CAN’T WE ALL JUST GET ALONG? THE IMPACT OF GOAL ORIENTATION ON THE COACH-ATHLETE RELATIONSHIP AND COACH-ATHLETE COMMUNICATION

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ABSTRACT

Research has demonstrated that the coach-athlete relationship is one of the key interpersonal factors that influences outcomes such as performance (Sánchez, Borrás, Leite, Battaglia, & Lorenzo, 2009), satisfaction with performance (Jowett & Don Carolis, 2003), and dropout rates (Fraser-Thomas, Côté, & Deakin, 2008). However, relatively little is known about the factors necessary to achieve and/or maintain a high-quality coach-athlete relationship. Building upon Jowett and Poczwardowski’s (2007) integrated research model, this study of 355 coach-athlete dyads explored how congruence (i.e., similarity, fit) of goal orientation (GO) impacted the quality of the coach-athlete relationship and coach-athlete communication. Specifically, it was hypothesized that congruence between coach and athlete goal orientations (mastery, performance-approach, performance-avoid) would be positively related to both variables of interest. Using polynomial regression and response surface analysis, results indicated that goal orientation congruence is an important determinant in both the quality of the coach-athlete relationship and coach-athlete communication. Implications for coaches and athletes based on the magnitude and direction of goal orientation congruence/incongruence are discussed. The importance of the method and measures used to assess congruence is also discussed.
DEDICATION

This research endeavor is dedicated to the exceptional coaches I swam for over the years. Specifically, I’d like to dedicate this work to Tim Caldwell, Brad Shively, and Beth Whittle – your continuous encouragement, passion for our sport, and unwavering dedication to your athletes is truly remarkable. Thank you for always believing in me and pushing me to the next level.
ACKNOWLEDGEMENTS

I would like to thank my colleagues, friends, and family for their support throughout this challenging, yet rewarding process. I also would like to extend my gratitude to my advisor – Bart Weathington – and to my committee members – Chris Cunningham, Brian O’Leary, and Mike Biderman (honorary committee member) – for their time, effort, guidance, and continued enthusiasm for my research.
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CHAPTER I
INTRODUCTION

Social interaction and the formation of relationships is a critical component of all aspects of human life, including sports. While it may seem intuitive to state that people typically interact with others on a regular basis throughout their day, the actual analysis of one-on-one interpersonal interaction is rather complicated. Interdependence theory suggests that relational interactions consist of a combination of personal factors and situational characteristics (Kelley & Thibaut, 1978). Building on interdependence theory, Iso-Ahola (1995) created a conceptual framework in which athletic performance was the product of intrapersonal and interpersonal factors. He identified the coach-athlete relationship as one of the key interpersonal factors in the conceptual framework. However, Jackson, Grove, and Beauchamp (2010) noted that interdependence theory has seldom been applied to sporting relationships. Given the prominence of dyadic relationships in a sport context (e.g., athlete-athlete relationships, parent-athlete relationships, coach-athlete relationships), interdependence theory could be a central concept in studying relationships in the athletic realm.

While research on the coach-athlete relationship has become increasingly prominent in the past decade, there has been considerably more research on the outcomes (both positive and negative) of the coach-athlete relationship in comparison to its predictors. For example, Sánchez, Borrás, Leite, Battaglia, and Lorenzo (2009) found that increases in athletic performance, interpreted as improved effectiveness of training and satisfaction with personal
development, resulted from the close and positive relationships built between coaches and athletes. The coach-athlete relationship has also been linked to outcomes such as coach and athlete satisfaction with personal treatment and training (Jowett & Don Carolis, 2003), acquisition of technical and physical competencies (Jowett & Poczwardowski, 2007), levels of team cohesion (Jowett & Chaundy, 2004), sport dropout rates (Fraser-Thomas, Côté, & Deakin, 2008), and perceived coach-created motivational climate (Olympiou, Jowett, & Duda, 2008).

More research is needed to identify significant predictors of the relationship (Jackson et al., 2010; Jowett & Poczwardowski, 2007). To date, variables such as passion for coaching (Lafrenière, Jowett, Vallerand, & Carbonneau, 2011), perceived coach-created climate (Olympiou et al., 2008), and emotional support from parents (Jowett & Timson-Katchis, 2005) were determined to help explain the coach-athlete relationship. Still, many of the factors that enable a coach and an athlete to connect with one another remain unclear. Because the coach-athlete relationship can play an important role in an athlete’s performance, satisfaction, and overall sport experience, more work needs to be done to identify additional factors that could lead to a better understanding of how to create and/or maintain effective, high-quality coach-athlete relationships.

The following sections develop the foundation for the present study. First, the conceptualization and importance of the coach-athlete relationship is presented. Second, a review of the relevant literature on goal orientation (GO) – a potential indicator of the quality of the coach-athlete relationship – is provided. Third, I discuss the idea of congruence as presented in organizational research. I then offer a conceptual model for the present study to illustrate the proposed relationships among the variables of interest and discuss the related hypotheses.
The Coach-Athlete Relationship

Coaches and athletes typically spend a substantial number of hours with one another. For example, the National Collegiate Athletic Association (NCAA) limits the amount of time student-athletes can practice to 20 hours per week during the playing season, and it is likely that without this restriction, weekly practice time would increase. In addition to practices, coaches and athletes interact at competitions and often travel to and from these competitions together. Given the amount of time spent with one another, coaches and athletes are often influential figures in each other’s lives. However, time spent together does not guarantee that a coach and an athlete will build a strong, or even positive, relationship. On any given athletic team, just as with any team of coworkers or group of friends, it is evident that some dyadic relationships are stronger and are of higher quality than others.

Based on Kelley et al.’s (1983) definition of interpersonal relationships, Jowett and Poczwardowski (2007) defined the coach-athlete relationship as “a situation in which a coach’s and an athlete’s cognitions, feelings, and behaviors are mutually and causally interrelated” (p. 4). Jowett and Poczwardowski noted that relationships are dynamic and are expected to change over time based on the members’ interactions. In addition to their tendency to fluctuate over time, relationships also vary considerably from one dyad to another. The leadership literature has shown that leaders often cater their leadership style to different subordinates, and therefore, develop differentiated relationships with each subordinate (Graen & Uhl-Bien, 1995).

Poczwardowski, Barrot, and Perego (2002) called for researchers studying the coach-athlete relationship to take a holistic approach, stating that relationships are a complex interpersonal phenomenon. Consistent with Poczwardowski et al.’s appeal, much of the recent research on interpersonal dynamics of coaches and athletes has shifted from a purely leadership-
based approach to a relationship-based approach (Jowett, 2005). The idea of using a holistic approach prompted researchers to move away from simply studying the influence that coaches have on their athletes, to instead studying the bidirectional influence that coaches and athletes have on each other.

**Development of Conceptualization**

As the approaches used to study the coach-athlete relationship have changed over time, the way in which researchers have conceptualized interpersonal relationships has also changed. Early research on the coach-athlete relationship used non-sport specific assessment tools (e.g., Schutz, 1966), which lacked relevance to the sport psychology context (Vealey, 1986). Relationships in sport are unique forms of social interdependence, in that they are typically volitional and highly performance-oriented (Jackson et al., 2010). The implication of this reality is that broad frameworks of interpersonal relationships may not generalize well to the distinctive coach-athlete dyad.

Wylleman (2000) suggested that the coach-athlete relationship be defined based on coach and athlete behaviors, which he described in terms of three dimensions: acceptance-rejection, dominance-submission, and social-emotional. These dimensions refer to attitudes toward the relationship, power status in the relationship, and personal roles in the relationship, respectively. Taking a different approach, LaVoi (2004) proposed that the coach-athlete relationship is determined by each person’s authenticity, engagement, empowerment, and ability to deal with conflict. LaVoi’s conceptualization of the coach-athlete relationship was based on the idea that interdependence, connection, and participation in growth-fostering relationships facilitate psychological development, which may result in increased athlete satisfaction and performance.
Jowett (2005) observed that most of the previously proposed conceptual models of the coach-athlete relationship emphasized coaches’ and athletes’ interpersonal behaviors, and did not address the affective or cognitive components of interpersonal relationships. As such, Jowett and Ntoumanis’s (2004) multidimensional conceptualization has recently received a great deal of attention. Their conceptual model, referred to as the 3Cs model, focuses on coach and athlete closeness (emotions), commitment (cognitions), and complementarity (behaviors) (see Table 1.1). Jowett and Ntoumanis identified these established constructs from the social psychology field and combined the constructs to develop an integrated framework, which better captures the complexity of the coach-athlete relationship than previous frameworks.

Table 1.1 Dimensions of the Coach-Athlete Relationship

<table>
<thead>
<tr>
<th>Dimension</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Closeness</td>
<td>Describes the emotional tone of the relationship and reflects the degree to which the coach and the athlete are connected or the depth of their emotional attachment; expressions of like, trust, respect, and appreciation indicate a positive interpersonal and affective relationship.</td>
</tr>
<tr>
<td>Commitment</td>
<td>Reflects coaches’ and athletes’ intention or desire to maintain their athletic partnership over time; it is viewed as a cognitive representation of connection between the coach and the athlete.</td>
</tr>
<tr>
<td>Complementarity</td>
<td>Defines the interaction between the coach and the athlete that is perceived as cooperative and effective; it reflects the affiliation motivation of interpersonal behaviors and includes behavioral properties, such as being responsive, friendly, at ease, and willing.</td>
</tr>
</tbody>
</table>

Note: Adapted from Jowett (2005)
Jowett (2006) later expanded the framework by introducing the co-orientation construct, which enabled measurement of both direct perceptions (“I trust my coach”) and meta-perceptions (“My coach trusts me”). The expanded model, renamed the 3 + 1Cs model, has opened a new avenue for research on the coach-athlete relationship. However, because the co-orientation dimension is not directly relevant to the present study, the focus here was on the original 3Cs listed in Table 1.1.

It is evident that the coach-athlete relationship is an important variable to consider in sport, as many factors influence and are influenced by how well a coach and athlete relate to one another. Recently, Jowett and Poczwardowski (2007) proposed an integrated research model of the coach-athlete relationship (see Figure 1.1). They reviewed and combined the latest conceptualizations of the coach-athlete relationship (Jowett, 2005; LaVoi, 2004; Poczwardowski, 1997; Wyleman, 2000) with the intent of mapping a pathway for future research. Jowett and Poczwardowski’s integrated model includes several suggested predictors and outcomes of the coach-athlete relationship. The model also includes interpersonal communication as a mediator of the relationships between predictors and the coach-athlete relationship, and between the coach-athlete relationship and outcomes. Jowett and Poczwardowski’s model is closely aligned with Graen and Uhl-Bien’s (1995) description of leader-member exchange (LMX) theory.

(1) Development of LMX relationships is influenced by characteristics and behaviors of leaders and members and occurs through a role-making process, and (2) higher-quality LMX relationships have very positive outcomes for leaders, followers, work units, and the organization in general (p. 229).

While the Jowett and Poczwardowski model successfully provides a framework for ongoing research, it should be noted that the model is not comprehensive. The list of suggested variables is not an exhaustive one. In addition, Jowett and Poczwardowski suggested that communication
Figure 1.1 Integrated Research Model of the Coach-Athlete Relationship

*Note: Adapted from Jowett and Poczwardowski (2007)*
holds an important place in the model. Although they mentioned that both quality and quantity of communication affect the coach-athlete relationship, and that communication can be categorized in different ways (i.e., verbal and nonverbal, intended and unintended, honest and dishonest), Jowett and Poczwardowski did not specifically operationalize interpersonal communication in the context of their model, leaving considerable room for interpretation by others.

