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Perceptions of empathic accuracy and assumed similarity in the coach–athlete relationship

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Drawing upon the methodology developed by Kenny and Acitelli (2001), this study examined empathic accuracy and assumed similarity in both parties' perceptions of coach–athlete relationships. One hundred and twenty-one coaches and athletes reported on their direct-perceptions and meta-perceptions of closeness, commitment and complementarity (3 Cs; Jowett & Cockerill, 2002), and of satisfaction with instruction, performance and external agents. There was evidence of both empathic accuracy and assumed similarity in coaches' and athletes' perceptions. Athletes were more accurate in identifying the specific content of their coaches' feelings in terms of closeness. Athletes and coaches from newly developed relationships displayed higher levels of empathic accuracy, whereas female athletes displayed higher levels of assumed similarity. Moreover, evidence suggested that athletes' and coaches' assumed similarity led to more accurate perceptions. Implications and future research directions are discussed.

Dyadic relationships can take a variety of forms (e.g. romantic, marital, familial, friendship, work-related and sport-related). Although similar experiences characterize many of these relationships, there are also important differences between them. For example, both husband–wife and coach–athlete relationships are likely to be characterized by mutual trust, but their levels of intimacy will probably differ. This diversity is not well represented in previous relationship research, which has focused almost exclusively on romantic relationships (see Berscheid, 1994). It has been long argued that psychologists need to 'identify phenomena and laws that *cut across* these various kinds of relationships' (Kelley, 1986, p. 7).

Another recurrent limitation of early relationship research was its reliance on an individual, rather than dyadic, level of analysis. Since the 1990s, however, social psychologists have begun to assess social cognition relationally (i.e. by focusing on the degree and nature of congruence or incongruence between the perceptions of dyad members; e.g. Fletcher & Kininmonth, 1991; Kenny, 1994). This paper also adopts this

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approach. Its purpose is twofold: (a) to apply and extend knowledge generated within the literature of marital and romantic relationships to coach–athlete relationships, and (b) to develop links between the interpersonal relationships and social cognition (interpersonal perception) literatures.

The coach–athlete relationship: Its role and significance

The dyadic relationship between coach and athlete is considered to be at the heart of sports training (e.g. Lyle, 1999). It is seen as intense and personal and involves a common purpose, a sense of attachment and mutual responsibility (e.g. Jowett & Meek, 2000). Although some of its characteristics are similar to those found in romantic, marital and parental relationships (e.g. nearness, care, trust, honesty, tolerance), as well as friendship and work relationships (e.g. instructional support, advice, share news, respect privacy, keep confidences; e.g. Jowett & Carpenter, 2004), the interpersonal contexts are distinct, affecting the relationship members' conduct and social interaction in different ways (Acitelli, Duck, & West, 2000). For example, experiences of 'intimacy' are likely to differ between husband–wife and coach–athlete relationships due to the different attitudinal, societal, normative and dialectical features of the circumstances under which these relationships unfold.

The coach–athlete relationship plays an important role in providing happiness and welfare. It can provide sources of help during difficult times (e.g. injury, burn out), during emotional crises (e.g. disqualification from a major competition) and transitions (e.g. career termination; Jowett, 2005). Furthermore, there are numerous anecdotal illustrations of the importance of coach–athlete relationships in achieving a sense of satisfaction and performance accomplishments. In his 2004 autobiography, Sir Clive Woodward (former coach of the England rugby team) argued that the partnership between coach and athlete is a key ingredient in creating a winning team. Similarly, the manager of Manchester United Football Club, Sir Alex Ferguson (2000), explained that loyalty and commitment are key elements of effective coaching. Reports by media, fans and athletes also portray coaches as taskmasters who attempt to build a positive climate within which relationships can function optimally.

An interpersonal relationship approach to sports coaching is important for two central reasons: (a) because of the impact of coaching on individual athletes' performance and (b) because the positive dynamics of a large number of similar relationships combine to influence athletes, coaches and the sporting environment more broadly. The coach–athlete relationship, like any other type of relationship, has great psychological significance for the development and stability or change of the individuals involved. However, only recently have attempts been made to explore the specific characteristics of the coach–athlete relationship (e.g. Jowett, 2003; Jowett & Cockerill, 2003) and its predictive and explanatory functions (e.g. Jowett & Chaundy, 2004).

Closeness, commitment and complementarity in the coach–athlete relationship

Jowett and colleagues (Jowett, 2005; Jowett & Cockerill, 2002; Jowett, Paull, & Pensgaard, 2005) have recently developed and presented an integrated model that incorporates coaches' and athletes' interpersonal feelings, thoughts and behaviours.

The model is based on Kelley *et al.*'s (1983) definition of interpersonal relationships as situations in which people's feelings, thoughts and behaviours are mutually interconnected. Correspondingly, coaches' and athletes' interconnected feelings, thoughts and behaviours have been operationalized through the popular relationship constructs of closeness (Berscheid, Snyder, & Omoto, 1989), commitment (Rusbult & Buunk, 1993) and complementarity (Kiesler, 1997). Each of these constructs has been widely used by researchers, albeit independently, to examine two-person relationships (e.g. romantic and marital), yielding a body of research that supports their usefulness in understanding the internal dynamics of various types of dyadic relationships.

Jowett and colleagues (e.g. Jowett, 2003; Jowett & Cockerill, 2003; Jowett & Meek, 2000; Jowett & Timson-Katchis, 2005) conducted a series of qualitative studies intended to assess the importance of closeness, commitment and complementarity ('the three Cs') in characterizing the content of coach–athlete relationships. The findings from these studies suggest that *closeness* describes the emotional tone of the relationship and indicates a positive affective relationship state. Closeness is reflected in coaches' and athletes' expressions of interpersonal liking, trust and respect as opposed to dislike, distrust and disrespect. For example, Jowett and Cockerill (2003) examined the interpersonal relationships of 12 Olympic medallists and found that these former athletes viewed their coach as a close friend, or as a father- or mother-figure. The affective bond was further evidenced through expressions of trust (e.g. 'I trusted his/her judgment'), and respect (e.g. 'my respect for him/her was uppermost').

Commitment is defined as a long-term orientation towards the relationship that is assured through accommodative behaviours such as appreciating the other's sacrifices, communicating and understanding, as well as working with the other relationship member to achieve performance goals. In the qualitative case studies, commitment emerged as a component that facilitates the growth and development of the relationship (Jowett & Meek, 2000; Jowett & Timson-Katchis, 2005), whereas lack of commitment was found to be uncompromisingly devastating for the continuation of a coach–athlete dyad (Jowett, 2003). Jowett (2003) concluded that when a dyad is not in a position to compromise or sacrifice, to communicate honestly, and when its members are unable to appraise one another objectively by understanding the particular situation in which the other party operates, the relationship is unlikely to be maintain harmony, ultimately resulting in its dissolution.

