

**The Interplay between Coach Transformational Leadership and Coach-
Athlete Relationship in Supporting Athletes' Positive Psychological
Outcomes**

By

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A Doctoral Thesis

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Publications

Peer Reviewed Articles

The following research manuscripts was submitted for a review and is currently awaiting a response:

1. Krukowska, A., Jowett, S., & Yang, S. (2016). Athletes' wellbeing in a transformational-relational coaching environment: The mediating role of basic needs satisfaction. *Manuscript under review*.

Conference Proceedings

The following conference abstracts were accepted for presentation during the time of PhD studies:

Krukowska, A. & Jowett, S. (2015). *Creating a transformational-relational coaching environment: An intervention study for coaches*. Poster presented at the 2015 British Psychological Society Division for Sport and Exercise Psychology Conference, Leeds, 14-15 December 2015.

Krukowska, A. & Jowett, S. (2015). *The mediating role of basic needs satisfaction between transformational-relational coaching environment and positive outcomes*. Oral presentation presented as a part of a symposium "Exploring the centrality of coaching leadership and relationships in sport performance" and as a part of Young Researcher Award Contest at the 14th European Congress of Sport Psychology, Bern, Switzerland, 15 – 18th July 2015.

Krukowska, A. & Jowett, S. (2014). *Explaining the association between coaches' transformational leadership and athletes' passion for and engagement in sport: The role of basic psychological needs satisfaction*. Oral presentation presented at the 29th Annual Conference of Association for Applied Sport Psychology, Las Vegas, USA, 15 – 18th October 2014.

Thesis Summary

The purpose of this research was to explore the interplay between coach transformational leadership and coach-athlete relationship, and the effect on athletes' positive psychological outcomes through three separate studies. The research positioned both transformational leadership and coach-athlete relationship as distinct yet highly related factors of a social environment created by coaches. Chapter 1 provides an introduction to the thesis, and Chapter 2 contains a literature review aiming to present relevant previous research findings and to outline thesis' structure.

Chapter 3, study 1 was conducted to investigate whether basic needs satisfaction constitutes a viable mediator transferring the effects of a social environment composed of transformational leadership and coach-athlete relationship onto athletes' wellbeing indicators: harmonious passion and engagement. The results have shown that there was a partial mediation of needs satisfaction explaining the association between transformational leadership and wellbeing factors, and a full mediation between coach-athlete relationship and wellbeing, implying that coaching relationships are more likely to satisfy athletes' needs and by that affect wellbeing indicators, whereas transformational leadership is more likely to directly affect the outcomes.

Chapter 4, study two aimed to explore the interplay between coach transformational leadership and coach-athlete relationship and the effect on performance-orientated outcomes from a temporal perspective. A longitudinal study revealed that perceived transformational leadership behaviours and coach-athlete relationship tended to decrease at the end of the sporting season relative to the beginning of the sporting season. Moreover, the research findings showed that the interplay between the transformational leadership and coach-athlete relationship from either beginning or the end of a sporting season affect athletes' intrinsic motivation and collective efficacy differently depending on coaching domain they belonged to: university or club. The results highlight the need to take time into consideration when investigating social processes in sport domain.

Chapter 5, study 3 focused on examining training programme for young coaches guided by the principles of the transformational-relational coaching environment model (study 1). Using Coté and Gilbert's (2009) framework of coaching effectiveness, the third study attempted to increase coaching effectiveness through developing coaches' interpersonal (transformational-relational) and intrapersonal (self-reflection) knowledge.

The findings demonstrated that in the post-intervention condition, athletes of the experimental group perceived an increase in the levels of transformational leadership behaviours (presented by their coaches who took part in the workshops) and satisfaction, whereas there was no change in the levels of coach-athlete relationship, coach-athlete relationship maintenance strategies, coach autonomy supportive behaviours, coach controlling behaviours, and performance levels. The interviews with all the coaches highlighted that coaches attempted to implement new strategies and behaviours into their coaching practices, and that perceived increase in self-awareness and the benefits connected with practising self-reflection were connected with coaches' behavioural changes. The findings underline the importance of developing coaches' self-knowledge in order to enhance their coaching practice, as well as that changing relationship quality involves a more complex process than changing leadership behaviours.

Chapter 6 constitutes a general discussion of the findings arising from all three studies and it presents implications of the results for theory and research development, as well as research limitations, practical implications, and future research directions.

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CHAPTER 1: Introduction

I have always been fascinated by the role coaches can play in athletes' lives. I used to be a volleyball player for over thirteen years and during my sporting career I had a chance to experience various leadership styles of coaches. My first ever volleyball coach was highly passionate about volleyball, he always had time to chat and make jokes, as well as to work hard and help us improve our technique and endurance. This was the time when I fell in love with the game and my world became "volleyball-centric". I was quickly making progress and when the head coach of a junior teams observed me whilst I was playing, he requested for me to be transferred to an older group. Unfortunately, this coach was emotionally draining, unpleasant and frustrated with everything and everyone. The two years in which I worked with him felt like a nightmare, full of needs thwarting, psycho-somatic injuries and a lack of enjoyment from volleyball. Subsequently, I quit volleyball for three years, but thankfully perspectives change with time, and during my psychology studies in Warsaw I started playing volleyball again and collaborated with good coaches. As I was developing my sport psychology interests, my previous experiences were affecting the spectrum of topics that I was the most interested in: coach leadership and coach-athlete relationship. I found it fascinating how some coaches are able to be so inspiring that their athletes are not only able to perform at a unimaginably high level, but are also able to sacrifice their own interest for the benefit of a team. The starting point for my reflections on the topic of coach leadership was the book "Leading with the heart" (Krzyszewski & Phillips, 2000) describing a coaching philosophy of one of the most successful basketball coaches – coach Mike Krzyzewski (also known as Coach K), the head coach of Duke University basketball team and USA National Team. I found his coaching, life philosophy, attitude towards developing players holistically, as well as his view on leadership enchanting. One of my favourite quotes is the following:

"Almost everything in leadership comes back to relationships. And, naturally, the level of cooperation on any team increases tremendously as the level of trust rises. The only way you can possibly lead people is to understand people. And the best way to understand them is to get to know them better. I like to have close relationship with every member of our team. And my total focus in the preseason is finding who we are and developing personality of our own. So I have the players and coaches over to my house. We go out to eat together. We have

impromptu discussions. I goof around with them. In those situations, I see their reactions and I see what I need to do to lead them. They also get to know the kind of person I am.” (Krzyzewski & Phillips, 2000; p. 26).