**Communication and the Coach-Athlete Relationship**

Communication is a social process that can occur through different channels (i.e., written, oral, facial expressions, body language). Fouss and Troppmann (1981; as cited in Culver & Trudel, 2000) defined communication as “the transmission and the exchange of information conveying meaning between two or more people” (p. 115-116). Effective communication occurs when the message sent by the initiator is congruent with the message perceived by the receiver (Culver & Trudel, 2000). Communication has been identified as a vital interpersonal skill in sport, and is said to be the vehicle for developing the coach-athlete relationship (LaVoi, 2007). Communication is extremely complex and can be explored from many different angles (i.e., frequency, mode, depth).

The quality of interpersonal communication is a recent conceptualization of communication that involves affective, cognitive, and behavioral elements (Liu, Chua, & Stahl, 2010). Liu et al. (2010) noted that each element typically has been studied independently of the others. The dimensions of the multidimensional conceptualization of communication (Table 1.2) mirror the dimensions found in the Jowett and Ntoumanis (2004) 3Cs relationship model, which
gives reason to believe that the relationship and communication constructs may be strongly correlated.

Table 1.2 Dimensions of the Quality of the Communication Experience

<table>
<thead>
<tr>
<th>Dimension</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Comfort</td>
<td>Reflects the affective aspect of the communication experience; defined as a condition of positive affect of ease and pleasantness when interacting with each other.</td>
</tr>
<tr>
<td>Clarity</td>
<td>Reflects the cognitive aspect of the communication experience; defined as the degree of comprehension of the meaning being communicated.</td>
</tr>
<tr>
<td>Responsiveness</td>
<td>Reflects the behavioral aspect of the communication experience; indicates the norm of coordination or reciprocity that individuals experience in interpersonal interactions.</td>
</tr>
</tbody>
</table>

*Note: Adapted from Liu, Chua, and Stahl (2010)*

Having established the importance of studying the coach-athlete relationship and coach-athlete communication, discussion in the next section focuses on goal orientation – a potential indicator of relationship and communication quality. The discussion then addresses how the comparison of goal orientations between two individuals, namely a coach and his/her athlete, can be useful in understanding how the individuals relate to and communicate with one another.

**Goal Orientation**

Motivation is undoubtedly an important concept in sport. One theory of motivation, known as achievement motivation theory (McClelland, 1961), suggests that in achievement
situations, people are motivated to appear competent (to themselves and to others), and therefore strive to demonstrate high ability and avoid demonstrating low ability. Within achievement motivation, achievement goal constructs, typically studied in terms of a person’s goal orientation (GO), are thought to reflect an organized system or schema that frames how an individual will approach, engage, and evaluate his or her performance in an achievement situation (Pintrich, 2000). In this way, GO is thought to represent one’s general focus or purpose for achievement (Pintrich, 2000) and a person’s beliefs about the causes of success (Lochbaum & Roberts, 1993).

Researchers have disagreed on whether GO should be conceptualized as a dispositional trait or a situational characteristic. Button, Mathieu, and Zajac (1996) found evidence suggesting that GOS have both dispositional and situational features. Button et al. believe that, “while dispositional goal orientations predispose individuals to adopt particular response patterns across situations, situational characteristics may cause them to adopt a different or less acute response pattern for a specific situation” (p. 40). Supporting the idea that GO can be influenced by external factors, research has shown that motivational climate affects an individual’s GO (Ames & Archer, 1988; Gano-Overway & Ewing, 2004; Trenz & Zusho, 2011). The present study adopted Button et al.’s conceptualization of GO, acknowledging that these orientations are dispositional traits that can be influenced by situational factors.

Early research on GO identified two general types: mastery orientation and performance orientation (Button et al., 1996; Elliot & Dweck, 1988; Nicholls, 1984). Individuals who are mastery-oriented focus on learning a process or mastering a skill. Those who are mastery-oriented measure their performance against their own previous performance to determine their level of success. In contrast, performance-oriented individuals place their focus on others.
Those who are performance-oriented perceive their success to be contingent on others’ performance and emphasize beating their competition.

Before proceeding, it is important to note the different terminology used to refer to the GO categories. Mastery orientation also has been termed learning orientation (Dweck, 1986) task orientation, or task involvement (Nicholls, 1984), while performance orientation has been referred to as ego orientation or ego involvement (Nicholls, 1984). For clarity, the terms mastery orientation and performance orientation are consistently used in the present study when discussing these two basic GOs.

The conceptualization of the construct of GO has changed significantly in recent years. GO originally was treated as a single construct, with mastery orientation at one end of the continuum and performance orientation at the other end (e.g., Dweck, 1986). However, evidence suggested that mastery orientation and performance orientation were two distinct constructs, and that the two constructs were orthogonal, or statistically independent of one another (Button et al., 1996; Jõesaar, Hein, & Hagger, 2011; Smith, Balagueu, & Duda, 2006).

Further investigation revealed that GO instead may have three distinct constructs (Elliot & Church, 1997). While mastery orientation was accepted as a single facet of GO, it was suggested that performance orientation should be further divided into two components: performance-approach and performance-avoid. Individuals who have an approach orientation to performance goals can be positively motivated through demonstrating their competence and superiority over others. Individuals with a performance-avoid orientation are motivated by their desire to avoid failure or looking incompetent. It is likely that the distinction between performance-approach and performance-avoid GOs could be critical in sport. Achievement situations in sport (i.e., practices, games, meets, other competitions) are often highly
performance-focused (Jackson et al., 2010), as the objective is typically to win, so the separation of the two performance GO constructs could provide a more comprehensive understanding of the mechanisms that drive coaches and athletes.

Elliot and Church (1997) noted that the two-construct model (mastery and performance) of GO primarily focused on attaining success in achievement situations. In contrast, the three-construct model (mastery, performance-approach, and performance-avoid) incorporated the basic premise of achievement motivation theory, of which the central goals are attainment of success and avoidance of failure.

While GO has been identified as a significant predictor of swimmers’ levels of intrinsic and extrinsic motivation (Petherick & Weigand, 2002), it has not yet been studied as a predictor of the coach-athlete relationship or coach-athlete communication. When examining a potential predictor of a dyadic relationship, it is logical to consider personal characteristics of both dyadic members, as the relationship is likely affected by each member’s characteristics (Koberg, Boss, & Goodman, 1998). When examining individual characteristics of members in a dyad, one consideration might be the congruence, or similarity, between the members’ characteristics. In this case, the congruence between coach and athlete GO is considered.

**Congruence**

The idea of “fit” in organizational research is rooted in the concept of congruence. The management literature has considered person-environment (P-E) fit, which Kristof-Brown, Zimmerman, and Johnson (2005) defined as “the compatibility between an individual and a work environment that occurs when their characteristics are well matched” (p. 281). Under the umbrella of P-E fit, organizational researchers have distinguished among various types of
matches (person-organization, person-vocation, person-job, person-group, and person-supervisor) to gain a better understanding of how different aspects of fit affect certain person-level, group-level, and organization-level outcomes. Person-supervisor (P-S) fit focuses on dyadic relationships, with an employee’s characteristics representing the “person” and the supervisor’s characteristics representing the “environment” (Kristof-Brown et al., 2005). Although the dynamics between a coach and an athlete may differ slightly from the dynamics between a supervisor and an employee, the P-S fit literature, and the broader P-E fit literature, provide useful frameworks in which the coach-athlete dyad may be examined.

There has been considerable debate in the fit literature as to what constitutes a “good match.” Muchinsky and Monahan (1987) distinguished between two conceptualizations of fit. Complementary fit occurs in a situation in which an individual fills a gap in the current environment, or the environment fulfills a need of an individual. In contrast, supplementary fit subsists when there are similarities between an individual and his or her environment. The present study focused on supplementary fit.

In their meta-analysis of the fit literature, Kristof-Brown et al. (2005) noted that, rooted in theories of interpersonal attraction (e.g., similarity attraction paradigm; Byrne, 1971), research on supplementary fit has focused on topics such as values, goals, personality traits, and attitudes. In fact, in the goals domain, Kristof-Brown et al. suggested that supplementary fit of person-organization (P-O) goals is always preferable to complementary fit. In the present study, based on Kristof-Brown et al.’s assertion that similarity of goals is desirable, it was assumed that similarity of coach and athlete GOs is also desirable. Therefore, the consideration of supplementary P-S fit was most relevant for the purposes of this study. In addition to
determining the most appropriate conceptualization of fit, it is important to consider the various ways in which fit can be measured.

Athletes have perceptions of themselves and of their coaches. Similarly, coaches have perceptions of themselves and of the athletes they coach. Acknowledging various possible combinations of people’s self-perceptions and perceptions of others, French, Rogers, and Cobb (1974) identified three different approaches to determining fit. One option, termed *perceived fit*, is an assessment of fit in which an individual directly assesses the congruence of a person variable and an environment variable. A second option, referred to as *subjective fit*, is an indirect measure of congruence that also relies on an individual’s assessment. Subjective fit differs from perceived fit in that the individual separately assesses a person variable and an environment variable that are then compared to determine congruence. A third option used to measure congruence, termed *objective fit*, is an alternate indirect measure of congruence. Assessment of objective fit occurs when person and environment variables reported by different sources are compared.

**The Present Study**

The present study tested a modification of the first portion of Jowett and Poczwardowski’s (2007) integrated model. It extended the integrated model by incorporating GO of the coach and athlete as potential predictors in the model. Also, contrary to Jowett and Poczwardowski’s model, and because of the parallel nature of the coach-athlete relationship and interpersonal communication constructs used, the present study suggested that communication may be more appropriately considered as an outcome of coach/athlete GO rather than as a mediator between coach/athlete GO and the coach-athlete relationship.
It was hypothesized that GO may help to predict the quality of both the coach-athlete relationship and coach-athlete communication. More specifically, the study examined the extent to which the congruence, or similarity, of coach and athlete GO relates to the coach-athlete relationship and coach-athlete communication (see Figure 1.2). Greater alignment was predicted to result in more positive outcomes. In contrast, if incongruence was evident between coach and athlete GO, then the quality of the coach-athlete relationship and the quality of coach-athlete communication were predicted to suffer.

Based on the review of the literature and the assumption that coach-athlete similarity, or congruence, will lead to better outcomes (Kenow & Williams, 1999; Kristof-Brown et al., 2005; Witt, 1998), the following was hypothesized:

**Hypothesis 1:** Congruence between coach and athlete GO will be positively related to the quality of the coach-athlete relationship.

**Hypothesis 2:** Congruence between coach and athlete GO will be positively related to the quality of coach-athlete communication.

![Figure 1.2 Conceptual Model Linking Congruence of GO to Coach-Athlete Outcomes](image-url)
As previously discussed, there are several ways to measure congruence, and the debate as to which measurement method is most appropriate still continues. Shaver (1975) suggested that, in determining one's feelings or actions toward the other person, it is more important to consider the individual's perception of another's behavior, than to consider the behavior itself. For instance, in a study that examined perceptions of conflict in marriages, Acitelli, Douvan, and Veroff (1993) found that perceived similarity was a better predictor of marital well-being than actual similarity between husbands and wives.