Complementarity is reflected in coaches' and athletes' actions that are co-operative and efficacious and includes behavioural properties such as being ready, at ease with one another, as well as feeling competent and concerned in the other's presence. In Jowett and colleagues' qualitative case studies (Jowett & Cockerill, 2003; Jowett & Meek, 2000; Jowett & Timson-Katchis, 2005), complementarity included behaviours that were reciprocal in terms of both control (e.g. 'I am responsible for instructing and my athlete is responsible for following the training/instructions given') and affiliation (e.g. 'he has a friendly attitude and creates a calm working environment'). A coach's ability to be in command while maintaining a bond, connection and affiliation with his/her athletes is viewed by athletes as an important interpersonal skill (e.g. Jowett & Cockerill, 2003; Jowett & Timson-Katchis, 2005). In summary, Jowett and colleagues' qualitative research thus far has confirmed the significance of the three Cs in coach–athlete relationships, and suggested that these relationship characteristics reflect the contexts in which coaches' and athletes' experiences, roles and social behaviours take place.

Co-orientation in the coach–athlete relationship

Co-orientation is a term introduced by Newcomb (1953) and utilized by Laing, Phillipson, and Lee (1966) in developing a method that assesses relationship members' *interperceptions* and *interexperiences*. According to Laing *et al.* (1966), relationship members view social events or experiences from at least two perspectives: the direct-perspective and the meta-perspective. In the present context, the direct perspective deals with athletes' and coaches' self-perceptions; for example, how the athlete feels, thinks and behaves towards his/her coach (e.g. 'I trust my coach' would reflect a direct perception of closeness). The meta-perspective deals with meta-perceptions; for example, an athlete's meta-perceptions reflect his/her ability to accurately infer the coach's thoughts, feelings and behaviours towards himself or herself (e.g. 'my coach trusts me' would reflect a meta-perception of closeness). An examination of both coaches' and athletes' self- and meta-perceptions permits the assessment of three dimensions of co-orientation: (a) actual similarity, (b) assumed similarity and (c) empathic accuracy or understanding (Jowett, 2005, 2006; Jowett & Cockerill, 2002). Figure 1 depicts the manner to which the two sets of perceptions (self and meta) yield three distinct measures of social-cognitive processes in coach–athlete relationships.

The interpersonal perceptions literature has considered empathic accuracy and similarity (actual and assumed) to be the 'quintessential indicators' of the quality of dyadic relationships (Kenny & Cook, 1999, p. 447). On one hand, empathic accuracy or the ability to make accurate judgments enhance relationship members' intention to continue the relationship over time (Duck, 1994), facilitate the co-ordination of relationship members' actions in the accomplishment of common goals (Ickes, 2003), and generally contribute to relationship functioning (Hoch, 1987; Swann, De La Ronde, & Hixon, 1994). Moreover, Acitelli, Kenny, and Weiner (2001) argue that because people do not agree on everything (i.e. they are not totally the same), understanding the other person is particularly important in providing opportunities for relationship members to identify, discuss, explore and resolve conflictual issues. On the other hand, relationship members' similarity (assumed and actual) has social power, in that it forms 'a foundation for relationships' (Duck, 1994, p. 110). According to Duck (1994), relationship members are motivated to achieve and sustain a level of similarity with one another because similarity immediately connects two people, offers validation of world-views and stimulates inferences. Kenny and Acitelli (2001) provided empirical evidence that similarity can lead to empathic accuracy. In particular, dyad members who correctly perceived mutual similarity were more likely to be accurate in their judgments of each other (Kenny & Acitelli, 2001). It seems that accuracy and similarity are processes that connect two otherwise independent people.

Although no previous studies have directly examined cognitive processes in the context of coach–athlete relationships, there is already indirect support for the significance of both empathic accuracy and (actual and assumed) similarity. For example, it has been found that coaches and athletes who assume that they are mutually similar (e.g. that they have common views, thoughts and opinions) or express a degree of empathic accuracy (e.g. acceptance and understanding) are likely to experience higher levels of relationship satisfaction (Jowett & Cockerill, 2003; Jowett & Meek, 2000). In contrast, athletes and coaches who perceive lower levels of similarity (e.g. dissimilar goals, dislikes, opposing philosophies about sport) and empathic accuracy (e.g. lack of understanding and knowledge and inability to grasp the other's

meaning) face challenges when confronted with everyday interpersonal interactions containing conflicts, disagreements and false impressions on and off the sports field (Jowett, 2003). These studies also suggest that a single person's experiences and perceptions are in some sense social and that individual perceivers are capable of creating potential for relationship change (for better or worse) based on their personal experiences and perceptions.

A basic paradigm for the study of interpersonal perception in dyadic relationships

Kenny and Acitelli (2001) have recently proposed a methodological model that explicitly measures the proportion of empathic accuracy and similarity in the dyadic relationship context (see Figure 1). Although this model is an original one, it is important to mention that previous theorists and methodologists have considered variants of it (see e.g. Laing *et al.*, 1966; Murray, Holmes, & Griffin, 1996; Newcomb, 1953). The methodology developed by Kenny and Acitelli (2001) makes it possible to examine simultaneously the proportion of empathic accuracy and similarity in members' perceptions of coach–athlete relationships. Kenny and Acitelli (2001; see also Kenny & Albright, 1987) have argued that accuracy and similarity coexist in the perception of others and, thus, the simultaneous study of coaches' and athletes' interpersonal perceptions is important because it can reveal fundamental processes previously unexplored in this type of relationship. For example, if an athlete trusts his or her coach, does this athlete think that the coach trusts him or her too (assumed similarity)?; and if a coach trusts an athlete, does this athlete think that his or her coach also trusts him or her (empathic accuracy)?; and finally, if both athlete and coach correctly assume that they are similar (actual similarity), does this make them more accurate in their judgments of each other (empathic accuracy)?