Coach K’s characteristics, such as his individual approach to athletes, inspiring communication, leading by example, and transferring appealing vision led me to the concept of transformational leadership, which I explored in my master’s thesis. Whilst investigating qualitatively transformational leadership of a volleyball coach working in a youth sport I discovered that, among other things, he aimed to build and maintain good relationships with each of his players, similarly to Coach K’s approach. Moreover, that study was conducted during a preseason summer camp which according to the head coach was affecting his interactions with athletes as then he had more time to get to know his new players and catch up with the older ones before the regular season started. It was also noticeable in coach Krzyzewski’s view (Krzyzewski & Phillips, 2000) that leaders have to give time for relationships, and that dynamic leadership takes the stage of a sporting season into account as it influences strongly not only the skills that need to be practiced, but also attitudes, relationships, and pressures.

The experiences and master’s thesis’ findings that are mentioned above, led me to commencing my doctoral studies at Loughborough University. The notion of the interplay between transformational leadership and coach-athlete relationship, and its effect on the athletes in various stages of the season, seemed intriguing and worth pursuing due to its possible theoretical and practical applications. This chapter provides a short overview of the significance of studying transformational leadership along with coach-athlete relationship, and it also emphasises the importance of advancing research in the sport domain of interpersonal relationships by applying a time perspective.

1.1 Coach Leadership and the Role of Coach-Athlete Relationship

Leadership is one of the most extensively studied constructs in psychology. It is a common phenomenon that occurs in every culture and in many different domains, including politics, business, and sport (Popper, 2005). Leadership is inevitable in groups, as without a leader the group does not progress or follow towards goals. According to Northouse (2001), “leadership is a process whereby an individual influences a group of individuals to achieve a common goal” (p. 3). Similarly in sport, athletes have the need to

be led, they choose to follow a person who can provide them with direction, structure, and give them security (Dorfman, 2003). Leadership has been studied from different perspectives; often the context (environment) has dictated the approach used to study this phenomenon. The most popular approaches include: trait, skills, style, situational, and relational approaches, and each of them contains models that describe different leadership qualities. However, none of these approaches seem to capture the unique kind of leadership observed in the sporting environments and presented by the best coaches. Coaches are responsible for providing athletes with support, guidance, and instruction, and very often, if not always, their partnership goes beyond the sporting context to affect also the personal one.

Recently transformational leadership (TL) has gained interest in the sport psychology field due to its beneficial effect on athletes' psychological outcomes (e.g. Stenling & Tafvelin, 2013) and performance (Bormann & Rowold, 2016). Transformational leaders who inspire their athletes to develop skills necessary to achieve their full potential and who motivate them to persist in the pursuit of their sporting dreams, are also in a position to take special interest and devote time and energy to build close and effective relationships with their athletes. Coaching science researchers (e.g. Cote, Salmela, Trudel, Baria & Russell, 1995; Lyle, 2002) view coaching as a "sophisticated interpersonal process" (Jones, Bowes, & Kingston, 2010; p. 17) that is affected by many various elements, for example athletes' personalities, club structure, and the coach's background. The partnership built between coaches and athletes does not only aim to provide technical and tactical guidance and instruction, but very often surpasses that in order to create a unique bond allowing athletes to persist through years of training, and to stay committed and engaged in their chosen sport.

The coach-athlete relationship (CAR) refers to the connection between coaches and athletes which can contribute to performance enhancement and success (e.g. Jowett & Cockerill, 2003; Poczwadowski, Henschen, & Barott, 2002), or can be a direct cause of athletes' poor welfare and psychopathology (e.g. Shanmugam, Jowett, & Meyer, 2012). The number of opportunities for coaches to influence athletes is vast as coach leadership encompasses for example: setting goals and objectives, making decisions, employing various learning activities, and providing feedback of different frequency and type (Horn, 2008), and those opportunities interact also with the development of coach-athlete relationship. If there is a sound, close, and meaningful connection between a coach and an athlete, then it is more likely that coaches' leadership behaviours will be

well understood and misinterpretations will be avoided. On the other hand, transformational leadership behaviours such as inspiring extra effort or recognising and acting upon the fact that different athletes have different needs and strengths, are likely to influence the relationship quality, for example athletes may start trusting their coaches more. The research encompassing both coach leadership and coach-athlete relationship has shown that when both of those constructs are taken into consideration simultaneously, the level of athletes' outcomes prediction is higher (e.g. Jowett & Chaundy, 2004; Vella, Oades, & Crowe, 2013b).

The “transformational-relational coaching environment” is defined through the interplay of the psychosocial constructs of transformational leadership and relationship. According to Haslam, Reicher and Platow (2011), “A key issue here is that we need to see leadership and society as mutually constitutive - each made by, and each transformed by, the other. followers' perceptions of a leader's attributes and their responses to his or her leadership are both contingent on their relationship with the leader. If that relationship changes, so too will the leader's capacity to lead” (pp. 17-18). Similarly in the present thesis, the term “transformational-relational coaching environment” implies that the two constructs define a social environment in which athletes train and compete, yet they are conceptually different phenomena; transformational leadership is a behavioural construct, and coach-athlete relationship contains behavioural, affective, and cognitive elements. According to Self-Determination Theory (SDT; Deci & Ryan, 2000), the social environment in which people operate, can either diminish or nourish their performance depending on the elements present in that environment. In a sport setting, coaching environment can be broadly perceived as all the elements which affect athletes motivation and wellbeing to train and compete, and are connected with a coach; it is not only his/her behaviours that would affect those factors, but also the process of building, maintaining and cultivating a relationship. For the purpose of the present thesis, and the ease of writing, the term “transformational-relational coaching environment” refers to two connected yet different aspects of a social environment.

In the previous studies, the two constructs have been investigated together, for example it has been shown that coach leadership and CAR predicted more variance in both types of cohesion when the two variables were considered together (Jowett & Chaundy, 2004), and the study conducted by Vella et al. (2013b) demonstrated that the prediction of young athletes' developmental experiences was much stronger when coach transformational leadership behaviours were combined with coach-athlete relationship

quality variables (3C's). Therefore, the results have indicated that when the constructs of leadership and relationship are taken together, the results present a more complete picture of a coaching environment.