However, some have argued that individuals may not be able to accurately perceive the characteristics of others. For example, Riemer (2007) asserted that an athlete’s perceptions of a coach’s behavior may not be accurate, as the athlete’s perceptions might be influenced by his or her own preferences for a coach’s behavior. Reliance on perceptions may also be problematic because perceptions are likely affected by one’s frame of reference. For instance, two athletes on the same collegiate team who had different high school coaches may view their collegiate coach differently based on the experience the athletes had with their respective high school coaches. Together, empirical findings generally suggest that the consideration of individuals’ perceptions rather than simply relying on actual measures may be more fruitful in understanding certain outcomes, but that such perceptions are likely skewed by other internal and external factors.

Kristof-Brown et al. (2005) found that direct measures of perceived P-S fit were more strongly related to performance than were indirect measures of subjective P-S fit and objective P-S fit. Kristof-Brown and Stevens (2001) used indirect measures of fit to determine how congruence of mastery and performance goals affects certain outcomes. They found that measures of perceptions were more strongly related to the outcomes than were actual measures.
While researchers have shown the differences between direct and indirect measures of fit to be significant, perhaps the bigger distinction is between the types of indirect measures, as one involves perceptions (subjective fit) and the other involves actual measures (objective fit). Figure 1.3 provides a visual depiction of how these different types of fit operationalizations were incorporated into the present research to represent the two indirect measures of fit.

![Detailed Conceptual Model including Objective and Subjective Fit of GO](image)

Based on the preceding background, it was hypothesized that:

**Hypothesis 3**: Congruence of GO assessed through subjective fit will be more strongly related to the quality of the coach-athlete relationship than will congruence of GO assessed through objective fit.

**Hypothesis 4**: Congruence of GO assessed through subjective fit will be more strongly related to the quality of coach-athlete communication than will congruence of GO assessed through objective fit.
The overarching goals in the present study were to develop a more comprehensive understanding of factors that contribute to complex interpersonal relationships, assess the accuracy of individuals’ perceptions of others, and understand how relying on various perspectives and measures of congruence may influence the strength of a predictor-outcome relationship.

In addition to the stated hypotheses, I pursued two exploratory questions. The use of indirect assessment of fit allowed for the consideration of how two predictor variables interact with one another. This not only facilitates the exploration of level of agreement, but also of the degree and direction of discrepancy between the two variables. While no theoretical basis was found for developing hypotheses that detailed the effects of degree and direction of GO congruence/incongruence, it was assumed that a more comprehensive understanding of the complex relationships among variables could be gained from assessing these exploratory questions.
CHAPTER II

METHOD

Participants

Participants consisted of two groups representing two populations: collegiate athletes and head coaches of NCAA Division I, II, and III swim teams.

Athletes

Athlete respondents included collegiate swimmers who are members of a NCAA Division I, Division II, or Division III swim team. Questionnaire responses were received from 456 athletes spanning 48 different schools. A final total of 355 complete and valid athlete responses from 47 different schools were identified and used in the analysis. The athletes’ ages ranged from 18 to 24 years old ($M = 19.65, SD = 1.28$). Athletes were asked to indicate their gender: 107 (30.1%) of the participants were male, 245 (69.0%) were female, and 3 (0.8%) did not provide a response. Of the total sample, 300 (84.5%) athletes indicated they were white, 17 (4.8%) Asian, 14 (3.9%) two or more races, 10 (2.8%) Hispanic, 4 (1.1%) Pacific Islander, 3 (0.8%) African American, 1 (0.3%) Native American, and 6 (1.7%) did not respond.

The athletes in the sample had spent between 1 and 17 years ($M = 10.5, SD = 3.52$) swimming competitively. When reporting length of time spent with their coach, 151 (42.5%) athletes indicated they had worked with their coach for one season or less, 98 (27.6%) for between one and two seasons, 57 (16.1%) for between two and three seasons, 46 (12.9%) for
between three and four seasons, and 3 (0.8%) did not respond to the question. Participants were also asked to indicate their year in school: 115 (32.4%) were freshman, 95 (26.8%) sophomores, 74 (20.8%) juniors, 65 (18.3%) seniors, and 6 (1.7%) did not respond. 242 (68.2%) of the respondents compete in Division III athletics, while 66 (18.6%) and 47 (13.2%) of respondents compete at the Division I and Division II levels, respectively. 127 (35.8%) athletes indicated that they had a job, while 223 (62.8%) did not have a job and 5 (1.4%) chose not to respond. Of those who indicated that they were employed, 86 (67.7%) worked on-campus, 20 (15.7%) worked off-campus, 8 (6.3%) worked jobs both on- and off-campus, and 13 (10.2%) did not specify. The athletes who have a job work between one and 40 hours per week ($M = 10.03, SD = 7.07$).

**Coaches**

Coach respondents included collegiate head swim coaches affiliated with NCAA Division I, Division II, or Division III swim teams. Responses were received from 91 coaches from a variety of 83 different schools. Due to the nature of the study (coach responses had to be matched with athlete responses), coach information for 47 head coaches from 47 different schools was included in the analysis. 29 (61.7%) coaches led Division III teams, while 11 (23.4%) and 7 (14.9%) coaches from the sample led Division I and Division II teams, respectively. The coaches’ ages ranged from 25 to 64 years old ($M = 40.23, SD = 10.97$). Participants consisted of 27 (57.4%) male coaches and 20 (42.6%) female coaches, and 45 (95.7%) of the respondents indicated their ethnicity as white, 1 (2.1%) as African American, and 1 (2.1%) as two or more races.
The 47 respondents included in the analysis reported coaching competitive swimming for as few as three years to as many as 45 years ($M = 18.17, SD = 9.72$). The number of years coaches had spent with their current team ranged from a half a year to 34 years ($M = 10.43, SD = 8.65$). A coaching staff often consists of a head coach and one or more assistant coaches. Teams in the sample had between zero and five assistant coaches ($M = 3.15, SD = 1.18$) as reported by the head coaches.

**Measures**

Copies of all measures used are included in Appendix A.

**Demographics**

Demographic information, including gender, ethnicity, and NCAA division, was collected for both coaches and athletes. Additionally, the athletes’ age, year in school, job status (job or no job, on- or off-campus, hours per week), years of competitive swimming, and years with current head coach were obtained. Coaches were asked to report the number of years they have been coaching competitive swimming, the number of years they have been coaching their current collegiate team, and the number of assistant coaches with that team.

**Goal Orientation**

To measure GO, the achievement goal questionnaire-revised (AGQ-R) developed by Elliot and Murayama (2008) was used. This scale was adapted from the achievement goal questionnaire (AGQ) originally created by Elliot and McGregor (2001). The scale was developed to measure four dimensions of GO in an academic setting: mastery-approach (3
items), mastery-avoidance (3 items), performance-approach (3 items), and performance-avoidance (3 items).

For the present study, the original AGQ-R was adapted in three ways. First, the language of the items was adjusted to reflect a sport context rather than an education context. For example, the mastery-approach item that stated “My aim is to completely master the material presented in this class” was adjusted to read “My aim is to completely master the skills/techniques of this sport.” The phrase “this sport” was used, rather than a phrase specific to the sport of swimming, to facilitate the generalizability of the measure to all athletes. The second adjustment was the conversion of the original five-point Likert scale into a seven-point Likert scale. This was done to match the response scales of other measures in the study. Third, the mastery-avoidance items were dropped from the measure. The literature seems to be divided on the issue of whether or not the mastery-avoidance dimension is valid and should be included when studying GO. Elliot and Murayama (2008) discussed the recent development of the mastery-avoidance dimension and acknowledged that the dimension is not yet well researched or well understood. Several studies have confirmed the three-factor model of GO (e.g., Day, Radosevich, & Chasteen, 2003; Elliot & Church, 1997). Furthermore, three subject matter experts completed the questionnaire prior to the study and found the mastery-avoidance items difficult to comprehend.

In total, four versions of the AGQ-R were included in the questionnaires. Coaches completed the AGQ-R based on self-perceptions ($\alpha = .758$), as did athletes ($\alpha = .871$). Athletes also completed a version of the AGQ-R that captured their perceptions of their head coach’s GO ($\alpha = .892$). Participants responded on a seven-point Likert scale ranging from 1 (strongly disagree) to 7 (strongly agree). Additionally, athletes completed a version of the AGQ-R with
instructions to consider the extent to which they and their head coach are similar with respect to GO (α = .904). For each item, the athlete assessed the truth of the statement by responding on a seven-point Likert scale ranging from 1 (completely untrue) to 7 (completely true).

For all versions of the AGQ-R, mastery, performance-approach, and performance-avoid scores were computed for each individual by averaging the items representing each dimension. A high score represents a strong focus on a given GO dimension, while a low score suggests a disregard or lack of concern for a given GO dimension.

**Coach-Athlete Relationship**

The coach-athlete relationship questionnaire (CART-Q; Jowett & Ntoumanis, 2004) was used to assess the quality of the coach-athlete relationship. Athletes were asked to complete the measure based on their relationship with their head coach. The scale contains 11 items and measures three relational constructs, namely closeness (3 items), commitment (4 items), and complementarity (4 items). These dimensions are thought to capture levels of emotion, cognition, and behavior, respectively. Participants responded on a seven-point Likert scale ranging from 1 (strongly disagree) to 7 (strongly agree). The scale proved to have high reliability, with a Cronbach’s alpha of .961. Reliability was also high for each of the three dimensions: closeness (α = .929), commitment (α = .905), and complementarity (α = .904).

In the development of the CART-Q, Jowett and Ntoumanis (2004) concluded that the three factors should be conceptualized as three separate dimensions. They also concluded that the three dimensions could be subsumed within a single, higher-order factor as an overall measure of coach-athlete relationship quality. Based on the high intercorrelations among the three dimension scores, it was determined that using an overall score would be more appropriate
than considering the three dimensions separately. To compute an overall score for each respondent, the average of the items representing each construct was calculated, and then the three construct scores were summed. Overall scores therefore range from 3 to 21, where higher scores represent better relationship quality.

**Communication**

Liu et al.’s (2010) quality of communication experience (QCE) questionnaire was originally developed to examine the quality of communication in intercultural negotiations. However, it has been suggested that studying the quality of communication in other settings would likely be valuable (Liu et al., 2010). The QCE measures three dimensions of the quality of communication, including comfort (5 items), clarity (5 items), and responsiveness (5 items). The dimensions focus on the affective, cognitive, and behavioral aspects of the quality of the communication experience, respectively. Because Liu et al. designed the QCE to investigate the implications of communication for intercultural negotiations, the instructions and questions on the QCE were adapted in the present study to fit the athletic context. Responses for items on the QCE were on a seven-point Likert scale and ranged from 1 (strongly disagree) to 7 (strongly agree).

The scale yielded a high reliability, with an overall Cronbach’s alpha of .914. The dimensions of comfort ($\alpha = .839$) and clarity ($\alpha = .891$) had acceptable reliabilities, while a much lower reliability was found for the dimension of responsiveness ($\alpha = .586$). Liu et al. (2010) determined the three-factor model to be the best fit for the data. Based on their high intercorrelations, the decision was made to use an overall score consisting of the three dimension scores. To compute an overall score for each respondent, the average of the items representing
each dimension was calculated, and the three dimension scores were then summed. Overall scores range from 3 to 21, where higher scores represent better communication quality.