Ultimately, findings generated using this method can help to disentangle social-cognitive processes and their potential impact on relationship outcomes. For example, if

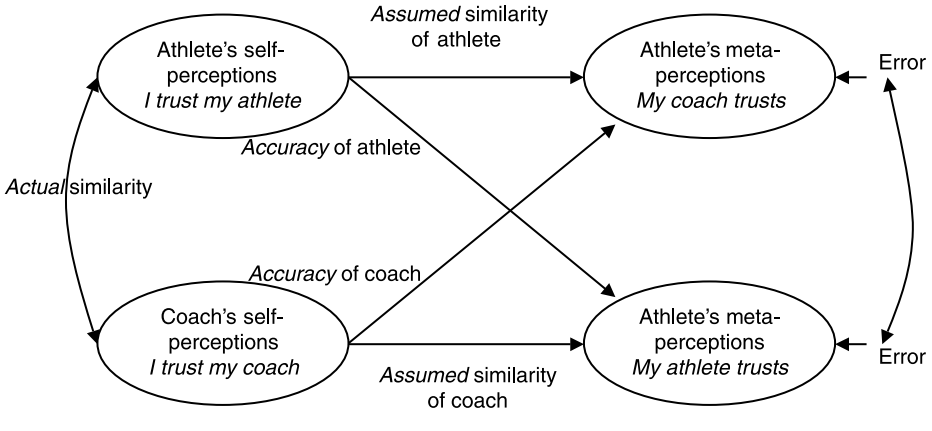

Figure 1. Graphical representation of the basic paradigm. The model illustrates an athlete's and a coach's self- and meta-perceptions. Assumed similarity is reflected on the horizontal paths and accuracy is reflected on the diagonal paths. (Adapted from accuracy and bias in the perception of the partner in a close relationship (p. 440) by D. A. Kenny and L. K. Acitelli, 2001, *Journal of Personality and Social Psychology*).

coaches' and athletes' perceptions are similar, this is likely to reflect their shared reality and their understanding that they are working towards the same goal. Moreover, if coaches and athletes understand correctly what the other is thinking and feeling, then their understanding should provide a basis for smoother conflict resolution. The generated findings can also help to confirm that social cognition in coach–athlete relationships contains a mixture of empathic accuracy and similarity, and to assess the degree to which the mixture of accuracy and assumed similarity in this kind of relationship is similar or different from other relationship types; namely, romantic and marital.

Content of perception, gender and duration of relationship

What variables hinder or facilitate empathic accuracy and perceived similarity? Moderating variables such as the content of perception, gender and duration of relationship are a central focus of the present research. With respect to the content of perception, Sillars (1985) argued that the accuracy of interpersonal perception depends on the degree of sensitivity or emotionality of the issue being considered. For example, Kenny and Acitelli (2001) collected data relating to a number of emotional (e.g. closeness, caring) and non-emotional (e.g. job satisfaction) issues from 238 married and romantic couples. They found that assumed similarity effects were stronger when perceptions concerned emotional or relationship-relevant issues. Thus, it seems possible that the emotional content of the object of perception may bias coaches' and athletes' perceptions.

Gender is another potential moderator that may influence relationship member's perceptions. Generally, research shows that women are more accurate perceivers than men only under conditions that 'remind' or motivate them to be accurate or more empathic (Ickes, 2003; Ickes, Gesn, & Graham, 2000). Taking a different perspective, Snodgrass and colleagues (Snodgrass, 1985; Snodgrass, Hecht, & Ploutz-Snyder, 1998) speculated that those in subordinate roles are more sensitive to how their leaders feel and think. Thus, they further speculated that women's empathic accuracy (sensitivity) might depend on their traditionally subordinate role to men. Their research findings revealed that, although there were no significant gender differences, subordinates tended to be preoccupied with the type of impression they were making on superiors (Snodgrass *et al.*, 1998). Such a preoccupation may reflect subordinates' attempts to assess (and influence) the extent of rewards or punishments.

Athletes too may be more inclined to manifest greater empathic accuracy in an attempt to 'please and appease' their coaches who often assume status, authority and power in the dyadic athletic relationship. Moreover, there is limited empirical evidence that reveals the power and control exerted on female athlete by male coaches. For example, Tomlinson (1997) found that dyadic male/coach–female/athlete relationships are characterized by a deep-rooted authoritarian structure in which male coaches' dominance leads female athletes to experience feelings of dependency and vulnerability. Thus, female athletes' subordinate status in the coach–athlete relationship may motivate them to be more accurate in reading their coaches' feelings, thoughts and behaviours than their male counterparts. Such a motivation may reflect female athletes' efforts to balance the power dynamics and control exerted by their coaches (cf. Ickes, 1993, 2003; Snodgrass, 1985). It is also possible that female athletes assume that there is greater similarity with their coaches than do male athletes as part of their attempt to validate their own self-perceptions and position in the relationship (cf. Duck, 1994).

Finally, the duration of a relationship may moderate effects on assumed similarity and empathic accuracy. Kenny and DePaulo (1993) and others (e.g. Thomas, Fletcher, & Lange, 1997) have suggested that at the early stages of a relationship, members pay great attention to each other and the feedback (e.g. actions, reaction, beliefs, ideals, thoughts) available in their social interactions. Eventually, however, relationship members cease to monitor each other closely (or become complacent with each other) because they feel they know what to expect from past encounters. According to this line of thinking, empathic accuracy will not consistently improve over time as relationships progress. Indeed, Kilpatric, Bissonnette, and Rusbult (2002) found that levels of empathic accuracy reliably declined following the first year of marriage. Although Acitelli *et al.* (2001) found that married couples' accuracy was not associated with relationship duration, married couples with longer involvement assumed more similarity than couples with shorter involvement. Assumed similarity can protect the relationship from conflictual situations and enhance the capacity to resolve problems (Acitelli *et al.*, 2001; Duck, 1994). It is therefore possible that coaches and athletes in relationships that have endured longer assume higher levels of similarity in an attempt to reduce conflict or promote conflict resolution strategies and thus foster relationship stability.

Overview of hypotheses

The present study examined the following four hypotheses. First, coaches' and athletes' perceptions were expected to contain a mix of empathic accuracy and assumed similarity supporting the notion of the importance of accuracy and similarity as indicators of the quality of dyadic relationships regardless of relationship type (e.g. friendships, marital, romantic, sport, work). Moreover, the interplay of actual and assumed similarity in producing accuracy effects was examined in order to reveal the extent to which dyad members are accurate by assuming they are similar.