Coaching, which according to some researchers is an equivalent term for leadership (Laios, Theodorakis, & Gargalianos, 2003), has been defined as a “sophisticated interpersonal process” (Jones, Bowes, & Kingston, 2010; p. 17) and cultivating a relationship can also be seen as an interpersonal process because it happens between two people (in this case a coach and an athlete) and occurs over time. Coach-athlete relationship is not a state that those two parties aim to obtain; rather than, it is conceptualised as a situation in which thoughts, emotions, and behaviours of coaches and athletes are mutually and causally interdependent (Jowett & Poczwardowski, 2007). Through the means of both: leading a team and cultivating a relationship, a coach can achieve similar goals such as raise the level of motivation, wellbeing, and satisfaction. Vella, Oades and Crowe (2010) stated that:

Omitted from models of coach leadership is the integration of the coach-athlete relationship. Given that coaching is understood as an inherently social process, constituted by the relationship between a coach and athlete, it seems implausible that a comprehensive model of coach leadership would omit such a construct. Admittedly, the personal and contextual variables of major interest have been consistently shown to be influential constructs that impinge upon coach behaviour and athlete outcomes. This omission is surprising, given that both coaching and leadership can be understood as complex, social processes that are constituted and maintained by a set of reciprocal, interpersonal relationships and permeated by contextual constraints, based on influence used to promote the development and performance of people (p.425).

Vella et al. (2010) also suggested that defining the leadership process as purely behavioural may delay the advancement of our understanding of this process, especially in portraying the reality in which coaches operate. Following this line of reasoning, the present thesis aimed to explore the interplay between CAR and TL, treated as two distinct aspects of a positive environment created by coaches to help athletes flourish, in order to more effectively and broadly understand the conditions influencing athletes in the environments created by transformational leaders.

1.2 The Importance of Time Perspective in the Research of Interpersonal Interactions

As noted by the coach-athlete relationship researchers, “a relationship is dynamic and therefore may be viewed as a state. Its nature is expected to change over time in response to the dynamic quality of human cognitions, emotions, and behaviour shaped through the interaction of the relationship members” (Jowett & Poczwardowski, 2007; p. 4). The notion that leadership is also time dependent has been underlined in the leadership literature (e.g. Shamir, 2011; Bluedorn & Jaussi, 2008); the researchers underlined that it takes time for leadership input to affect followers’ outcomes and also different leadership behaviours may require different durations of exposure (Shamir, 2011). In a coaching science, it has also been noted that coaching practice is susceptible to situational pressures (e.g. Potrac, Brewer, Jones, Armour, & Hoff, 2000) which vary depending on for example stage of the season. For those reasons, the leadership and coach-athlete relationship research could benefit by taking time into consideration, as it would allow to broaden the understanding of these concepts which in turn could have a beneficial effect in terms of improving coaching practice.

1.3 Future Research and the Present Thesis

Even though the positive effect of a sound coach-athlete relationship has been shown in many studies (e.g. Jowett & Cockerill, 2003; Adie & Jowett, 2010), transformational leadership has not been extensively studied in the context of coach-athlete relationship. Moreover, while research of transformational leadership in sport has gained an understandable amount of interest in recent years (e.g. Callow, Smith, Hardy, Arthur, & Hardy, 2009; Cronin, Arthur, Hardy, & Callow, 2015), the connection between coach-athlete relationship and transformational leadership still needs further exploration.

Therefore, the objective of this thesis is to address the gap in the literature relating to transformational leadership by investigating the interplay between transformational leadership and coach-athlete relationship, and by applying time perspective in the research of interpersonal relationships and interactions. Through three separate yet interconnected studies the following aims were approached:

- To explore capacity of the transformational-relational coaching environment in influencing athletes' wellbeing.
- To investigate the temporal patterns of coach-athlete relationship and transformational leadership development.
- To examine the temporal effect of transformational-relational coaching style on athletes' performance-oriented outcomes.
- To create and test a developmental programme for coaches focusing on improving their interpersonal (transformational-relational) and intrapersonal knowledge.

CHAPTER 2: Literature Review

The aim of the present thesis was to explore the effect of the interplay between coach transformational leadership and coach-athlete relationship on positive psychological outcomes. The second chapter contains a literature review outlining: the transformational leadership theory, two most researched models of leadership in sport, and the coach-athlete relationship models. Moreover, it is suggested why the interplay between transformational leadership and coach-athlete relationship deserves more attention in terms of research and applied work.

2.1 Transformational Leadership

Transformational leadership was first proposed by James Burns who described this kind of leadership as leading through inspiration and stimulating followers to achieve more than what is expected of them, as opposed to transactional leadership in which the leaders lead through social exchange (Bass & Riggio, 2006). Later, Bass developed this concept describing transformational leaders in terms of displaying ethical behaviours, being responsive to individual follower's needs, challenging them to re-examine their assumptions, promoting acceptance of a common goal, and expressing expectations of high performance (Callow, Smith, Hardy, Arthur, & Hardy, 2009). Transformational leadership is manifested when a leader's behaviours elevate followers' self-worth and confidence, helping them to develop skills, as well as achieve high standards of performance (Bass & Riggio, 2006). Such leaders are inspiring, visionary and engaging, and they focus on developing followers' potentials, not only for their own benefit, but primarily for the followers' own benefit.

Transformational leaders who serve the role of a mentor, a role model and a coach, have a moral obligation to care for their followers (Bass, 1999), contrary to the view on relational aspect of leadership profiled in Leader-Member Exchange Theory. Transformational leadership is based on a process "whereby an individual engages with others and creates a connection that raises the level of motivation and morality in both the leader and the follower" (Northouse, 2001; p. 132). In the organisational domain it has been noted that the culture of transformational leadership is characterised by a sense of purpose, long-term commitment, a feeling of a belonging to a family, mutual passions,

and a sense of interdependence. Further, trust between a leader and followers plays a crucial role. Self-sacrifice, fair treatment, maintaining integrity, and showing dedication and commitment influence the likelihood that followers will trust the leader and in turn, that can enhance a process of empowerment (Bass & Riggio, 2006).