**Procedure**

All procedures were approved by the University of Tennessee at Chattanooga Institutional Review Board (see Appendix B). Two questionnaires were designed for online data collection utilizing Survey Monkey (www.surveymonkey.com) – one for coaches and one for athletes. The coach questionnaire contained one version of the AGQ-R and demographic questions. The athlete questionnaire included three AGQ-R versions, the CART-Q, the QCE, and demographic questions. Email addresses were obtained for all NCAA Division I, II, and III swim coaches in the United States, and coaches were then emailed with a request for participation. Coaches who agreed to participate were asked to complete the coach questionnaire and distribute the athlete questionnaire to their collegiate swimmers.

Coaches and athletes were both required to respond to a question that prompted them to enter their school name. The schools were then numerically coded to ensure confidentiality, and this field was used to match coach and athlete responses on the various versions of the AGQ-R.

**Analysis**

Two statistical techniques were used to test the hypotheses. First, multiple regression was used to examine the relationships between perceived fit of coach/athlete GO and the quality of relationship (Hypothesis 1) and perceived fit of coach/athlete GO and the quality of communication (Hypothesis 2). Although the dimensions of GO are believed to be orthogonal constructs, their significant intercorrelations (see Table 3.1) suggest that bivariate relationships
between the individual dimensions of GO (mastery, performance-approach, and performance-avoid) and outcome variables may be misleading. In scenarios like this, it has been recommended that researchers instead employ multivariate techniques, such as multiple regression, which help to account for the intercorrelations among dimensions (Day et al., 2003).

While one measure of congruence (perceived fit) asked athletes to directly assess how similar they are to their coach with respect to GO, the other congruence measures of GO (subjective fit and objective fit) each involved two measures, one representing the athlete and the other representing the coach. Single-index measures (e.g., difference scores, index of profile similarity) obtained from two predictors commonly have been used to examine congruence, but many issues with these methods have been identified, including reduced reliability, ambiguous interpretation, confounded effects, untested constraints, and dimension reduction (Cronbach & Furby, 1970; Edwards, 2001). Polynomial regression equations provide a viable alternative to these techniques, mitigating many of the problems associated with single-index measures and allowing researchers to directly test the relationships that difference scores are intended to represent (Edwards & Parry, 1993). The unstandardized coefficients from polynomial regression output can also be used to generate three-dimensional graphs, and the surfaces of these graphs enable researchers to better understand the precise nature of congruence relationships (Atwater, Ostroff, Yammarino, & Fleenor, 1998). To date, only a handful of studies have used polynomial regression to assess P-S or other related types of person-person fit (Kristof-Brown et al., 2005).

The procedure for polynomial regression and response surface analysis outlined by Shanock, Baran, Gentry, Pattison, and Heggestad (2010) was followed. The general equation used can be expressed as the following (Edwards, 1994):

\[
Z = b_0 + b_1X + b_2Y + b_3X^2 + b_4XY + b_5Y^2 + e
\]
where \( X \) represents the athlete’s GO, \( Y \) represents the coach’s GO (actual, or as perceived by the athlete), and \( Z \) is the outcome being predicted (coach-athlete relationship or coach-athlete communication).

The predictors were first centered about the scale midpoint (i.e., four on a seven-point Likert scale) (Edwards, 1994) to aid interpretation and reduce the effects of multicollinearity (Aiken & West, 1991). Next, twelve polynomial regression equations were estimated. Congruence of mastery, performance-approach, and performance-avoid GO dimensions were each examined as predictors of both relationship quality and communication quality, resulting in six regressions. The regressions were doubled, as both subjective fit and objective fit measurement techniques were used. Unlike most standard regression analyses, little emphasis is placed on the significance of specific regression weights when interpreting polynomial regression results. Instead, attention is focused on the variance explained by the set of predictors and the information gained from reviewing the surface pattern of the graph that is based on the polynomial regression formula (Edwards & Parry, 1993). Regression equations yielding significant \( R^2 \) values were plotted and their surfaces were tested for significant slopes and curvatures.
CHAPTER III

RESULTS

Table 3.1 presents the means, standard deviations, and correlations among all of the predictor and outcome variables included in the study. All dimensions of GO were significantly intercorrelated in three of the four versions of the AGQ-R, with Pearson correlation coefficients ranging from .24 to .63. Within the fourth version (self-reported coach GO), only mastery GO and performance-approach GO were uncorrelated ($r = -.02$). The intercorrelations among the dimensions of GO (mastery, performance-approach, performance-avoid) suggest that the different GO dimensions are not entirely orthogonal.

Athletes rated themselves slightly higher on the mastery GO dimension ($M = 6.14, SD = 1.01$) than on the performance-approach GO dimension ($M = 6.05, SD = 1.11$). Similarly, coaches rated themselves slightly higher on mastery GO ($M = 6.63, SD = 0.46$) than on performance-approach GO ($M = 6.34, SD = 0.79$). However, on average, athletes perceived their coaches to have lower levels of mastery GO ($M = 5.99, SD = 1.25$) than levels of performance-approach GO ($M = 6.21, SD = 1.04$). Performance-avoid had the lowest rating and the greatest variability of the three GO dimensions for all versions of the AGQ-R ($M = 5.36, SD = 1.57; M = 4.14, SD = 1.80; M = 5.54, SD = 1.58$).

As expected, the outcome variables (quality of the coach-athlete relationship and quality of coach-athlete communication) were highly correlated with one another ($r = .88$). The two outcomes had similar average ratings: quality of relationship, $M = 17.67, SD = 3.78$; quality of
Table 3.1 Descriptive Statistics and Intercorrelations among Variables

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<td>.12</td>
<td>.08</td>
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</tr>
<tr>
<td>Clarity</td>
<td>5.95</td>
<td>1.13</td>
<td>.56</td>
<td>.45</td>
<td>.21</td>
<td>.15</td>
<td>.09</td>
<td>.52</td>
<td>.28</td>
<td>.04</td>
<td>.15</td>
<td>.10</td>
<td>.03</td>
<td></td>
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<td></td>
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<tr>
<td>Responsiveness</td>
<td>5.76</td>
<td>0.88</td>
<td>.43</td>
<td>.24</td>
<td>.10</td>
<td>.06</td>
<td>.01</td>
<td>.48</td>
<td>.29</td>
<td>.06</td>
<td>.11</td>
<td>.10</td>
<td>.04</td>
<td></td>
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</table>

*p < .05,   **p < .01.
communication, $M = 17.46$, $SD = 2.94$. It was expected that the emotional, cognitive, and behavioral dimensions of the CART-Q would be more highly correlated with the emotional, cognitive, and behavioral dimensions of the QCE, respectively, than with dimensions of the QCE measuring dissimilar levels (e.g., emotional dimension of CART-Q and behavioral dimension of QCE). Results showed that the correlations of related constructs across scales (emotional, $r = .83$; cognitive, $r = .72$, and behavioral, $r = .73$) were not significantly higher than the correlations between dimensions of different levels across scales ($r$ ranging from .67 to .80).

**Perceived Fit**

Hypothesis 1 and Hypothesis 2 stated that congruence between coach and athlete GO would be positively related to the quality of the coach-athlete relationship and the quality of coach-athlete communication, respectively. A measure of perceived fit was used that asked athletes to assess the extent to which they are similar to their coach with respect to GO. Two multiple regression analyses were conducted using this measure to evaluate how well an athlete’s perception of coach/athlete GO congruence predicts the coach-athlete relationship and coach-athlete communication. The predictors included perceived congruence of the mastery, performance-approach, and performance-avoid GO dimensions. Results of the analyses are displayed in Table 3.2.

The first analysis showed that the linear combination of GO dimensions was significantly related to the quality of the coach-athlete relationship, $F(3, 352) = 136.95$, $p < .01$. Approximately 54% of the variance in the quality of the coach-athlete relationship in the sample was accounted for by coach/athlete congruence of the mastery, performance-approach, and performance-avoid GO dimensions. More specifically, congruence of mastery GO seemed to
have the greatest influence ($\beta = .66$) in explaining variance in the coach-athlete relationship. While their effects were not as strong, performance-approach GO ($\beta = .19$) and performance-avoid GOs ($\beta = -.11$) also contributed uniquely to predicting relationship quality.

The second analysis showed that the linear combination of GO dimensions was significantly related to the quality of coach-athlete communication, $F(3, 352) = 91.93, p < .01$. Approximately 44% of the variance in the quality of coach-athlete communication in the sample was accounted for by the congruence of mastery, performance-approach, and performance-avoid GOs between athletes and coaches. Again, mastery GO had the greatest influence ($\beta = .55$), and performance-approach GO ($\beta = .22$) contributed significantly in explaining variance in communication quality. However, performance-avoid GO ($\beta = -.09$) did not uniquely contribute to the prediction equation.

Table 3.2 Multiple Regression Analyses for GO Dimensions Predicting Relationship Quality and Communication Quality (Perceived Fit)

<table>
<thead>
<tr>
<th>Variable</th>
<th>Quality of Relationship</th>
<th>Quality of Communication</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>$B$</td>
<td>$SE$</td>
</tr>
<tr>
<td>Mastery</td>
<td>1.91</td>
<td>.13</td>
</tr>
<tr>
<td>Performance-Approach</td>
<td>.66</td>
<td>.17</td>
</tr>
<tr>
<td>Performance-Avoid</td>
<td>-.26</td>
<td>.10</td>
</tr>
<tr>
<td>Adjusted $R^2$</td>
<td>.54</td>
<td></td>
</tr>
<tr>
<td>$F$</td>
<td>136.95 **</td>
<td></td>
</tr>
</tbody>
</table>

*p < .05.  **p < .01.

The strong effect found using the perceived fit measure of GO congruence supported the assumption that valuable information may be gained from further exploring the nature of the congruence relationship, or how the use of different assessments of fit affect the strength of the
predictor-outcome relationship. It was hypothesized that congruence of GO assessed through subjective fit would be more strongly related to the quality of the coach-athlete relationship (Hypothesis 3) and the quality of coach-athlete communication (Hypothesis 4) than would congruence of GO assessed through objective fit. As shown in Tables 3.3 and 3.4, congruence using a subjective fit measure was more strongly related to both outcome variables, confirming Hypothesis 3 and Hypothesis 4. For example, congruence of mastery GO explained close to half of the variance of the coach-athlete relationship ($R^2 = .44, p < .01$) and over a third of the variance of coach-athlete communication ($R^2 = .34, p < .01$) when examined through subjective fit. In contrast, when examined through objective fit, congruence of mastery GO only explained minimal variance in the coach-athlete relationship ($R^2 = .03, p < .01$) and in coach-athlete communication ($R^2 = .06, p < .01$). Similar differences in subjective fit and objective fit measures were found for the performance-approach GO and performance-avoid GO dimensions.

Interestingly, as shown in Table 3.1, the coach self-ratings of GO were essentially uncorrelated with the athlete perceptions of coach GO for the three dimensions (mastery, $r = -.08$; performance-approach, $r = -.03$; performance-avoid, $r = -.05$), which may help explain the large difference between findings when using subjective versus objective measures of fit.