Second, it was hypothesized that variation in the relative amounts of empathic accuracy and assumed similarity would be observed based on what is being perceived (i.e. the content of perception). Three targets of perceptions were examined: (a) closeness, commitment and complementarity (three Cs); (b) feelings of satisfaction with performance and training/instruction; and (c) feelings of satisfaction with the media, governing body and fans. These targets of perceptions were categorized as either internal or external to the relationship. The internal category included coaches' and athletes' perceptions about their relationship (three Cs) and feelings of satisfaction with performance and with training/instruction (because ultimately athletes' and coaches' satisfaction with performance and training depends on how well the coach and the athlete relate). The external category included coaches' and athletes' feelings of satisfaction with the media, governing bodies, and fans (because this facet of satisfaction does not appear to have direct bearing on the manner in which the coach and the athlete relate to each other). It was predicted that assumed similarity would be lower when the target of perception was external to the relationship than when there was an internal target.

Third, in line with previous research findings, gender was expected to moderate accuracy and assumed similarity. Specifically, it was hypothesized that female athletes would report (a) higher levels of empathic accuracy (because such accuracy helps them achieve a sense of control), and (b) higher levels of assumed similarity (because such similarity may help them strengthen their own position especially in a context where most coaches are male).

Fourth, the duration of the coach–athlete relationship was expected to affect the proportion of empathic accuracy and assumed similarity differentially. Relationship duration was defined in terms of two developmental stages: (a) a moderately developed relationship (duration spanned from 6 months to 2 years), and (b) an established relationship (duration spanned from 3 years up to 12 years). This categorization is based on previous research that suggests that it takes a couple of years before a relationship is considered moderately developed and once this stage is reached the relationship can be considered 'most developed', deep-rooted or established (see Aune, Buller, & Aune, 1996). It was hypothesized that moderately developed relationships would report higher levels of empathic accuracy because they are still at the stage of getting to know each other and thus coaches and athletes are more likely to closely monitor each other's behaviours. Moreover, coaches and athletes of established relationships were expected to report higher levels of assumed similarity in an effort to prevent or resolve conflict and thus maintain a stable relationship.

Method

Participants

A total of 242 Greek Caucasian coaches and athletes (121 independent dyads) from a variety of individual sports (archery, boxing, fencing, judo, rowing, shooting, tennis, tae-kwon-do, track and field athletics and weight-lifting) participated in the study. There were 50 female athletes with a mean age of 21 years ($SD = 2.5$), and 71 male athletes with a mean age of 24.1 ($SD = 3.1$) in the athlete sample. In the coach sample, 20 were female with a mean age of 35.6 ($SD = 5.1$), and 101 were male with a mean age of 34 ($SD = 4.3$). The gender composition of participating dyads was as follows: in 71 (58%) dyads, both coach and athlete were male; in 30 (25%) dyads, the coach was male but the athlete was female; and in 20 (16%) dyads, both coach and athlete were female. In none of the dyads in the present sample was the coach female and the athlete male (probably because of the demographic characteristics and cultural attitudes of the relevant population). Relationship duration was categorized as either 'moderately developed' (relationship duration spanned from 6 months to 2 years) or 'established' (relationship duration spanned from 3 years up to 12 years). According to this criterion, 174 participants (87 dyads) were in moderately developed relationship, and 68 (34 dyads) were in established relationships. The levels of competition in which the participants performed varied from club/county (130; 65 dyads), national (68; 34 dyads), to international (44; 22 dyads) levels.

Procedures

Two experienced test administrators met with coaches and athletes on their training grounds. The test administrators explained the objectives of the study and sought participants' consent. There were three criteria for participation: (a) participants had to be at least 16 years old; (b) participants had to have been in their current coach–athlete relationship for at least 6 months; and (c) participants had to be participating in a sport (either as an athlete training or as a coach coaching) on a regular basis for 5 days a week and for at least an hour. Administration of the questionnaires took place in established sports clubs located in the northern part of Greece (Alexandria, Florina, Goumenitsa, Ioannina, Naousa and Thessaloniki). Questionnaires were sealed in separate envelopes clearly marked either 'coach' or 'athlete'. Coaches and athletes completed their

questionnaires independently and anonymously. Completed questionnaires were handed back to the administrators in blank envelopes.

Measures

Greek coach–athlete relationship questionnaires

The first set of questions included both coaches' and athletes' self- and meta-perceptions of closeness, commitment and complementarity (three Cs) about the coach–athlete relationship. The 13-item Greek Coach–Athlete Relationship Questionnaire (GrCART-Q; Jowett & Ntoumanis, 2003) was used to measure coaches' and athletes' *self-perceptions* or *direct perspective* of closeness (4 items), commitment (4 items) and complementarity (5 items). For example, an item from the closeness subscale was 'I respect my coach' (athlete version) or 'I respect my athlete' (coach version), an item from the commitment subscale was 'I appreciate my coach's sacrifices in order to improve performance' (athlete version) or 'I appreciate my athlete's sacrifices in order to improve performance' (coach version) and an item from the complementarity subscale was 'When I am coached by my coach, I am ready to do my best' (athlete version) or 'When I coach my athlete, I am ready to do my best' (coach version). The items were assigned a score ranging from *strongly disagree* (1) to *strongly agree* (7) (see Appendix A).

The generation of items for the GrCART-Q was based on previous qualitative case studies (e.g. Jowett, 2003; Jowett & Meek, 2000), and its validation involved principal components analysis and confirmatory factor analysis (see Jowett & Ntoumanis, 2003). The latter analysis aimed to confirm the model structure that best captured the dimensions of the coach–athlete relationship. Consequently, a number of competing models were tested including a single-factor structure (in which a single dimension was used to represent the three Cs), two-factor structures (in which combinations of the three Cs were represented by two dimensions that were allowed to correlate), a three-factor structure (where each construct from the three Cs was represented as a separate dimension that was allowed to correlate with the other two), and a higher-order factor structure (in which the three Cs formed quasi-independent subfactors loading on overall perceived coach–athlete relationship quality). Fletcher, Simpson, and Thomas (2000) employed a similar approach to test the manner to which alternative models of relationship quality components are structurally represented. The confirmatory factor analyses revealed that the three-factor structure and the hierarchical structure of the GrCART-Q had satisfactory and identical fit indexes, $\chi^2(62) = 77.61$, $p > .05$; comparative fit index (CFI) = 0.99; Non Normed Fit Index (NNFI) = 0.97; standardized root mean squared residual (SRMR) = 0.02; root mean square error of approximation (RMSEA) = 0.06 (.05 to .07). With respect to convergent validity, the first-order three-factor model gave high loadings for all items on their hypothesized factors. Furthermore, the average proportion of variance in the items accounted for by their underlying factors in relation to the amount of variance due to the measurement error was above 0.63 (meeting the recommended cut-off point of 0.50; Fornell & Larcker, 1981). Overall, Jowett and Ntoumanis' (2003) validation study suggested that the coach–athlete relationship is best represented in either a first-order three-factor model or in a higher-order model in which the three factors are contained. These findings support previous research that shows that perceptions in different evaluative domains (e.g. closeness, commitment) are relatively consistent indicators of one's general attitude towards the relationship but that perceptions in these domains are also made independently to some extent (Fletcher *et al.*, 2000).