Transformational leaders, in contrast to non-transformational leaders, empower followers at a personal and collective level because empowerment is seen as “the essence of which [a transformational leader] is strengthening the followers’ beliefs in their own judgement, their ability, and strengths” (Popper, 2005; p. 60). Transformational leaders have the capacity to, by providing subordinates with autonomy, help them transcend self-interest and move towards self-actualisation (Bass & Riggio, 2006). By the process of internalisation, the empowering influence of true transformational leaders can have a prolonged effect on followers, sometimes lasting through a follower’s whole lifetime. Moreover, the process of empowerment can be considered in terms of internal and external changes. For example, an increase in an ability to solve a problem can be seen as an internal change, whereas an ability to act confidently demonstrates an external change evoked by the leader’s empowerment (Popper, 2005).

Transformational leaders can be characterised by the means of four main components. (1) *Idealized influence* refers to a quality of being a role model and building trust and respect in the eyes of followers’. *Idealized influence* is understood from two perspectives: (a) the behaviours that a transformational leader manifests, and (b) the attributes that the followers associate him or her with. Behaviours aimed at sharing a collective sense of a vision as well as installing a belief that the difficulties can be overcome, result in persistence, determination and collective efficacy of the followers. (2) *Inspirational motivation* helps followers reach beyond previous expectations. The creation of a compelling vision, transferring enthusiasm and confidence in a team or individual’s prospects, provides meaning to followers’ work and goals, and planting an optimistic approach to challenges shift team spirit and individual’s motivation to a higher level. (3) *Individual consideration* refers to recognising and appreciating individuals’ needs, skills, goals and desires. Individual consideration fosters a supportive climate where individual differences are noticed and respected, and the followers feel and know that the attention they receive is personalised. A sense of caring is transferred to followers by the means of individual consideration. (4) *Intellectual stimulation* encapsulates behaviours which encourage followers to look at difficulties from new angles, to be creative, and to approach problems with different assumptions. Overall, some authors

claimed that transformational leaders refrain from criticism and sarcastic remarks to focus on empowering solution-seeking behaviours (Bass & Riggio, 2006).

Bass (2006) proposed the whole spectrum of leadership behaviours positing transformational leadership on one side, followed by transactional leadership, and with laissez-faire (lack of leadership) on the other end. *Transactional leadership* style is characterised by three components: contingent reward, active management by exception, and passive management by exception. *Contingent reward* involves the leader rewarding (or reinforcing) the followers only after they attained the specified performance level or after they completed the assignment. When the reward is material, then the contingent reward is transactional; however, when the reward is psychological, it can be treated as a transformational reward (Antonakis, Avolio, & Sivasubramaniam; 2003). *Management by exception* refers to corrective transactions. The active form means that the leader actively monitors performance and seeks for deviations from norms, mistakes, and errors, and implements corrective actions when it is necessary. The passive form, on the other hand, is displayed in taking actions only after the mistake or error is committed (Bass & Riggio, 2006).

The augmentation hypothesis states that the transformational leadership builds on or adds to the effects of transactional leadership (Judge & Piccolo, 2004). Therefore, leaders use both types of behaviours; however, it is the transformational leadership that allows the behaviours to be elevated to a new level. Transactional leadership is often seen as effective, depending on the context and situation (Bass & Riggio, 2006), especially due to the fact that the transactional behaviours of a leader may help followers detect, recognise, and correct mistakes. Research on transformational and transactional leadership in sport has shown that both types of behaviours can be present simultaneously, both contribute to athletes' growth (Rowold, 2006; Krukowska, Poczwardowski & Parzelski, 2015), and that the buffering effect of the contribution of the transformational leadership helps in perceiving transactional behaviours as directed towards skills development.

Effectiveness of Transformational Leadership. Transformational leadership is thought to result in performances beyond previous expectations (Bass, 1985). The results of numerous studies have shown that there is a positive relationship between this kind of leadership behaviours and many outcomes (e.g. performance, motivation, commitment, satisfaction) in various domains. For example, Bass, Avolio, Jung and Berson (2003) and Yammarino and Dubinsky (1994) have demonstrated that transformational leadership

relates positively to performance in military settings, whereas Harvey, Royal, and Stout (2003) discovered a positive relationship with performance in the educational sector. According to Judge and Piccolo (2004), transformational leadership as well as contingent reward were positively related to subordinates' motivation and job satisfaction, and to the satisfaction with the leader. In a sport environment, the results of a study conducted by Charbonneau, Barling, and Kelloway (2001) demonstrated that the relationship between transformational leadership and performance is mediated by athletes' intrinsic motivation. The study conducted on 168 university athletes and their coaches revealed also that intellectual stimulation and individual consideration contributed more to athletes' motivation levels than charisma.

According to Bass & Riggio (2006) "it may be that it is the extraordinary commitment of followers of transformational leaders that underlines the exceptional performance of many groups led by transformational leaders" (pp. 32-33) and the authors also underlined the special role of charisma in influencing followers' commitment. Brown and Moshavi (2002) who also identified that the inspirational aspects of the relationship between a leader and followers are unique to transformational leadership, demonstrated in their study conducted in an educational setting that there was a positive relationship between perceived transformational leadership of the faculty chairs and satisfaction with supervision, willingness to exert extra effort and organizational effectiveness of the departmental members.

2.1.1 Transformational Leadership's Conceptualisations and Measurement

There are two main conceptualisations of the transformational leadership: global and differentiated. The global view of transformational leadership assumes that because the TL categories are mutually reinforcing and highly correlated with each other, together they can be seen as a one global construct (Arthur & Tomsett, 2015). On the other hand, the differentiated model of transformational leadership allows targeting and testing of particular leadership behaviours, as well as to examine whether various leadership behaviours have similar or different effects on the outcomes (cf. Antonakis, Avolio, & Sivasubramaniam, 2003; Podsakoff et al., 1990), and what is especially important in the case of drawing any practical implications and conclusions. The choice of the TL operationalisation depends on the research questions and thus multiple questionnaires were developed to mirror this distinction.