**Subjective Fit**

To study the exploratory questions, which addressed the extent to which the degree and discrepancy of GO congruence/incongruence affected relationship quality and communication quality, I moved from using a linear regression approach to a non-linear approach. A non-linear approach was better suited to assess the indirect conceptualizations of fit (subjective fit and object fit). These conceptualizations involved the combination of two GO measures (one
representing the athlete and one representing the coach) to determine level of congruence. When congruence was highest (i.e., athlete GO and coach GO were equal), relationship quality and communication quality were expected to be high. When congruence was low (unequal levels of athlete and coach GO), the coach-athlete relationship and coach-athlete communication were expected to be of low quality. Low congruence could be observed in two situations: when athlete GO is high and coach GO is low, or when athlete GO is low and coach GO is high. Thus, if greater congruence of GO predicts relationship quality and communication quality, a quadratic function would provide the best fit for the data.

The subjective fit measure of GO examined the similarity between athlete GO and athlete perception of coach GO. Polynomial regression was run using subjective fit of each GO dimension to determine how congruence of each dimension related to the two outcomes of interest. Given the significant variance explained by the predictors (see Adj. $R^2$ values in Table 3.3), the equations were plotted and the polynomial regression results were evaluated with regard to four surface test values: $a_1$, $a_2$, $a_3$, and $a_4$ (Cunningham, 2011; Shanock et al., 2010). The surface test values give estimates of the slopes and curvatures of the surface along the $X = Y$ and $X = -Y$ lines. The $X = Y$ line runs from the back corner to the front corner of the graph and represents the line of perfect agreement. The $X = -Y$ line runs perpendicular to the $X = Y$ line (from left to right along the base of the graph) and represents the line of incongruence. Along the $X = -Y$ line, as the value of one predictor increases and the other decreases, the discrepancy between the two predictors becomes larger, resulting in varying degrees of incongruence. The exploratory questions were addressed by using the surface plots to examine how both the degree and the direction of discrepancy related to relationship quality and communication quality.
Figures 3.1 and 3.2 display the surface plots for mastery orientation as it relates to the outcomes, where $X$ is athlete GO, $Y$ is athlete perception of coach GO, and $Z$ is the quality of the coach-athlete relationship (Figure 3.1) or quality of coach-athlete communication (Figure 3.2). The curvature along the $X = Y$ line was positive for the relationship ($curvature = 0.299, p < .01$) and communication ($curvature = 0.246$) outcomes, indicating that when athlete mastery GO and athlete perception of coach mastery GO were either both high or both low, the quality of the relationship and quality of communication were high. When the predictors were equal but lesser in magnitude, the quality of the relationship was relatively low. The surface tests also revealed significant negative slopes along the $X = -Y$ line for the coach-athlete relationship ($slope = -3.000, p < .01$) and coach-athlete communication ($slope = -2.078, p < .01$). This finding suggests that the direction of the discrepancy matters. The negative term indicates that the quality of relationship and quality of communication are greater when the discrepancy is such that an athlete’s perception of coach mastery GO is higher than the athlete’s own mastery GO than when a discrepancy opposite in nature is present.

Figures 3.3 and 3.4 display the surface plots for performance-approach GO as it relates to the outcomes, where $X$ is athlete GO, $Y$ is athlete perceptions of coach GO, and $Z$ is the quality of the coach-athlete relationship (Figure 3.3) or quality of coach-athlete communication (Figure 3.4). Similar to the findings for mastery GO, the performance-approach GO dimension had surface plots with significant curvatures along the $X = Y$ line for both outcomes (relationship: $curvature = -0.329, p < .01$; communication: $curvature = 0.301, p < .01$) and had significant slopes along the $X = -Y$ line for both outcomes (relationship: $slope = -2.822, p < .01$; communication: $slope = -1.710, p < .01$). In contrast to the findings for mastery GO, performance-approach GO had significant curvatures along the $X = -Y$ line for the relationship.
Table 3.3 Results from Polynomial Regressions of Outcomes on Athlete GO and Athlete Perception of Coach GO (Subjective Fit)

<table>
<thead>
<tr>
<th>Variable</th>
<th>Quality of Relationship</th>
<th>Quality of Communication</th>
<th>Quality of Relationship</th>
<th>Quality of Communication</th>
<th>Quality of Relationship</th>
<th>Quality of Communication</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mastery Goal Orientation</td>
<td>-1.22 **</td>
<td>1.78 **</td>
<td>0.18</td>
<td>0.31 **</td>
<td>-0.19 *</td>
<td>0.44 **</td>
</tr>
<tr>
<td>Performance-Approach Goal Orientation</td>
<td>-1.54 **</td>
<td>1.28 **</td>
<td>-0.03</td>
<td>0.61 **</td>
<td>-0.26 *</td>
<td>0.18 **</td>
</tr>
<tr>
<td>Performance-Avoid Goal Orientation</td>
<td>-0.61 **</td>
<td>0.17</td>
<td>-0.10</td>
<td>0.46 **</td>
<td>-0.16</td>
<td>0.07 **</td>
</tr>
</tbody>
</table>

Note. For columns labeled $X$, $Y$, $X^2$, $XY$, and $Y^2$, table entries are unstandardized regression coefficients for equations with all predictors entered simultaneously ($X =$ athlete goal orientation, $Y =$ athlete perception of coach goal orientation). The column labeled $Adj. R^2$ indicates the variance explained by the predictors. The set of nonlinear terms ($X^2$, $XY$, $Y^2$) explains additional variance above the linear terms ($X$ and $Y$).
Table 3.4 Results from Polynomial Regressions of Outcomes on Athlete GO and Coach GO (Objective Fit)

<table>
<thead>
<tr>
<th>Variable</th>
<th>Along $X = -Y$ line</th>
<th>Along $X = Y$ line</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Slope ($a_1$)</td>
<td>Curvature ($a_2$)</td>
</tr>
<tr>
<td></td>
<td>Slope ($a_3$)</td>
<td>Curvature ($a_4$)</td>
</tr>
<tr>
<td>Quality of Relationship</td>
<td>$b_1 - b_2$</td>
<td>$b_3 - b_4 + b_5$</td>
</tr>
<tr>
<td>Quality of Communication</td>
<td>$b_1 + b_2$</td>
<td>$b_3 + b_4 + b_5$</td>
</tr>
<tr>
<td>Performance-Approach Goal Orientation</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Quality of Relationship</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Quality of Communication</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Performance-Avoid Goal Orientation</td>
<td></td>
<td></td>
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<tr>
<td>Quality of Relationship</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Quality of Communication</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Note. For columns labeled $X$, $Y$, $X^2$, $XY$, and $Y^2$, table entries are unstandardized regression coefficients for equations with all predictors entered simultaneously ($X =$ athlete goal orientation, $Y =$ coach goal orientation). The column labeled $Adj. R^2$ indicates the variance explained by the predictors. The set of nonlinear terms ($X^2$, $XY$, $Y^2$) explains additional variance above the linear terms ($X$ and $Y$).
Note: Variables X (athlete goal orientation) and Y (athlete perception of coach goal orientation) were centered around the scale midpoint (4 on a 7-point scale). -4 represents the lowest possible rating, while 4 represents the highest possible rating. Quality of the coach-athlete relationship is a summed score ranging from 3 to 21. Corresponding to these scores on the Z-axis, the colors show different categories of the quality of the coach-athlete relationship. The X = Y line (the line of perfect agreement) runs from the front corner to the back corner. The X = -Y line (the line of incongruence) runs from left to right across the base of the figure. The dark shading on the graph indicates places in which the bottom of the surface is being viewed.

Figure 3.1 Surface Graph of Athlete Mastery GO and Athlete Perception of Coach Mastery GO with Quality of the Coach-Athlete Relationship
Note: Variables \( X \) (athlete goal orientation) and \( Y \) (athlete perception of coach goal orientation) were centered around the scale midpoint (4 on a 7-point scale). -4 represents the lowest possible rating, while 4 represents the highest possible rating. Quality of coach-athlete communication is a summed score ranging from 3 to 21. Corresponding to these scores on the Z-axis, the colors show different categories of the quality of coach-athlete communication. The \( X = Y \) line (the line of perfect agreement) runs from the front corner to the back corner. The \( X = -Y \) line (the line of incongruence) runs from left to right across the base of the figure. The dark shading on the graph indicates places in which the bottom of the surface is being viewed.

Figure 3.2 Surface Graph of Athlete Mastery GO and Athlete Perception of Coach Mastery GO with Quality of Coach-Athlete Communication
Note: Variables X (athlete goal orientation) and Y (athlete perception of coach goal orientation) were centered around the scale midpoint (4 on a 7-point scale). -4 represents the lowest possible rating, while 4 represents the highest possible rating. Quality of the coach-athlete relationship is a summed score ranging from 3 to 21. Corresponding to these scores on the Z-axis, the colors show different categories of the quality of the coach-athlete relationship. The X = Y line (the line of perfect agreement) runs from the front corner to the back corner. The X = -Y line (the line of incongruence) runs from left to right across the base of the figure. The dark shading on the graph indicates places in which the bottom of the surface is being viewed.

Figure 3.3 Surface Graph of Athlete Performance-Approach GO and Athlete Perception of Coach Performance-Approach GO with Quality of the Coach-Athlete Relationship
Note: Variables X (athlete goal orientation) and Y (athlete perception of coach goal orientation) were centered around the scale midpoint (4 on a 7-point scale). -4 represents the lowest possible rating, while 4 represents the highest possible rating. Quality of coach-athlete communication is a summed score ranging from 3 to 21. Corresponding to these scores on the Z-axis, the colors show different categories of the quality of coach-athlete communication. The $X = Y$ line (the line of perfect agreement) runs from the front corner to the back corner. The $X = -Y$ line (the line of incongruence) runs from left to right across the base of the figure. The dark shading on the graph indicates places in which the bottom of the surface is being viewed.

Figure 3.4 Surface Graph of Athlete Performance-Approach GO and Athlete Perception of Coach Performance-Approach GO with Quality of Coach-Athlete Communication
Variables $X$ (athlete goal orientation) and $Y$ (athlete perception of coach goal orientation) were centered around the scale midpoint (4 on a 7-point scale). -4 represents the lowest possible rating, while 4 represents the highest possible rating. Quality of the coach-athlete relationship is a summed score ranging from 3 to 21. Corresponding to these scores on the $Z$-axis, the colors show different categories of the quality of the coach-athlete relationship. The $X = Y$ line (the line of perfect agreement) runs from the front corner to the back corner. The $X = -Y$ line (the line of incongruence) runs from left to right across the base of the figure. The dark shading on the graph indicates places in which the bottom of the surface is being viewed.

Figure 3.5 Surface Graph of Athlete Performance-Avoid GO and Athlete Perception of Coach Performance-Avoid GO with Quality of the Coach-Athlete Relationship
Note: Variables $X$ (athlete goal orientation) and $Y$ (athlete perception of coach goal orientation) were centered around the scale midpoint (4 on a 7-point scale). -4 represents the lowest possible rating, while 4 represents the highest possible rating. Quality of coach-athlete communication is a summed score ranging from 3 to 21. Corresponding to these scores on the Z-axis, the colors show different categories of the quality of coach-athlete communication. The $X = Y$ line (the line of perfect agreement) runs from the front corner to the back corner. The $X = -Y$ line (the line of incongruence) runs from left to right across the base of the figure. The dark shading on the graph indicates places in which the bottom of the surface is being viewed.