The modified GrCART-Q was developed to measure coaches' and athletes' *meta-perceptions* of closeness, commitment and complementarity (Jowett, 2006). This measure provides scores of meta-closeness (e.g. 'My coach respects me'; 'My athlete respects me'), meta-commitment (e.g. 'My coach appreciates my sacrifices in order to improve performance' – athlete version, or 'My athlete appreciates my sacrifices in order to improve performance' – coach version), and meta-complementarity (e.g. 'My coach is ready to do his/her best when he/she coaches me' – athlete version, or 'My athlete is ready to do his/her best when I coach him/her' – coach version; see Appendix 1). Responses to all items in the modified GrCART-Q were made on a 7-point scale ranging from *strongly disagree* (1) to *strongly agree* (7). The modified GrCART-Q has demonstrated satisfactory factorial construct validity (e.g. CFI = 0.94 for both coach and athlete samples, and SRMR = 0.08 for athletes and 0.05 for coaches), as well as internal consistency estimates ($\alpha = 0.82$ to 0.94; see Jowett, 2006, for detailed discussion of the psychometric properties of the GrCART-Q and its modified version with the current sample).

Athlete and coach satisfaction questionnaires

The second set of variables examined coaches' and athletes' self– and meta-perceptions of three of the 15 satisfaction dimensions in the 56-item Athlete Satisfaction Questionnaire (ASQ; Riemer & Chelladurai, 1998). Items relating to *athletes' self-perceptions* were taken directly from the questionnaire and covered: (a) athletes' satisfaction with training/instruction (3 items; e.g. 'I am satisfied with the training programme this season'); (b) athletes' satisfaction with performance (2 items; e.g. 'I am satisfied with the skill improvement thus far'); and (c) athletes' satisfaction with external agents (3 items; 'I am satisfied with the support provided by the governing sport body'). The same subscales were modified to also measure *athletes' meta-perceptions of satisfaction* with training/instruction, performance and external agents. Furthermore, two corresponding scales were constructed to measure *coaches' self– and meta-perceptions* of the same three satisfaction variables (see Appendix B).

The mean Cronbach's alpha across the three subscales was 0.76 for athletes' self-perceptions, 0.82 for athletes meta-perceptions, 0.78 for coaches' self-perceptions and 0.83 for coaches' meta-perceptions. The three subscales were also subjected to confirmatory factor analysis (using EQS 5.7; Bentler, 1995) to test their factorial validity. Following Riemer and Chelladurai's (1998) conceptual basis and statistical recommendations, a three-dimensional structure was tested for athletes' and coaches' perceptions using maximum likelihood as the method of analysis. The two-index presentation strategy (Hu & Bentler, 1998) is used here to present the obtained results. The two indexes utilized were: the robust CFI and SRMR. For athletes' self– and meta-perceptions of satisfaction scales, the CFI was 0.93 and 0.97 and SRMR was 0.06 and 0.05, respectively. For coaches' self– and meta-perceptions of satisfaction scales, the CFI was 0.95 and 0.98 and SRMR was 0.05 and 0.04, respectively. Overall, analyses demonstrated that the translated and modified satisfaction subscales possess sound psychometric properties.

Results

Descriptive statistics

Table 1 presents means and standard deviations of the Athlete and the Coach self- and meta-perceptions of the three Cs and satisfaction variables (with training/instruction,

Table 1. Means and standard deviations of the athlete and coach self- and meta-perceptions of the three Cs and satisfaction variables

	Athlete		Coach	
Variable	*M*	*SD*	*M*	*SD*
Self-closeness	6.49	0.661	6.14	0.833
Self-commitment	6.29	0.800	5.92	0.108
Self-complementarity	6.33	0.752	6.29	0.910
Meta-closeness	6.17	0.870	6.37	0.770
Meta-commitment	6.04	1.01	6.13	0.857
Meta-complementarity	6.10	0.985	6.25	0.854
Self-satisfaction with training/instruction	6.38	0.810	5.94	0.934
Self-satisfaction with performance	5.98	1.10	5.81	0.994
Self-satisfaction with external agents	4.22	1.61	3.99	1.26
Meta-satisfaction with training/instruction	6.08	1.02	6.10	0.900
Meta-satisfaction with performance	5.76	1.19	6.22	0.901
Meta-satisfaction with external agents	4.22	1.69	3.98	1.40

$N = 121$. Responses were on a 7-point scale (1 to 7).

performance, and external agents). Both athletes and coaches scored high on all relationship and satisfaction variables, but relatively low on satisfaction with external agents.

Estimating assumed similarity and accuracy using structural equations modelling

The analysis was conducted using AMOS 4.01. In order to compare the athletes and coaches for assumed similarity and for empathic accuracy, while at the same time including all the paths from Kenny and Acitelli's (2001) model, it was initially necessary to constrain the covariance between the exogenous variables (the self-perceptions of athlete and coach; see Figure 1). This was achieved by entering the actual covariance value. The values for each of the four accuracy and assumed similarity paths were found from this model. Subsequently, constraints were placed on the model to determine whether the assumed similarity (or accuracy) of athletes and coaches differed significantly. As an example, the two assumed similarity paths (horizontal lines in Figure 1) were constrained to be equal and this model was compared with the model where these paths were not constrained. A significant z denotes that athletes and coaches differed over this measure. Table 2 presents the empathic accuracy effects in athletes' and coaches' perceptions about their relationship as defined by the three Cs and the three satisfaction variables (i.e. training/instruction, performance, external agents). Table 3 presents the assumed similarity effects in athletes' and coaches' perceptions about the three Cs and the three satisfaction variables.