The most popular and commonly used questionnaire to investigate perceptions of transformational leadership is Multifactor Leadership Questionnaire and its various revised forms (MLQ; Bass, 1985; MLQ-5X, Bass & Avolio, 1997). Originally the MLQ measured the full range of leadership behaviours including three components of transformational leadership: charisma, intellectual stimulation, and individual consideration (Bass & Riggio, 2006). However, due to presenting problems with factorial and discriminant validity (Rafferty & Griffin, 2004), other researchers developed new inventories used to assess transformational leadership, and most of them were developed for a specific context, for example: Transformational Parenting Questionnaire (TPQ; Morton et al., 2011a), Transformational Teaching Questionnaire (TTQ; Beauchamp et al., 2010), or Differentiated Transformational Leadership Questionnaire (DTLI; Hardy et al., 2010).

The DTLI (Hardy et al., 2010) was developed in a military context as a combination of Transformational Leadership Questionnaire (TLI; Podsakoff et al., 1990) and the MLQ-5X. DTLI, as the name suggests, adopted the differentiated operationalisation of transformational leadership and it is composed of 7 dimensions: inspirational motivation, intellectual stimulation, individualised consideration, appropriate role modelling, fostering acceptance of group goals, high performance expectations, and contingent reward. DTLI was later adopted to a sport context and it showed good psychometric and predictive validity (Callow et al., 2009) with the exception of a study conducted in a youth sport environment of Australian soccer players where the dimension of high performance expectations was problematic (Vella, Oades, & Crowe, 2012). Apart from the sport adaptation of the DTLI, some of the other transformational leadership studies in sport employed either Multifactor Leadership Questionnaire (e.g. Charbonneau et al., 2002; Price & Weiss, 2013) or the Transformational Teaching Questionnaire (e.g. Stenling & Tafvelin, 2013). The review of the transformational leadership research conducted in sport is presented in the section below.

2.1.2 Research on Transformational Leadership in Sport

Coaches try to help their athletes develop the skills necessary to achieve success, and motivate them to persist in the pursuit of their sporting dreams. Often, a coach is not only responsible for providing training sessions, but takes special interest in his or her athletes' development and inspires them to reach challenging goals. Such a description

suits the model of transformational coach that can be characterised as an inspirational, motivating, and caring leader (Bass & Riggio, 2006). Recently, transformational leadership has begun to be explored as a vital model of leadership in sport because coaches who present characteristics of a transformational leader not only contribute to a higher performance level, but they also enhance the general development and wellbeing of the athletes.

Even though intuitively transformational leadership in sport is understood through coaches' behaviours, the first empirical study about TL in sport examined the transformational qualities of sport parents (Zacharatos, Barling & Kelloway, 2000). The results showed that adolescents who perceived their fathers to manifest transformational leadership behaviours in interactions with them, also presented TL qualities when interacting with their teammates, confirming the social learning framework proposed by Bandura (1977).

Transformational leadership qualities of coaches in youth sport settings have also been investigated in a few studies. For example, the role of transformational coaches' in the aggression levels of Canadian ice-hockey players' was tested in a study by Tucker, Turner, Barling and McEvoy (2010). The findings showed that team-level coach transformational leadership was negatively correlated with endorsing acts of aggression, and that the link between coaches' transformational leadership and players' aggression was mediated by the team's aggression. In another study, athletes' narcissism was tested as a moderator of the relationship between transformational leadership of a coach and athletes' effort (Arthur, Woodman, Ong, Hardy, & Ntoumanis, 2011). The findings revealed that coach TL was positively associated with leader-inspired extra effort, and that the effect of fostering acceptance of group goals and high performance expectations were indeed moderated by the level of narcissism.

In a study conducted by Vella, Oades and Crowe (2012), confirmatory factor analysis for the DTLI was conducted on a data from a group of 322 Australian youth soccer players, and the results showed that once the dimension of high performance expectations was removed from the analysis, the model showed a good fit for the data in the youth participation context. In a follow-up study testing the effect of coach transformational leadership and coach-athlete relationship on young athletes' developmental experiences, Differentiated Transformational Leadership Inventory for Youth Sport (DTLI-YS; Vella et al., 2012) was used (Vella, Oades & Crowe, 2013b). The results showed that both coach transformational leadership and coach-athlete

relationship were positively associated with athletes' developmental experiences (personal and social skills, cognitive skills, goal setting, and initiative), whereas team success had no effect on the positive developmental experiences. Moreover, the dimensions of individual consideration, intellectual stimulation, and appropriate role modelling had the greatest influence on athletes' developmental experiences. Finally, in the study conducted by Price and Weiss (2013) the effects of transformational leadership of both a coach and a peer were tested. The results of structural equation modelling showed that depending on the outcome, the effects of coach leadership or peer leadership were different: coach leadership was more influential for predicting individual outcomes (perceived competence, enjoyment, and intrinsic motivation) and collective efficacy; peer leadership was more influential for predicting social cohesion, and finally the task cohesion was predicted equally by the perception of both coach and peer leadership.

Research in an adult sport environment showed that the effect of coach transformational leadership on athletes' performance was mediated by athletes' intrinsic motivation (Charbonneau et al., 2001). One hundred and sixty eight university athletes assessed their coaches' transformational leadership behaviours during the season, and at the end of the sporting season the coaches provided information regarding athletes' performance. The results revealed that charisma had a lower influence on intrinsic motivation than did intellectual stimulation and individual consideration. The effect of TL on perceived effectiveness of coaches' behaviours, athletes' satisfaction with their respective coach, and their extra effort were tested in a study by Rowold (2006) on a group of 186 German students of martial arts. The results demonstrated that the effect transactional leadership had on leaders' effectiveness perceived by the athletes was augmented by the influence of transformational leadership. Moreover, there were high correlations between the active management-by-exception (dimension of the transactional leadership) and the transformational leadership scales suggesting that in a sporting environment it is part of the coaches' role to pay attention to, point out and correct mistakes because "active management-by-exception mirrors one of trainings' main functions: to help students improve by wielding out their mistakes" (Rowold, 2006; p. 322).