Figure 3.6 Surface Graph of Athlete Performance-Avoid GO and Athlete Perception of Coach Performance-Avoid GO with Quality of Coach-Athlete Communication
(curvature = −0.895, p < .01) and communication (curvature = −0.427, p < .05) outcomes. This finding indicates that the degree of discrepancy between athlete GO and athlete perception of coach GO on the performance-approach dimension is important. More specifically, as the degree of discrepancy increases, the quality of the coach-athlete relationship and quality of communication decreases more sharply.

Figures 3.5 and 3.6 display the surface plots for performance-avoid GO as it relates to the outcomes, where X is athlete GO, Y is athlete perception of coach GO, and Z is the quality of the coach-athlete relationship (Figure 3.5) or quality of coach-athlete communication (Figure 3.6). All surface test values were significant for both outcomes. The curvature along the X = Y line was significant for the coach-athlete relationship (curvature = 0.204, p < .05) and for coach-athlete communication (curvature = 0.179, p < .01), suggesting that the outcomes increase more sharply as athlete performance-avoid GO and athlete perception of coach performance-avoid GO become lower or higher than some middle point. Along the X = −Y line, the slope was significant (relationship: slope = −0.778, p < .05; communication: slope = −0.542, p < .05) and the curvature was also significant (relationship: curvature = −0.714, p < .01; communication: curvature = −0.417, p < .01). The significance of these surface tests indicate that both the direction of discrepancy and the degree of discrepancy matter. Finally, the slope along the X = Y line was significant when examining the coach-athlete relationship (slope = −0.434, p < .05) and coach-athlete communication (slope = −0.350, p < .05). The negative term indicates that as both athlete GO and athlete perception of coach GO increase on the performance-avoid dimension, the outcomes decrease. In other words, coaches and athletes with higher performance-avoid levels generally experience lower relationship quality and communication quality.


**Objective Fit**

The same polynomial regression analyses were performed to examine if the objective fit of GO (i.e., self-reported athlete GO and self-reported coach GO) related to the coach-athlete relationship and coach-athlete communication. Three significant relationships were found: coach/athlete mastery GO and quality of relationship, \( R^2 = .03, p < .01 \); coach/athlete mastery GO and quality of communication, \( R^2 = .06, p < .01 \); and coach/athlete performance-approach GO and quality of communication, \( R^2 = .02, p < .05 \). Given the significant variance explained by these predictors, the polynomial regression results of each of the three surfaces were evaluated with regard to four surface test values: \( a_1, a_2, a_3, \) and \( a_4 \). None of the slopes or curvatures were found to be significant, which provided further supporting evidence for Hypothesis 3 and Hypothesis 4.

Figures 3.7, 3.8, and 3.9 display the response surfaces for the three significant polynomial regression equations, where \( X \) is athlete GO, \( Y \) is coach GO, and \( Z \) is the quality of the coach-athlete relationship or quality of coach-athlete communication. Although none of the surface tests were statistically significant, information can still be gained from examining the surfaces of the graphs. For instance, Figure 3.7, which displays mastery GO as it relates to the coach-athlete relationship, shows that the quality of the relationship is generally high, except for when coach and athlete mastery GO are both very low. The surface for mastery GO and communication quality (Figure 3.8) suggests that when coach mastery GO is high, communication quality is high, and when coach mastery GO is low, communication quality is low. In other words, coach mastery GO seems to be the key determinant of coach-athlete communication, while an athlete’s level of mastery GO has little effect on communication. Finally, Figure 3.9 generally shows a uniformly flat surface for all levels of athlete performance-approach GO, coach performance-
approach GO, and coach-athlete communication. This suggests that congruence of performance-approach GO has very little effect, if any, on the quality of coach-athlete communication.
Variables X (athlete goal orientation) and Y (coach goal orientation) were centered around the scale midpoint (4 on a 7-point scale). -4 represents the lowest possible rating, while 4 represents the highest possible rating. Quality of the coach-athlete relationship is a summed score ranging from 3 to 21. Corresponding to these scores on the Z-axis, the colors show different categories of the quality of the coach-athlete relationship. The X = Y line (the line of perfect agreement) runs from the front corner to the back corner. The X = -Y line (the line of incongruence) runs from left to right across the base of the figure. The dark shading on the graph indicates places in which the bottom of the surface is being viewed.

Figure 3.7 Surface Graph of Athlete Mastery GO and Coach Mastery GO with Quality of the Coach-Athlete Relationship
Note: Variables X (athlete goal orientation) and Y (coach goal orientation) were centered around the scale midpoint (4 on a 7-point scale). -4 represents the lowest possible rating, while 4 represents the highest possible rating. Quality of coach-athlete communication is a summed score ranging from 3 to 21. Corresponding to these scores on the Z-axis, the colors show different categories of the quality of coach-athlete communication. The $X = Y$ line (the line of perfect agreement) runs from the front corner to the back corner. The $X = -Y$ line (the line of incongruence) runs from left to right across the base of the figure. The dark shading on the graph indicates places in which the bottom of the surface is being viewed.

Figure 3.8 Surface Graph of Athlete Mastery GO and Coach Mastery GO with Quality of Coach-Athlete Communication
Note: Variables $X$ (athlete goal orientation) and $Y$ (coach goal orientation) were centered around the scale midpoint (4 on a 7-point scale). -4 represents the lowest possible rating, while 4 represents the highest possible rating. Quality of coach-athlete communication is a summed score ranging from 3 to 21. Corresponding to these scores on the $Z$-axis, the colors show different categories of the quality of coach-athlete communication. The $X = Y$ line (the line of perfect agreement) runs from the front corner to the back corner. The $X = -Y$ line (the line of incongruence) runs from left to right across the base of the figure. The dark shading on the graph indicates places in which the bottom of the surface is being viewed.

Figure 3.9 Surface Graph of Athlete Performance-Approach GO and Coach Performance-Approach GO with Quality of Coach-Athlete Communication
CHAPTER IV
DISCUSSION

The results of the present study yielded several notable findings that provide insight into the nature of the coach-athlete relationship and coach-athlete communication, how the dimensions of GO contribute to these outcomes, and how the way in which variables are measured can alter the conclusions drawn.

As previously stated, the coach self-ratings of GO were essentially uncorrelated with athlete perceptions of coach GO. If participants responded truthfully and were able to accurately perceive the characteristics of others, a coach’s self-rating of GO and an athlete’s perception of his or her coach’s GO theoretically should be highly, or at least moderately correlated. The disconnect found between these two measures might be explained in several ways. It may be that coaches inflated their scores on the self-report GO measure. In general, coaches rated themselves higher in comparison to athlete ratings of coaches, which might be attributed to social desirability bias, or a person’s tendency to respond in a way that would be viewed positively by others. Alternatively, the disconnect between measures might be explained by athletes’ inability to accurately perceive coach characteristics. It could also be that coaches are not displaying or expressing their GOs to their athletes.

Based on the sample used in the present study, it appears that in most cases, a coach and an athlete have differing views about the coach’s main focus and how the coach defines success. On average, coaches rated themselves slightly higher on mastery GO than on performance-
approach GO. The coaches in the sample tended to believe they are more focused on learning than on winning, and that they are more likely to define their success based on personal improvement rather than based on their performance as it relates to others. In contrast, athletes perceived that, on average, their coaches place greater emphasis on winning and beating the competition than on learning and personal improvement.

**Subjective Fit**

The subjective fit response surfaces (Figures 3.1 through 3.6) provide a wealth of information about how congruence or incongruence of coach and athlete GO affects the quality of the coach-athlete relationship and the quality of coach-athlete communication. Again, subjective fit refers to an indirect assessment of fit through the comparison of athlete GO and athlete perceptions of coach GO, both of which were reported by the athlete. The same significant relationships were found between the GO dimensions and the quality of the coach-athlete relationship and between the GO dimensions and quality of coach-athlete communication, so the following discussion of implications applies to both outcomes. The majority of studies on GO have examined individuals’ GO levels as they relate to certain outcomes, but few have considered how outcomes are affected by the combination of dyad members’ GOs.

**Mastery Goal Orientation**

Mastery GO typically is viewed as a positive trait. That is, the higher one’s level of mastery GO, the better. Past research has concluded that individuals who are mastery-oriented generally pursue adaptive achievement strategies (Lochbaum & Roberts, 1993), which lead to positive outcomes such as satisfaction and persistence (Trenz & Zusho, 2011). The present study
demonstrated that mastery GO is in fact an important component in the development of a high-quality relationship and high-quality communication within the coach-athlete dyad. As would be expected, relationship quality and communication quality were at their highest when athlete mastery GO and athlete perceptions of coach mastery GO were both maximized. In addition, even when both members’ mastery GO levels were very low, the quality of outcomes remained high given that coach and athlete mastery GO levels were congruent. This supports the prediction that coaches and athletes who focus on similar goals and define success in a similar way (regardless of the specific type of goals they have or what success looks like to them) will develop a stronger relationship and experience better communication than will coach-athlete dyads who do not agree on these points.

Results showed that as long as the athlete perceived their coach to be highly mastery-oriented, the relationship quality and communication quality within the dyad were high, regardless of the athlete’s level of mastery GO. However, if an athlete who was highly mastery-oriented perceived his or her coach to have low mastery GO, relationship quality and communication quality were reported to be of very low quality. Thus, the direction of the discrepancy plays a large role in assessing the effects of congruence of mastery GO.

The coach’s focus on learning and personal development seems to be more influential in determining the quality of outcomes than is the athlete’s focus on learning and personal development. This may be the case for a number of reasons. Trenz and Zusho (2011) found that a mastery-oriented motivational climate was a positive predictor of mastery-approach goals. It is possible that coaches who possess high levels of mastery GO create a motivational climate that is mastery-oriented. A mastery-oriented motivational climate provides an environment in which athletes can learn and grow. An atmosphere such as this might facilitate the building of personal
relationships and communication skills. Even though an athlete might not be primarily focused on learning and self-improvement, if the coach values these things, it is likely that the coach will cater to the individual needs of his or her athletes. From the athlete’s perspective, the findings could imply that an athlete with a strong focus on learning and self-improvement who has a coach with different goals might feel that the coach does not care to help the athlete build his or her skill set. Since the coach may be viewed as an authority figure, the athlete might feel uncomfortable asking for additional assistance or deem it a lost cause. Such a disconnect between coach and athlete could cause their relationship and their ability to communicate with one another to suffer.

Performance-Approach Goal Orientation

In contrast to mastery GO, performance GO typically has been viewed in a negative light. Research suggests that individuals who are performance-oriented engage in maladaptive achievement strategies (Lochbaum & Roberts, 1993). However, achievement situations in sport (i.e., practices, games, meets, other competitions) are often highly performance-focused (Jackson et al., 2010), so it can be expected that athletes would be at least mildly performance-oriented, and that the desire to beat the competition may not be entirely maladaptive. For instance, Ames and Archer (1988) found that performance cues did not inhibit achievement behavior when mastery cues were also salient.

Individuals who have high levels of performance-approach GO can be positively motivated through demonstrating their competence and superiority over others. In the present study, performance-approach GO was similar to mastery GO in that relationship quality and communication quality were at their highest when congruence between athlete GO and athlete
perceptions of coach GO was achieved. Also, outcomes were higher when the discrepancy was such that athlete perceptions of coach GO were higher than athlete GO than vice versa. Again, the coach’s underlying drive for achievement and definition of success seemed to be more influential than did the athlete’s underlying drive for achievement and definition of success. The main difference from the mastery GO analysis is that for performance-approach GO, the degree of discrepancy plays a bigger role in explaining the outcomes. That is, the larger the difference between coach and athlete performance-approach GO, the lower the quality of the relationship and communication.