Partitioning of accuracy

Kenny and Acitelli (2001) describe the correlation between the perception of the other's feelings (e.g. My coach trusts me) and the other's actual feelings (e.g. I trust my athlete) as the *accuracy correlation*. They argue that this correlation can be decomposed into *accuracy* (as shown by the 'direct' path between the variables of the athlete's meta-perception and the coach's self-perception) and *assumed similarity* (the 'indirect' path

Table 2. Empathic accuracy effects for the three Cs and satisfaction variables (unstandardized regression coefficients)

Variables	Athlete	Coach	Fixed[a]	z[b]
Closeness	.33***	.13*	.21***	2.17*
Commitment	.27***	.15*	.21***	1.25
Complementarity	.20**	.10	.13**	1.15
Satisfaction with training/instruction	.21*	.25***	.24***	0.41
Satisfaction with performance	.16*	.18***	.17***	0.15
Satisfaction with external agents	.22**	.15**	.17***	0.68

*$p < .05$; **$p < .01$; ***$p < .001$.
[a]Average coefficient across athletes and coaches.
[b]A significant z denotes that the athletes and coaches are different.

Table 3. Assumed similarity effects for the three Cs and satisfaction variables (unstandardized regression coefficients)

Variables	Athlete	Coach	Fixed	z
Closeness	.69***	.72***	.71***	0.34
Commitment	.69***	.58***	.61***	1.07
Complementarity	.84***	.81***	.82***	0.34
Satisfaction with training/instruction	.68***	.66***	.67***	0.13
Satisfaction with performance	.76***	.65***	.69***	1.18
Satisfaction with external agents	.77***	.84***	.80***	0.70

***$p < .001$.

Table 4. Partitioning of the accuracy correlation (r)

	Athlete			Coach		
Variable	r	'Direct'	'Indirect'	r	'Direct'	'Indirect'
Closeness	.46	.32	.14	.32	.11	.21
Commitment	.46	.28	.18	.39	.15	.24
Complementarity	.34	.18	.17	.31	.09	.22
Satisfaction with training/instruction	.43	.17	.26	.57	.24	.32
Satisfaction with performance	.40	.14	.26	.49	.21	.27
Satisfaction with external agents	.54	.16	.38	.56	.18	.38

between the two variables; e.g. the path from athlete's self-perceptions [I trust my coach] to the coach's self-perceptions [I trust my athlete] and then from the athlete's self-perceptions [I trust my coach] to the athlete's meta-perceptions [My coach trusts me]). Table 4 presents an analysis of the accuracy correlations.

Comparing models for different groups

Path strengths were compared to assess whether they differed significantly for different groups (e.g. male and female athletes). The procedure first involved creating a model in

which the paths were allowed to be different for the two groups (i.e. estimating them separately), except that the covariance between the two self-perception variables (e.g. closeness) was constrained. Next, a model was created in which each path was constrained to be the same in the two groups. These two models were then compared and if they did not differ significantly, then the paths can be assumed to have similar values in both groups. If, however, the two models differed, then a systematic procedure was used to identify which path or paths have significantly different values. With one exception (details given below) – the order in which paths were checked was constant (see Figure 1) – athlete assumed similarity, accuracy of coach, accuracy of athlete and then coach assumed similarity. Two pairs of groups were compared: (a) those based on athlete gender (male vs. female athletes), and (b) those based on duration of the athlete–coach relationship (moderately developed vs. established). Where differences were found, the significance level is given and unstandardized regression coefficients are reported for each group.

Comparison of groups based on gender

There were 70 male and 51 female athletes. Coaches were predominantly male for both groups (84.3% of male athletes and 78.4% of female athletes had male coaches). The low number of female coaches made comparisons based on coach gender impractical.

The three Cs

For closeness, male and female athletes did not differ significantly. For commitment the only difference was coach assumed similarity ($z = 3.71$, $p < .001$; male $= 0.50$, $p < .001$; female $= 0.81$, $p < .001$). For complementarity, the only difference was that there was greater covariance between athlete and coach self-perceptions for female than for the male athletes.[1] (The difference between the model where all the paths and the covariance between athlete and coach self-perceptions were constrained and the model where only the paths were constrained is $z = 3.07$, $p = .002$; male $= 0.01$, $p = .47$; female $= 0.38$, $p < .001$.)

Satisfaction variables

Satisfaction with training/instruction: the only difference between the genders was athlete assumed similarity, which was stronger for female than for male participants ($z = 2.81$, $p = .005$; male $= 0.53$, $p < .001$; female $= 0.98$, $p < .001$). Satisfaction with performance: the genders differed on both athlete and coach assumed similarity, with the values being greater for the females in both cases: athlete assumed similarity ($z = 1.99$, $p = .05$; male $= 0.66$, $p < .001$; female $= 0.88$, $p < .001$), and coach assumed similarity ($z = 2.38$, $p = .02$; male $= .54$, $p < .001$; female $= 0.77$, $p < .001$). Satisfaction with external agents: there was no significant difference between the genders.

Comparison of groups based on relationship duration

There were 87 dyads with a 'moderately developed' relationship and 34 with an 'established' one, each group containing comparable frequencies of male and female athletes.

[1] *This analysis was the one exception referred to earlier to the general procedure. In this case, the totally constrained model was not significantly poorer than the model in which only the covariance between the two self-perception variables was constrained. However, this latter model was itself a poor fit to the data. As a consequence, a totally constrained model was compared with one in which only the covariance between the self-perception variables was constrained.*

The three Cs

Closeness showed no significant difference due to relationship duration. However, for commitment, the only path which did not differ significantly between the two groups was coach accuracy (athlete assumed similarity was higher in the established relationships: $z = 2.68$, $p = .007$; moderately developed $= 0.46$, $p < .001$; established $= 0.96$, $p < .001$; athlete accuracy was higher in the moderately developed relationships: $z = 2.49$, $p = .006$, moderately developed $= 0.40$, $p < .001$, established $= 0.04$, $p = .376$; coach assumed similarity was higher in the established relationships: $z = 2.85$, $p = .002$, moderately developed $= 0.50$, $p < .001$, established $= 0.76$, $p < .001$). For complementarity, the only path that differed significantly on the basis of relationship duration was athlete accuracy, where the value was higher for the moderately developed relationship ($z = 2.82$, $p = .002$, moderately developed $= 0.36$, $p < .001$, established $= -0.03$, $p = .388$).

Satisfaction variables

For satisfaction with training/instruction, there was a significant difference in athlete assumed similarity, with the established relationship having the higher value ($z = 2.26$, $p = .024$; moderately developed $= 0.47$, $p < .001$, established $= 0.82$, $p < .001$). Neither satisfaction with performance nor satisfaction with external agents showed any significant differences due to duration of the relationship.