Callow and colleagues' (2009) study constituted the first attempt to adapt DTLI in sport and the results demonstrated that this leadership inventory showed factorial and discriminant validity. The study also focused on examining TL effect on task and social cohesion at two performance levels in a group of ultimate Frisbee players. Findings

indicated that task cohesion was predicted by three of the TL dimensions (fostering acceptance of group goals and promoting team work, high performance expectations, and individual consideration) and social cohesion was predicted by only the dimension of fostering acceptance of group goals and promoting teamwork. Furthermore, the results were moderated by the performance level: when this factor was taken into account, individual consideration predicted task cohesion only in the high performance group, and fostering acceptance of group goals and promoting teamwork predicted cohesion only in the low performance group. Smith, Arthur, Hardy, Callow, and Williams (2013) also studied the effect of certain transformational leader's behaviours on task cohesion of Ultimate Frisbee players. The results demonstrated that intra-team communication partially mediated the association between transformational leadership of a captain (specifically two dimensions of behaviours: individual consideration and fostering acceptance of group goals and teamwork) and task cohesion. Inside sacrifice was also examined as a mediator between transformational leadership and task cohesion (Smith et al., 2013). Findings revealed that personal and teammate inside sacrifice constituted significant mediators of the link between coach transformational leadership and task cohesion; however, there were important gender differences noted: teammate sacrifices played a greater role for female athletes, whereas personal sacrifices was more important for the male athletes.

Basic psychological needs satisfaction was tested as another mediator transferring the effect of transformational leadership. In a study by Stenling and Tafvelin (2013) examining a group of 184 football players in Sweden, the results showed that perceived coach transformational leadership positively affected athletes wellbeing through the satisfaction of the needs for autonomy, competence, and relatedness. Furthermore, the notion of athletes' needs being satisfied by a transformational coach was also present in the qualitative investigation of successful young volleyball players (Krukowska et al., 2015).

The presented review of the research findings regarding transformational leadership in sport shows that regardless of age (youth vs adult athletes), country (e.g. Poland, Canada, or Singapore), level (e.g. professional, university), or gender, transformational leadership is associated with positive outcomes, both wellbeing (e.g. positive affect, developmental experiences) and performance (e.g. extra effort) oriented. Therefore, transformational leadership constitutes a valid model of sport coach leadership

and further explorations may allow to understand this phenomenon better and to apply its principles to wider coaching community.

2.1.3 Leadership Models in Sport

In a sporting environment, it is usually the coaches' role to lead a team towards previously appointed goals. A leader's aim is to create a cohesive group of people from individuals, taking into consideration differences in character, personality, and developmental stage. In a sport setting, leadership includes motivating participants, making final decisions, directing the team towards previously appointed goals, giving feedback, and establishing interpersonal relationships. Coaches who fulfil their leadership roles well provide athletes with vision and support, and seek opportunities to help each individual athlete develop their skills (Weinberg & Gould, 2007).

The impact of coaches on the athletes is enormous, they can either enhance or diminish development, and very often coaches are pointed as one of the most influential people in athletes' lives (Wylleman & Lavalley, 2004). The way a coach leads a team depends on the coach's characteristics, features of the team and individual athletes, and the context in which they collaborate (Riemer, 2007). All of the above mentioned factors influence final outcomes: sporting results and athletes' and coaches' wellbeing; thus, it is crucial to study those characteristics and gather knowledge in order to create a positive developmental environment for coaches and athletes. There are two main frameworks to study coach leadership which encompass interpersonal dynamics of coach-athlete interactions: the multidimensional model (MDML; Chelladurai & Carron, 1983; Chelladurai 2001) and the mediational model (MML; Smoll & Smith, 1989).

Multidimensional Model of Leadership (MDML). The MDML indicates that coaching effectiveness is understood in terms of to what extent three categories of behaviours: actual, preferred and required are congruent with each other and how well this congruency affects team and individual athlete performance and satisfaction (Riemer, 2007). Actual behaviour of the coach is influenced by leader characteristics (such as: personality, level of education, experience, or abilities) and also by behaviours that are preferred and required by the athletes. Characteristics of athletes, for example their abilities, needs, or traits, influence preferred behaviour; whereas, the characteristics of the situation (e.g. organisational rules, philosophy of coaching or culture in the team) affect required behaviour. Moreover, feedback regarding athlete's satisfaction and performance (individual and team) should affect the actual behaviour, as the coach modifies his or her

behaviour relying on that information (Riemer, 2007; see Figure 2.1). The concept of transformational leadership was added to the top of the model and it is “presumed to influence not only the characteristics of the leader, but also those of the member and situation” (Riemer, 2007; p.62). This model puts strong emphasis on the behaviours presented by the coach and athletes; however, it underestimates the need for dyadic contact between a coach and a single athlete, as well as emotional and cognitive aspects of the relationships.