The findings illustrate the importance of coaches and athletes understanding the other’s dominant goals and picture of success. If both coach and athlete want to win and show superiority over others, as is common in a competitive context, they will relate well to and communicate well with one another. Dyads whose individuals differ greatly on this GO dimension will likely not develop the same bond as those who are in agreement. While the coach’s GO again appeared to be a more critical determinant in the outcomes of interest, the effect was not as pronounced for performance-approach GO as it was for mastery GO. Coaches with a high level of performance-approach GO matched with athletes with a low level of performance-approach GO experienced average outcomes. In other words, a coach who focuses on the learning process can develop a strong relationship with an athlete who does not share the coach’s drive to learn, but it appears to be slightly more challenging and less likely for a coach who focuses on winning to develop a strong relationship with an athlete who does not share the same desire to win. It is possible that athletes who do not emphasize the need to beat their competition feel pressured by their coaches who deem winning to be a high priority. These
differing priorities between coach and athlete could reduce the quality of their relationship and their ability to communicate effectively.

**Performance-Avoid Goal Orientation**

Recall that individuals with a performance-avoid GO strive to perform well relative to others, and typically are motivated by their desire to avoid failure. As observed with performance-approach GO, results showed that performance-avoid GO congruence led to higher-quality coach-athlete relationships and coach-athlete communication, while incongruence was linked to lower-quality relationships and communication. More specifically, for coaches and athletes who were both motivated by their desire to avoid failure, a strong relationship was formed and communication quality was high. Once again, as the discrepancy between coach and athlete GO grew, the likelihood of the dyad having a high-quality relationship and high-quality communication diminished. As was found with the mastery and performance-approach GO, if a discrepancy in GOs exists, the dyad is better off if the coach has a high level of performance-avoid GO and the athlete has a low level than vice versa, although this effect was less pronounced than with the other two GO dimensions.

In early conceptualizations of GO, mastery orientation was seen as adaptive and performance orientation as maladaptive. Now, with the distinction between approach and avoidance GOs, researchers have found that most of the negative effects attributed to performance goals are uniquely explained by performance-avoid goals (Senko, Hulleman, & Harackiewicz, 2011). Senko et al. (2011) noted that nearly all of the findings related to avoidance goals have been negative. Consistent with the literature, the present study found that as both coach and athlete levels of performance-avoid GO increased, relationship quality and
communication quality decreased. However, results also showed that congruence of coach and athlete performance-avoid GO is generally related to positive outcomes. So, contrary to popular belief, having a performance-avoid GO (striving to avoid doing worse than others, or striving to avoid appearing less talented than others) is not detrimental to certain outcomes when both members of a dyad are motivated in the same way. Again, the results show that GO congruence is an important factor in determining quality of the coach-athlete relationship and coach-athlete communication.

One of the findings in the present study was less easily explainable than those previously mentioned. It was found that, for each GO dimension, relationship quality and communication quality increased more sharply as both predictors became lower or higher than some point. In other words, when coach and athlete GOs were equal and very high, or equal and very low, the quality of outcomes were at their highest. However, when athlete and coach GOs were reported to be equal but of moderate magnitude, the quality of the coach-athlete relationship and coach-athlete communication was significantly lower. So while congruence of GO is important, it alone does not explain how to achieve optimal coach-athlete outcomes. One must also consider where dyad members’ ratings fall along the line of perfect agreement, as dyads that are in agreement at either extreme experience the best outcomes.

This result was unexpected, but is seemingly important, as it was significant in every subjective fit analysis conducted. Based on the finding, if the relationship or communication between a coach and athlete are of low quality, an increase (or decrease) in both coach and athlete GOs on any of the three dimensions should result in an increase in outcomes. While increasing mastery GO to build a stronger relationship seems reasonable, decreasing both dyad members’ mastery GO to build a stronger relationship is not as intuitive. More research needs to
be done to better understand the nature of this outcome. For now, it could be recommended that a coach and athlete with a poor-quality relationship could improve their relationship by each committing to focusing on the learning process and personal improvement, or each placing greater emphasis on what it will take to win.

**Objective Fit**

The objective fit analyses considered self-reported athlete GO and self-reported coach GO as they related to relationship and communication quality. For different levels of coach and athlete mastery GO, the quality of the relationship was generally high, except for when coach and athlete mastery GO were both very low. Results also showed that when coach mastery GO was high, communication quality was high, and when coach mastery GO was low, communication quality was low. Simply stated, coach mastery GO seems to be the key determinant of coach-athlete communication quality, while an athlete’s level of mastery GO has little effect on communication.

Although the regression analysis was statistically significant, athlete performance-approach GO and coach performance-approach GO appeared to have no effect on coach-athlete communication. Together, the findings of the objective fit analyses suggest that congruence of coach and athlete GO has very little effect, if any, on the quality of the coach-athlete relationship and coach-athlete communication.

Collecting responses on multiple versions of the AGQ-R (perceived congruence, athlete self-perceptions, coach self-perceptions, athlete perceptions of the coach) allowed for the comparison of subjective and objective methods of measuring congruence. It was found that the analyses using objective fit did a poor job of predicting relationship quality and communication
quality relative to the analyses using subjective fit. The usefulness of subjective fit and objective fit may vary based on the outcomes of interest, but generally, the results of the present study confirm the idea that considering one’s perceptions of another may be more appropriate or more valuable in explaining outcomes than considering actual measures (Shaver, 1975).
Practical Implications

The findings of the present study imply that it is important for coaches and athletes to understand the other’s underlying drive and definition of success in sport. Coaches and athletes will likely benefit from discussing their key goals at the beginning of the season. Martin and Gaskin (2004) suggested that coaches should adapt their coaching method to their athletes’ individual learning styles. Similarly, coaches should strive to understand each of their athlete’s dominant goal orientation and cater their coaching approach to fit their individual needs. Athletes should be aware of their head coach’s dominate goal orientation as well. If expectations of goals are set early on, coaches and athletes will be more likely to develop a strong, interdependent relationship.

While discussing coach and athlete goal orientation is important for dyads that are already working together, the present study could also have implications for the recruiting process. Coaches could be trained on how to effectively display and communicate their goal orientation levels and how to discern the goal orientation levels of others. It may be advantageous for coaches to use these acquired skills to identify recruits who share their same goals and definitions of success, as high-quality coach-athlete relationships have been linked to outcomes such as higher levels of performance (Sánchez et al., 2009), satisfaction with
performance (Jowett & Don Carolis, 2003), and lower levels of dropout rates (Fraser-Thomas et al., 2008).

Results also highlighted that coach goal orientation is key in determining the strength of the coach-athlete relationship and the quality of the communication experience. If these outcomes are of low quality in a coach-athlete dyad, coach interventions could not only increase a coach’s awareness of his or her own dominant goal orientation, but also teach him or her how to strengthen that particular orientation, or how to increase levels of another, non-dominant goal orientation. Interventions could also equip coaches with skills to build a motivational climate that is congruent with their athletes’ dominant goal orientations. Continued research will provide insight on what to do, or the best strategies to use, when coach and athlete goal orientation are not aligned.

A significant amount of organizational research focuses on assessment and evaluation. Athlete responses regarding their perceptions of coach goal orientation and perceptions of the coach-athlete relationship may provide a new way to evaluate coach effectiveness. Coaches are rarely, if ever, formally evaluated by the athletes they coach. This type of evaluation could provide valuable feedback for coaches, reveal if coaches are equipped with the skills to provide individual consideration for their athletes, and be used by universities to make important coach-related decisions.

Limitations

While the present study contributes to the fit and sport literatures, some limitations must be considered when interpreting and applying the results. First, common method bias is a frequent concern in studies involving fit, as these studies often use predictor and outcome
variables that have been reported by the same person (Kristof-Brown et al., 2005). This single-source reporting can produce artificial covariance (Podsakoff, MacKenzie, Lee, & Podsakoff, 2003). The common rater bias effect is most problematic with perceived and subjective measures of fit. The present study included a measure of objective fit to help mitigate the bias. However, objective fit is not always considered to provide an accurate representation of reality, because “this objective reality must be filtered through individuals’ perceptions” (Kristof-Brown et al., 2005, p. 292). There does not appear to be a good solution to alleviate both the issue of common method bias and the issue of how to best measure fit, as diminishing one of the issues seems to magnify the other.

Second, the sample used was homogeneous in nature, as all respondents competed or coached in a single sport (i.e., swimming). While homogeneity in the sample helps to control for certain variables that may differ from sport to sport (e.g., team size, gender, individual vs. team focus, length of season, competition frequency), it restricts the generalizability of the results. The sample was also homogeneous in that participants all compete or coach at the collegiate level, so the applicability of the results to other levels of sport (e.g., club, high school, Olympic) is unknown.

Third, the study used a cross-sectional design. All measures were gathered at one time, so conclusions about causation cannot be drawn (Reimer, 2007). While goal orientation was described as a predictor variable in the present study, it should be acknowledged that the relationships found between variables could have been opposite in nature (e.g., the coach-athlete relationship affects coach and athlete goal orientations) or the result of variables not included in the study. The likelihood of this type of reverse causality is low, however, given the trait-like nature of goal orientation.
Directions for Future Research

The present study provides a foundation for future research along several lines. Researchers can expand upon the present study by including additional predictors, which will improve upon and broaden the scope of the conceptual model presented. Goal orientation was identified as important in explaining a portion of the variance in the coach-athlete relationship and coach-athlete communication. However, it is likely that other predictor variables, such as those identified in the Jowett and Poczwardowski (2007) research model, also contribute to the explanation of the outcomes of interest.

Additionally, contrary to Jowett and Poczwardowski’s (2007) research model, communication was included in the conceptual model as an outcome variable rather than as a mediator. The quality of the communication experience is only one of many ways to conceptualize communication. Future studies could consider different measures of communication (i.e., frequency, mode, depth), which may serve as mediators in the conceptual model, as suggested by Jowett and Poczwardowski. For instance, LaVoi (2007) noted that about two thirds of communication tends to be nonverbal, but few researchers have considered nonverbal communication in their studies. It would likely be beneficial to combine measures of verbal and nonverbal communication to gain a more holistic understanding of coach-athlete communication.

The present study considered variables at the individual level and the dyadic level. It would be fruitful to conduct a multilevel analysis to further explain the relationship of goal orientation to the two outcome variables. Characteristics of the team (e.g., team size), the school (e.g., school location or rank), and the NCAA division (e.g., eligibility to receive athletic scholarships) might be considered.
The three goal orientation dimensions included in the study were examined in isolation to facilitate the interpretation of the results, as little research has been conducted on goal orientation congruence using polynomial regression and response surface analysis. The present study could be extended by examining the effects of goal orientation congruence on outcomes when all goal orientation dimensions are considered in a single regression equation. This would further researchers’ understanding of the unique contributions of each goal orientation dimension to explaining variance in outcomes. Senko et al. (2011) called researchers to consider various combinations of goal orientation dimensions, suggesting that having high levels of both mastery orientation and performance-approach orientation might prove to maximize an individual’s motivation.