Discussion

This research used a methodology proposed by Kenny and Acitelli (2001) to study perceptions of empathic accuracy and assumed similarity in the dyadic coach–athlete relationship. The finding that perceptions contain both empathic accuracy and assumed similarity in coach–athlete relationships is consistent with other studies that have examined heterosexual romantic and marital couples (e.g. Kenny & Acitelli, 2001). This finding supports our first hypothesis that such internal cognitive processes as accuracy and similarity coexist in relationship members' perceptions regardless of the type of relationship. The findings have also revealed a single significant difference between athletes' and coaches' perceptions of empathic accuracy. Specifically, athletes were more capable of inferring accurately their coaches' feelings of closeness. Snodgrass *et al.* (1998) and others (e.g. Brehm, 1992) have argued that accuracy is more important for the weak to understand the strong. Indeed, some studies (e.g. Snodgrass *et al.*, 1998) have shown that relationship members with less power feel more fulfilled with the relationship if they can accurately infer aspects of the stronger relationship member. Considering the athletes' position in the relationship as the more vulnerable in terms of expert knowledge, power and authority, it is possible that athletes' higher levels of empathic accuracy in terms of closeness cause them to feel more in control, comfortable and confident.

Consistent with other studies (e.g. Kenny & Acitelli, 2001; Murray *et al.*, 1996; Thomas & Fletcher, 2003) that have investigated romantic and marital dyads, coach–athlete dyads displayed overall higher levels of assumed similarity than empathic accuracy. An interpretive framework that includes cognitive and motivational explanations has often been used to account for such findings (see e.g. Fletcher & Kininmonth, 1991; Ickes, 1993, 2003; Kenny & Acitelli, 2001; Murray *et al.*, 1996). In the context of the coach–athlete relationship, a cognitive explanation implies that athletes and coaches do not have enough information to judge the other relationship

member's feelings, thoughts and behaviours. Moreover, athletes and coaches rely on different situations and experiences as the basis for forming their self- and meta-perceptions. For example, coaches are more likely to interact with their athletes in a team setting (e.g. a coach may instruct or provide support or express feelings of closeness to all athletes in the team), whereas athletes are likely to interact with their coaches on one-to-one basis (e.g. an athlete demonstrates a skill or a technique to his/her coach or discusses a problem with his/her coach). Consequently, athletes and coaches resort to their own perceptions to infer the other relationship member's feelings, thoughts and behaviours, which results in higher levels of assumed similarity, perceptual error or bias.

From a motivational angle, higher levels of assumed similarity might reflect athletes' and coaches' attempts to protect the relationship and/or self-concept from threats and hurt feelings. Accurate but uncomfortable or distressing perceptions regarding the quality of the relationship and satisfaction variables may be avoided in favour of imprecise yet comforting and reassuring perceptions. Given that the coach–athlete relationship is viewed as central in the coaching process (e.g. Jowett, 2005; Lyle, 1999), athletes and coaches are motivated to view themselves and their relationship in the best light, even if this involves biasing their perception.

It is possible that cognitive and motivational explanations are both aspects of the same goal-directed process. In our sample, when the accuracy correlation was partitioned, two noteworthy results were revealed. Firstly, the 'indirect' effect (assumed and actual similarity) was nontrivial for both coaches and athletes. Secondly, for coaches' three Cs (closeness, commitment and complementarity), the 'indirect' effect was larger than the 'direct' effect, although the reverse was true for athletes' three Cs. This finding suggests that coaches rely on similarity with their athletes to draw accurate inferences about them as individuals, whereas athletes do not have to rely on the similarity with their coach to draw accurate inferences. Thus, it is possible that athletes are generally more motivated to understand their coaches' feelings, thoughts and behaviours due to their 'subordinate' position, corroborating Snodgrass *et al.*'s (1998) postulate, whereas coaches' ability or motivation to understand each of their athletes is hampered because they have to deal with a group of athletes at any one time. In terms of the three satisfaction variables, both coaches and athletes appeared to be able to capitalize on their own self-perceptions by recognizing the similarities that actually existed. Because coaches and athletes really do tend to be similar to one another, their assumption of similarity is an accurate one.

Turning to our second hypothesis, the three targets of perceptions were categorized as either internal (three Cs; satisfaction with performance and with training/instruction) or external (satisfaction with fans and media). Although the variable of satisfaction with external agents (e.g. media, fans, governing body) was viewed to be external to the relationship, it produced similar effects to variables that were considered to be internal (e.g. closeness, satisfaction with performance). Close inspection of the effects of assumed similarity (see Table 2), for example, does not support our second hypothesis. The interrelations between variables and the similar levels of importance probably assigned to them by both coaches and athletes may have prevented the emergence of any clear pattern. Acknowledging that different targets of perceptions have been shown to obscure inferences (e.g. Kenny & Acitelli, 2001), more research is required to explore the extent to which the contents of perception can affect empathic accuracy in the coach–athlete relationship.

In terms of our third hypothesis, analysis regarding athletes' gender revealed that coaches of female athletes tended to assume greater similarity in commitment perceptions than coaches of male athletes. Gender differences were also found for satisfaction with training/instruction and performance. Female athletes assumed more similarity with their coaches in satisfaction with both training/instruction and performance than their male counterparts. Overall, all gender differences were associated with assumed similarity linked to the female athlete. Female athletes in particular may choose to display greater levels of assumed similarity in an effort to affirm, support or indeed enhance their mental representations of self. Females athletes' assumed similarity (self-perceptions [e.g. I trust my coach] and meta-perceptions [e.g. My coach trusts me]) may act as a mechanism by which their self-concept is heightened. Given the low self-concept reported in female athletes (Marsh, Perry, Horsely, & Roche, 1995), perceptual congruence may allow them to promote the self, and strengthen their position in the relational context and in the sport context more broadly. This is consistent with the assertion that perceptual congruence (assumed similarity) aims to foster a favourable and validated view of the self (Duck, 1994; Hinde, Finkenauer, & Auhagen, 2001). No gender differences in empathic accuracy were found, supporting previous research findings (e.g. Ickes *et al.*, 2000) that both women and men are likely to possess similar levels of empathic ability.

In support of the final hypothesis, it was found that the duration of relationship moderates the proportion of accuracy and assumed similarity experienced between coaches and athletes. In particular, athletes in moderately developed relationships were capable of inferring accurately the content of their coaches' commitment and complementarity. This finding suggests that athletes in the early stages of their relationship are more *motivated* to observe their coaches closely in an attempt to get to know them better. This result is consistent with conceptual and empirical evidence suggesting that empathic accuracy is more evident at the early stages of a relationship, but declines as the relationship progresses (Kenny & DePaulo, 1993; Kilpatric *et al.*, 2002; Thomas *et al.*, 1997).