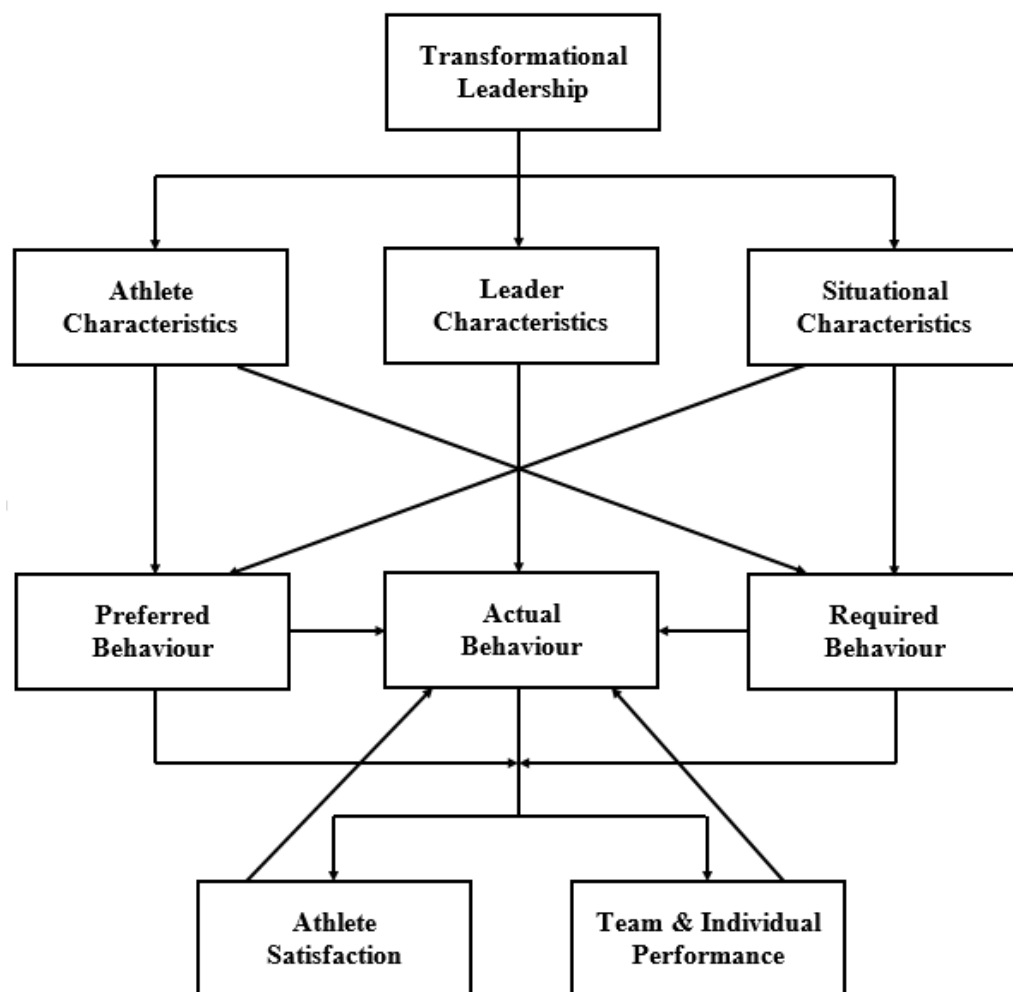


Figure 2.1 The Multidimensional Model of Leadership. Adapted from P. Chelladurai (2001).

Leadership Scale for Sport (LSS; Chelladurai & Saleh, 1980) was developed to measure athletes' leadership preferences, and it contains five categories of behaviours: (a) training and instruction (behaviours aiming to improve athletes' and team's performance through skills development), (b) democratic behaviours (including athletes in the

decision-making process), (c) autocratic behaviours (stressing coach's authority in the interactions with athletes), (d) social support (satisfying athletes' interpersonal needs) and (e) positive feedback (recognising and appreciating athletes' efforts and contribution to team's performance). The research regarding the MDML and the LSS showed that male athletes prefer more autocratic behaviours (Chelladurai & Saleh, 1980), and female athletes prefer more behaviours of social support (Riemer & Toon, 2001). Additionally, athletes who present task motivation prefer more behaviours of training and instruction (Erle, 1981), whereas athletes who were extrinsically motivated prefer social support behaviours (Vallerand & Ratelle, 2002). Finally, the research findings have also shown that higher levels of athletic maturity, experience and age were related to higher preference for relationship-oriented leadership (social support), and with lower preference for positive feedback (Chelladurai & Carron, 1983).

Mediational Model of Leadership (MML). In the MML, the effects coaches' behaviours have on athletes' evaluative reactions is mediated by athletes' perceptions and recall; therefore, the effect of coaches' behaviours is not direct and athletes' cognitive-affective processes act as filters (Smith & Smoll, 2007). The MML was developed in a youth sport setting and over the years it underwent developments to further understand and underline the roles situational and individual difference factors play in behaviours manifested by coaches, and children's responses to these behaviours. The expanded mediational model (see Figure 2.2) describes a number of coach individual difference variables (e.g. self-monitoring, sex, instrumentalities), athlete individual difference variables (e.g. age, athletic self-esteem, level of achievement motivation), and situational factors (e.g. level of competition, previous success vs. failure ratio, game and practice development). Moreover, it is indicated in the model's expanded version that situational factors have the capacity to also affect the way coaches behave and the way they perceive athletes' attitudes.

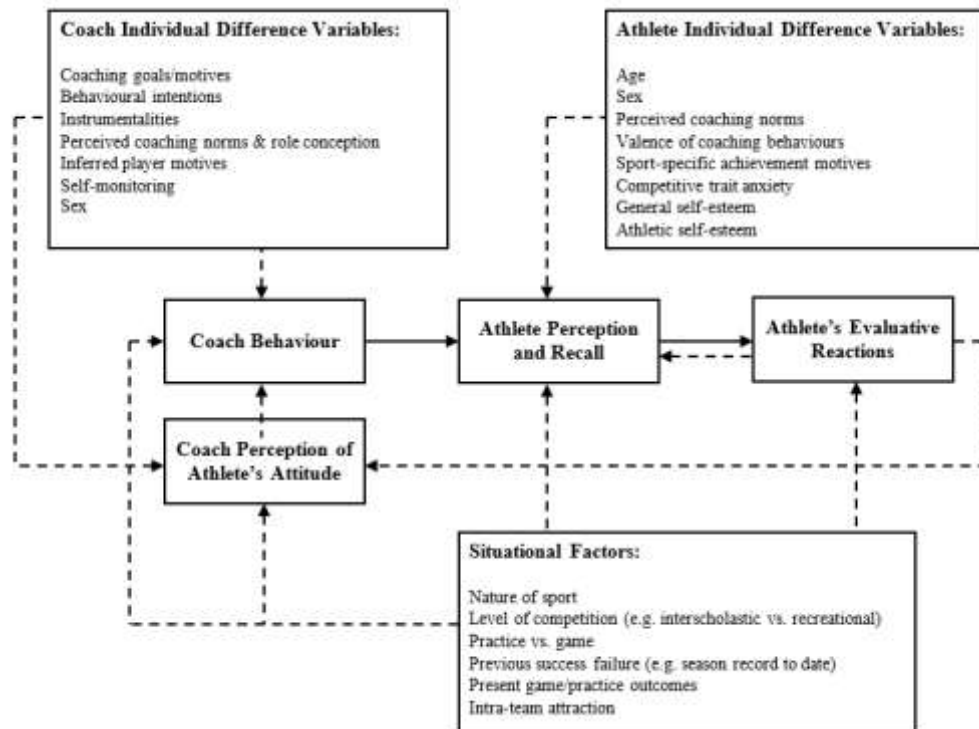


Figure 2.2 *The Mediation Model of Leadership. Adapted from Smith and Smoll (2007).*

An assessment developed in accordance to the behavioural aspects of the model is called The Coaching Behaviours Assessment System (CBAS), and it enables the coding of leadership behaviours of coaches by observing practises and games (Smith, Smoll, & Hunt, 1977). There are 12 categories grouped into two main classes of behaviours: (a) reactive behaviours which describe reactions to athletes' or team's desirable performance (reinforcement and non-reinforcement), mistakes (mistake-contingent encouragement, mistake-contingent technical instruction, punishment, punitive technical instruction, and ignoring mistakes), and to misbehaviour (keeping control); and (b) spontaneous behaviours which are not caused by a preceding event and are either game-related (general technical instruction, general encouragement, and organisation), or game-irrelevant (general communication).