Finally, the design of the present study could be altered in future research. While goal orientation is believed to be a fairly stable trait, the outcome variables in the study are dynamic constructs. Dyadic relationships and communication change over time (Jowett & Poczwardowski, 2007). Reimer (2007) suggested that dynamic constructs such as these should be measured at several points in time, as a single measure only provides a small snapshot of the construct. Similarly, Podsakoff et al. (2003) suggested that researchers should temporally separate the collection of predictor and outcome variables to reduce both consistency and illusory correlations between constructs. Researchers could conduct longitudinal studies to better capture the dynamic nature of the coach-athlete relationship and coach-athlete communication.
REFERENCES


APPENDIX A

MEASURES
Achievement Goal Questionnaire-Revised (AGQ-R)

*Athlete Self-Perceptions*

(Adapted from Elliot & Murayama, 2008)

**Instructions:** Rate the extent to which you agree or disagree with the following statements about yourself.

**Response Scale:**
1—Strongly Disagree
2—Moderately Disagree
3—Slightly Disagree
4—Neutral
5—Slightly Agree
6—Moderately Agree
7—Strongly Agree

**Items:**
1. My aim is to completely master the skills/techniques of this sport.
2. I strive to learn the skills/techniques of this sport as thoroughly as possible.
3. My goal is to learn as much as possible.
4. My aim is to perform well relative to others.
5. I strive to do well compared to others.
6. My goal is to perform better than the others.
7. My aim is to avoid doing worse than the others.
8. I strive to avoid performing worse than others.
9. My goal is to avoid performing poorly compared to others.
Achievement Goal Questionnaire-Revised (AGQ-R)

Coach Self-Perceptions

(Adapted from Elliot & Murayama, 2008)

Instructions: Rate the extent to which you agree or disagree with the following statements about yourself.

Response Scale:
1—Strongly Disagree
2—Moderately Disagree
3—Slightly Disagree
4—Neutral
5—Slightly Agree
6—Moderately Agree
7—Strongly Agree

Items:
1. My aim is to completely master the skills/techniques of this sport.
2. I strive to learn the skills/techniques of this sport as thoroughly as possible.
3. My goal is to learn as much as possible.
4. My aim is to perform well relative to others.
5. I strive to do well compared to others.
6. My goal is to perform better than the others.
7. My aim is to avoid doing worse than the others.
8. I strive to avoid performing worse than others.
9. My goal is to avoid performing poorly compared to others.
Achievement Goal Questionnaire-Revised (AGQ-R)

Athlete Perceptions of Coach

(Adapted from Elliot & Murayama, 2008)

Instructions: Consider your head coach when reading the following statements. Rate the extent to which you agree or disagree with the following statements about your head coach.

Response Scale:
1—Strongly Disagree
2—Moderately Disagree
3—Slightly Disagree
4—Neutral
5—Slightly Agree
6—Moderately Agree
7—Strongly Agree

Items:
1. My coach’s aim is for his/her athletes to completely master the skills/techniques of this sport.
2. My coach strives for his/her athletes to learn the skills/techniques of this sport as thoroughly as possible.
3. My coach’s goal is for his/her athletes to learn as much as possible.
4. My coach’s aim is for his/her athletes to perform well relative to other athletes.
5. My coach strives for his/her athletes to do well compared to other athletes.
6. My coach’s goal is for his/her athletes to perform better than the other athletes.
7. My coach’s aim is for his/her athletes to avoid doing worse than the other athletes.
8. My coach strives for his/her athletes to avoid performing worse than others.
9. My coach’s goal for his/her athletes is to avoid performing poorly compared to others.
Achievement Goal Questionnaire-Revised (AGQ-R)

Perceived Congruence Measure
(Adapted from Elliot & Murayama, 2008)

Instructions: To what extent would you say each of the follow statements is true?

Scale:
1—Completely Untrue
2—Moderately Untrue
3—Slightly Untrue
4—Neutral
5—Slightly True
6—Moderately True
7—Completely True

Items:
1. My coach and I have a similar aim for me to master the skills/techniques of the sport.
2. My coach and I strive for me to learn the skills/techniques of this sport as thoroughly as possible.
3. My coach and I share the goal for me to learn as much as possible.
4. My coach and I have a similar aim for me to perform well relative to other athletes.
5. My coach and I strive for me to do well compared to other athletes.
6. My coach and I share the goal for me to perform better than the other athletes.
7. My coach and I have a similar aim for me to avoid doing worse than the other athletes.
8. My coach and I strive for me to avoid performing worse than others.
9. My coach and I share the goal for me to avoid performing poorly compared to others.
The Coach-Athlete Relationship Questionnaire (CART-Q)  
(Jowett & Ntoumanis, 2004)

**Instructions:** Rate the extent to which you agree or disagree with the following statements.

**Scale:**
1—Strongly Disagree  
2—Moderately Disagree  
3—Slightly Disagree  
4—Neutral  
5—Slightly Agree  
6—Moderately Agree  
7—Strongly Agree

**Items:**

Commitment  
1. I feel close to my coach.  
2. I feel committed to my coach.  
3. I feel that my sport career is promising with my coach.

Closeness  
4. I like my coach.  
5. I trust my coach.  
6. I respect my coach.  
7. I feel appreciation for the sacrifices my coach has experienced in order to improve his/her performance.

Complementarity  
8. When I am coached by my coach, I feel at ease.  
9. When I am coached by my coach, I feel responsive to his/her efforts.  
10. When I am coached by my coach, I am ready to do my best.  
11. When I am coached by my coach, I adopt a friendly stance.
Quality of Communication Experience (QCE)
(Adapted from Liu, Chua, & Stahl, 2010)

Instructions: Rate the extent to which you agree or disagree with the following statements.

Scale:
1—Strongly Disagree
2—Moderately Disagree
3—Slightly Disagree
4—Neutral
5—Slightly Agree
6—Moderately Agree
7—Strongly Agree

Items:

Clarity
1. I understand what my coach says to me.
2. I understand what is important to my coach.
3. If there is confusion, I clarify with my coach what he/she means.
4. I think my coach understands me clearly.
5. The verbal messages exchanged between me and my coach are easy to understand.

Responsiveness
6. My coach responds quickly to my questions and requests.
7. Conversations with my coach run smoothly without uncomfortable moments.
8. I am willing to listen to my coach’s perspective.
9. When my coach raises questions or concerns, I try to address them immediately.
10. My coach and/or I keep(s) silent from time to time.

Comfort
11. I am nervous to talk to my coach. (R)
12. I feel my coach trusts me.
13. I feel my coach is trustworthy.
15. My coach seems comfortable talking to me.
### Demographic Questions

**Coaches and Athletes**

- **Age:** __________
- **Gender:**
  - Male
  - Female
- **Ethnicity:**
  - White
  - Hispanic
  - African American
  - Pacific Islander
  - Asian
  - Native American
  - Two or more

**Coaches**

- How long (in years) have you been coaching competitive swimming? __________
- How long (in years) have you been coaching your current college team? __________
- How many assistant coaches work with you and your collegiate swim team?
  - 0
  - 1
  - 2
  - 3
  - 4
  - 5

**Athletes**

- **Year in School:**
  - Freshman
  - Sophomore
  - Junior
  - Senior
- **What is your major?** __________
- **Do you have a job?**
  - Yes
  - No
- If yes, please indicate if the job is on-campus or off-campus and how many hours per week you work. __________
- How long (in years) have you been swimming competitively? __________
- How long have you been working with your current (collegiate) head coach?
  - Half a season
  - One season
  - One and a half seasons
  - Two seasons
  - Two and a half seasons
  - Three seasons
  - Three and a half seasons
  - Four seasons
APPENDIX B

INSTITUTIONAL REVIEW BOARD APPROVAL
MEMORANDUM

TO: Meredith Nordbrock
    Dr. Bart Weathington

FROM: Lindsay Pardue, Director of Research Integrity

DATE: November 13, 2012

SUBJECT: IRB # 12-188: Can’t we all just get along? The impact of goal orientation and leadership styles on the coach-athlete relationship and coach-athlete communication

The Institutional Review Board has reviewed and approved your application and assigned you the IRB number listed above. You must include the following approval statement on research materials seen by participants and used in research reports:

The Institutional Review Board of the University of Tennessee at Chattanooga (FWA00004149) has approved this research project #12-188.

Please remember that you must complete a Certification for Changes, Annual Review, or Project Termination/Completion Form when the project is completed or provide an annual report if the project takes over one year to complete. The IRB Committee will make every effort to remind you prior to your anniversary date; however, it is your responsibility to ensure that this additional step is satisfied.

Please remember to contact the IRB Committee immediately and submit a new project proposal for review if significant changes occur in your research design or in any instruments used in conducting the study. You should also contact the IRB Committee immediately if you encounter any adverse effects during your project that pose a risk to your subjects.

For any additional information, please consult our web page http://www.utc.edu/irb or email instrb@utc.edu

Best wishes for a successful research project.
MEMORANDUM

TO: Meredith Nordbrock
    Dr. Bart Weathington

FROM: Lindsay Pardue, Director of Research Integrity

DATE: December 18, 2012

SUBJECT: IRB #:12-188: Can’t we call just get along? The impact of goal orientation and leadership styles on the coach-athlete relationship and coach-athlete communication

The Institutional Review Board has reviewed and approved the following changes for the IRB project listed below:

- Change of project title: Can’t we all just get along? The impact of goal orientation on the coach-athlete relationship and coach-athlete communication

- Two minor changes to the questionnaire have been made. First, The Leadership Scale for Sports (LSS) has been removed. Second, The Goal Orientation Questionnaire (AGQ-R) has been updated to a more recent version from the literature and is repeated four times with slightly different wording in each repetition.

You must include the following approval statement on research materials seen by participants and used in research reports:

The Institutional Review Board of the University of Tennessee at Chattanooga (FWA00004149) has approved this research project #12-188.

Please remember that you must complete a Certification for Changes, Annual Review, or Project Termination/Completion Form when the project is completed or provide an annual report if the project takes over one year to complete. The IRB Committee will make every effort to remind you prior to your anniversary date; however, it is your responsibility to ensure that this additional step is satisfied.

Please remember to contact the IRB Committee immediately and submit a new project proposal for review if significant changes occur in your research design or in any instruments used in conducting the study. You should also contact the IRB Committee immediately if you encounter any adverse effects during your project that pose a risk to your subjects.

For any additional information, please consult our web page http://www.utc.edu/irb or email instrb@utc.edu

Best wishes for a successful research project.
VITA

Meredith Nordbrock was born in Flossmoor, IL to the parents of Gary and Patricia Nordbrock and is the younger of two children. Meredith completed a BA in Psychology and Religious Studies from Washington University in St. Louis in 2008, where she served as captain of the NCAA Division III swim team for two years and earned All-American honors four years in a row. After working in the greater Chicago area for three and a half years, she decided to return to academia. Meredith will earn her MS in Industrial and Organizational Psychology from the University of Tennessee at Chattanooga in May 2013, and currently works as a Graduate Assistant in the University’s Office of Planning, Evaluation, and Institutional Research. She was awarded a UTC Provost Student Research Award to pursue her research interests, which include combining theories and principles of I-O psychology and sport psychology to better understand how employees/athletes can enhance their experience and maximize their performance. Upon completion of her thesis, Meredith was selected to receive the UTC Sigma Xi Outstanding Research Award for her efforts. Meredith looks forward to returning to Chicago after graduation to pursue a career in I-O psychology.