Although moderately developed relationships recorded higher levels of empathic accuracy, coaches and especially athletes in established relationships recorded higher levels of assumed similarity in interpersonal commitment. In the established relationship category, 59% of the dyads had achieved national and international sport success as opposed to 34% of the dyads in the moderately developed relationship category. Moreover, established relationships included dyads not only with greater performance accomplishments but also more mature in terms of age (older in age) and experience (longer involvement in sport). Evidently, in such relationships, the stakes are higher and investments are greater. From a social exchange perspective, when investment and costs are high, and possibly the level of alternatives is low, high levels of assumed similarity may help to promote a sense of solidarity, stability and harmony (e.g. working towards mutual goals, pulling in the same direction), all of which are critical for relationship commitment and continuity.

To our knowledge, this study is the first to have investigated dyadic perception in coach–athlete relationships. Thus, the scope for further research in interpersonal perception in the coach–athlete relationship and other relationships in sport is considerable. Given the significance that people attach to understanding each other's psychological states, future research studies should focus on empathic accuracy in interpersonal perception. The study of empathic accuracy has been approached by researchers from two different vantage points. One is that used in this study whereby

empathic accuracy is measured using generalized judgments (e.g. requiring relationship members to generate inferences about the content of the other's thoughts, feelings and behaviours by choosing from a set of items and responses provided in a questionnaire). Although this is a viable measure that provides important insights into people's empathic accuracy (the degree to which one member's inferences are congruent with the other member's actual thoughts and behaviours), it is somewhat limited. For example, it does not allow the coach to generate his/her own inferences about the specific content of the athlete's thoughts and feelings over time, as a continuing, moment-to-moment process. Ickes (1993) advocates 'a temporary extended, repeated measures assessment of the perceiver's [coach/athlete] empathic accuracy' (p. 591) as a more appropriate and precise procedure. In brief, this approach involves data collection from dyads in a laboratory setting during which time they complete questionnaires, engage in videotaped interactions, and complete judgment tasks regarding their interactions. This approach has been embraced by researchers because it can be used to track the development of empathy as an ongoing process (Ickes, 1993; Kilpatric *et al.*, 2002; Thomas *et al.*, 1997) and thus it is more capable of unravelling relationship members' ability to be understanding and accommodative to one another's needs.

Overall, our study has shown the contribution the coach–athlete relationship and its relationship members make in terms of empathic accuracy and similarity. All three moderators examined were found to play a role. This study, although unique in respect of the type of relationship investigated, supports the assertion that understanding interpersonal perception or social cognition requires paying attention to the interpersonal relationship and its members in disentangling internal processes. This study extended knowledge about relationships, which are primarily about acquaintance and intimate relationships to coach–athlete relationships. This extension helps to uncover universal and specific factors across varieties of relationships. Research questions that relate to social cognition in the coach–athlete relationship and in other relationships such as husband–wife, parent–child, and peer relationships can provide the basis for exploring the connections and communalities that exist in two-person relationships within and between various social contexts.

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Appendix A
The coach-athlete relationship questionnaires (translated from Greek)

GrCART-Q direct perspective Self-perceptions	GrCART-Q meta-perspective Meta-perceptions
Closeness	
1. A: I like my coach	My coach likes me
C: I like my athlete	My athlete likes me
2. A: I trust my coach	My coach trusts me
C: I trust my athlete	My athlete trusts me
3. A: I respect my coach	My coach respects me
C: I respect my athlete	My athlete respects me
4. A: I feel that my training under the supervision of my coach is gratifying and satisfying	My coach feels that coaching me is gratifying and satisfying
C: I feel that coaching my athlete is gratifying and satisfying	My athlete feels that his/her training under my supervision is gratifying and satisfying
Commitment	
5. A: I appreciate my coach's sacrifices in order to improve performance	My coach appreciates my sacrifices in order to improve performance
C: I appreciate my athlete's sacrifices in order to improve performance	My athlete appreciates my sacrifices in order to improve performance
6. A: I cooperate well with my coach so that our goals are achieved	My coach cooperates well with me so that our goals are achieved
C: I cooperate well with my athlete so that our goals are achieved	My athlete cooperates well with me so that our goals are achieved
7. A: I communicate well with my coach	My coach communicates well with me
C: I communicate well with my athlete	My athlete communicate well with him/her
8. A: I identify with/understand my coach	My coach identifies with/understands me
C: I identify with/understand my athlete	My athlete identifies with/understands me
Complementarity	
9. A: When I am coached by my coach, I feel capable	My coach feels capable when he/she coaches me
C: When I coach my athlete, I feel capable	My athlete feels capable when I coach him/her
10. A: When I am coached by my coach, I am concerned/interested	My coach is concerned/interested when he/she coaches me
C: When I coach my athlete, I am concerned/interested	My athlete is concerned/interested when I coach him/her
A: When I am coached by my coach, I am at ease	My coach is at ease when he/she coaches me
C: When I coach my athlete, I am at ease	My athlete is at ease when I coach him/her
11. A: When I am coached by my coach, I am ready to do my best	My coach is ready to do his/her best when he/she coaches me
C: When I coach my athlete, I am ready to do my best	My athlete is ready to do his/her best when I coach him/her
12. A: When I am coached by my coach, I am supported/understood	My coach is understanding when he/she coaches me
C: When I coach my athlete, I am supportive/understood	My athlete is understanding when I coach him/her

Note. C, coach; A, athlete.

Appendix B

The coach-athlete satisfaction questionnaires (translated from Greek)

Direct perspective/self-perceptions	Meta-perspective/meta-perceptions
Satisfaction with training/instruction	
(1) I am satisfied with the training programme this year	My coach/athlete is satisfied with the training programme this year
(2) I am satisfied with the training/instruction provided	My coach/athlete is satisfied with the training/instruction provided
(3) I am satisfied with the way the tactics and techniques have been instructed	My coach/athlete is satisfied with the way the tactics and techniques have been instructed
Satisfaction with performance	
(1) I am satisfied with the degree to which performance goals are being reached during the season	My coach/athlete is satisfied with the degree to which performance goals are being reached during the season
(2) I am satisfied with the skill improvement thus far	My coach/athlete is satisfied with the skill improvement thus far
Satisfaction with external agents	
(1) I am satisfied with the media's support of our sport	My coach/athlete is satisfied with the media's support of our sport
(2) I am satisfied with the support provided by the governing body	My coach/athlete is satisfied with the support provided by the governing body
(3) I am satisfied with the supportiveness of the fans	My coach/athlete is satisfied with the supportiveness of the fans