Certificate(s) of Completion" upon request. If you need to add rows for more people, use the Additional Researchers Addendum.*

All Research Team Members (list yourself first)	**PI**	**CO-PI**	**Faculty Supervisor**	**Research Assistant**	**DATE COMPLETED IRB-approved Course mm/dd/yyyy**
Name: Collin Fehr Email: collin.fehr@mso.umt.edu	☒	☐	☐	☐	02/12/2016 ✓
Name: Veronica Johnson Email: veronica.johnson@mso.umt.edu	☐	☐	☒	☐	11/21/2014 ✓
Name: Email:	☐	☐	☐	☐	
Name: Email:	☐	☐	☐	☐	

3. Project Funding

(If federally funded, you must submit a copy of the abstract or Statement of Work.)

Is grant application currently under review at a grant funding agency? ☐Yes *(If yes, cite sponsor on ICF if applicable)* ☒No		Has grant proposal received approval and funding? ☐Yes *(If yes, cite sponsor on ICF if applicable)* ☒No		
Agency	Grant No.	Start Date	End Date	PI on grant

For UM-IRB Use Only

IRB Determination:

☒ Not Human Subjects Research
☐ Approved by Exempt Review, Category # 2 *(see memo)*
☐ Approved by Expedited Review, Category #_____ *(see* **Note to PI***)*
☐ Full IRB Determination
  ☐ Approved *(see* **Note to PI***)*
  ☐ Conditional Approval *(see memo)* - IRB Chair Signature/Date: _____
    ☐ Conditions Met *(see* **Note to PI***)*
  ☐ Resubmit Proposal *(see memo)*
  ☐ Disapproved *(see memo)*

Note to PI: Non-exempt studies are approved for one year only. Use any attached IRB-approved forms (signed/dated) as "masters" when preparing copies. If continuing beyond the expiration date, a continuation report must be submitted. Notify the IRB if any significant changes or unanticipated events occur. When the study is completed, a closure report must be submitted. Failure to follow these directions constitutes non-compliance with UM policy.

Risk Level: Minimal

Final Approval by IRB Chair/Manager: Paula M Baker Date: 1/26/2017 Expires: N/A

Form RA-110
(Rev. 11/13)

Institutional Review Board
FEB 9 2017
University of Montana

THE UNIVERSITY OF MONTANA-MISSOULA
Institutional Review Board (IRB)
for the Protection of Human Subjects in Research
AMENDMENT REQUEST

Please provide
IRB Protocol No.:
11-17

Email this request as a Word document to *IRB@umontana.edu* or provide hardcopy to the Office of the Vice President for Research & Development, University Hall 116. NOTE: Submission of this form from a University email account constitutes an individual's signature; **students** submitting electronically **must** copy their faculty supervisors.

Project Title: Examining the Coach-Athlete Relationship as a Predictor of NCAA Student-athlete Satisfaction	
Principal Investigator: Collin Fehr	Title: Doctoral Student
Signature: Collin M. Fehr	
Email address: collin.fehr@umontana.edu	
Work Phone: 406-880-3693	Cell Phone:
Department: Counselor Education	Office location: Schreiber 203
Faculty Supervisor (if student project): Veronica Johnson	
Department: Counselor Education	Work Phone: 406-243-4205
Signature: Veronica Johnson	Email: veronica.johnson@mso.umt.edu

Detail the proposed amendment (protocol, recruitment, confidentiality plan) below and attach any consent/assent/permission forms for IRB-approval (if possible, use Office's "track changes" feature in your attachments):

Subject Information:
There will be approximately 2000 participants included in this study.

Participant Selection:
There are 99 NCAA conferences in the United States. Out of those conferences 32 are at the Division 1 level, 24 are at the Division 2 level, and 43 are at the Division 3 level.

To ensure a representative sample of each division, 25% of the conferences in each division will be randomly selected, resulting in eight Division 1 conferences, six Division 2 conferences, and 11 Division 3 conferences. Then, one institution from each of these conferences (8 Division 1, 6 Division 2, and 11 Division 3) will be randomly selected for inclusion in the study, totaling 25 NCAA institutions.

Out of the total number of student-athletes at each of these institutions, 25% of them will be randomly selected to receive an email with an informed consent form and anonymous survey link.

Procedures:
Once IRB approval is obtained at the University of Montana, participant emails will be acquired through the institution's directory service on each university website. An electronic informed consent form, which includes the survey link, will then be emailed to the randomly selected participants. The link will lead to a questionnaire built in Qualtrics survey software. Participant names will not be linked between their responses. After the initial survey is sent, reminders will be given to each participant ten days after the initial email and then again twenty days after the initial contact.

For UM-IRB Use Only

IRB Determination:

X Approved by Exempt Review, category # 2
_____ Approved by Expedited Review, category #_____ *(see* ***Note to PI****)*
_____ Approved by Administrative Review *(see* ***Note to PI****)*
_____ Full IRB Determination
_____ Approved *(see* ***Note to PI****)*
_____ Conditional Approval *(see attached memo)* - IRB Chair/Coordinator Signature/Date: _____
_____ Conditions Met *(see* ***Note to PI****)*
_____ Resubmit Proposal *(see attached memo)*
_____ Disapproved *(see attached memo)*

Risk level: Minimal

*** Note to PI:** Study is approved for one year. Use any attached IRB-approved forms (signed/dated) as "masters" when preparing copies. If continuing beyond the expiration date, a continuation report must be submitted. Notify the IRB if any significant changes or unanticipated events occur. Notify the IRB in writing when the study is terminated

Final Approval by IRB Chair/Manager: Paula A Baker Date: 2/13/17 Expires: N/A