The CBAS was used to develop and evaluate Coach Effectiveness Training (CET; Smith & Smoll, 2002; Smoll & Smith, 2006) which constituted an applied implementation and research examination of the mediational model of leadership. Research using the MML as a theoretical framework has found that the way athletes perceive their coaches' behaviour was linked to important psychological outcomes, such as self-esteem (e.g. Smith & Smoll, 1990), enjoyment, and decreased performance anxiety (Smith, Smoll & Barnett, 1995).

Similar to the case of multidimensional model of leadership, the MML does not embrace the reciprocal nature of coach-athlete interactions, and even though the MDML and the MML were used to investigate the interpersonal dynamics observed in sport, they do not account for the bi-directional interactions observed in the coach-athlete relationships. According to Popper (2005), an approach to studying leadership which focuses only on a leader or on the followers alone is narrow and insufficient because “every theory of leadership is really a theory of “followership”, and in order to understand the leadership phenomenon we need to focus on the dynamics among the followers” (p. 34). Therefore, the suggested conceptual framework is to view leadership as a relationship including dynamic interactions based not only on rationality (and therefore seen as an exchange between a leader and follower) but also based on emotions (Popper, 2005). In consideration of this viewpoint and of the limitations presented in the descriptions of the leadership models in sport, some sport psychology researchers started focusing on the concept of coach-athlete relationship to better capture the reciprocal nature of interactions between coaches and athletes.

2.2 Coach-Athlete Relationship

Coaching is understood as “(...) a complex, reciprocally influential process based on a system of interactions” (Gillbert & Cote, 2013) where the coach-athlete relationship constitutes the basic unit. There are four main conceptualisations of coach-athlete relationship and they will be outlined in the following sections.

Wylleman's Model (Wylleman, 2000). Influenced by Kiesler's (1983) work regarding interpersonal behaviours, Wylleman's (2000) model defines the relationships through the behaviours manifested by coaches and athletes. Three dimensions: (a) acceptance-rejection (positive or negative attitude towards the other dyad member), (b) dominance-submission (characteristics of a position in the relationship), and (c) social-emotional (whether the coach or athlete take a social or personal role); are used to categorise behaviours presented on the sports field. Moreover, the aspects of complementarity and correspondence are underlined in this model; therefore, for example, an athlete's submissive attitude would attract coach's dominance in the relationship, but also athlete's rejection would attract rejection from the coach. In order to assess CAR according to this framework (allowing athletes to assess their own

perceptions of the interpersonal behaviours in a bi-directional manner), the Sport Interpersonal Relationship Questionnaire (SIRQ; Wylleman, 1995) was developed.

Wylleman's (2000) model addressed some of the criticism regarding the uni-directional approaches to coach-athlete interactions because it accounts for the reciprocal nature of the behaviours. However, the main focus is still on the behavioural aspect and the model does not include the cognitive and affective elements present in the CAR. Moreover, contrary to the leadership models presented above, Wylleman's (2000) model does not elucidate the effect individual differences (of athletes and coaches) have on the quality of relationship. Finally, there have been a limited number of studies testing the model's validity and reliability in various contexts, and therefore the usefulness of it remains questionable.

Mageau and Vallerand's Motivational Model (2003). The motivational model proposed by Mageau and Vallerand (2003) describes how coaches' behaviours can affect athletes' motivation. Based on cognitive evaluation theory (Ryan, 1982) and the hierarchical model of extrinsic and intrinsic motivation (Vallerand, 1997, 2000), the Mageau and Vallerand's Motivational Model includes a motivational sequence whereby: coach's personal orientation, coaching context, and perceptions of athletes' behaviours and motivation influence coach's autonomy supportive behaviours; those behaviours affect athletes' basic needs satisfaction (for autonomy, competence, and relatedness), and in turn that impacts upon athletes' motivation (intrinsic and self-determined forms of extrinsic motivation). Mageau and Vallerand (2003) acknowledged the reciprocal aspect of coach-athlete interactions and that athletes' characteristics can influence coaches' behaviours: "Coaches do not behave in the exact same way with all athletes. Instead, they react to each athlete's perceived and actual motivation and behaviours. Athletes' individual differences thus greatly influence coaches' behaviours" (p. 896).

Although the motivational model (Mageau & Vallerand, 2003) presents the effect of an autonomy-supportive interpersonal coaching style which recognises behavioural and cognitive appraisals of both members of the dyad, it neglects to examine athletes or coaches' perception of the relationship. Coaching context elements, coaching behaviours, needs satisfaction, and motivation are not sufficient to assess a relationship quality as it does not capture, among other things, the affective meaning ascribed by coaches and athletes to this partnership.

Poczwadowski's Model (2002). Based on a qualitative investigation of coach-athlete dyads, the conceptual model proposed by Poczwadowski and colleagues

(Poczwardowski, 1997; Poczwardowski, Henschen, & Barrot, 2002; Poczwardowski, Barrot, & Peregoy, 2002) describes CAR as a recurring pattern of mutual care showed by coaches and athletes. Instructional/technical (sport task and goals) and social-psychological/affective (needs and emotions) relationship-oriented activities embrace not only the sport related issues, but also non-sport related ones. The model focuses on the context in which coaches and athletes cooperate, as well as variables (individual, interpersonal, and group) affecting the interpretations of CAR, such as personality traits, needs, motivation, or group roles. Moreover, this model also describes the process underlying the coach-athlete relationship characterised by three phases: the pre-relationship phase (known also as a recruiting phase), the relationship phase (which includes five stages: initial, transition, productive, concluding, and after-eligibility), and the post-relationship phase (either of a sentimental, or extinct nature) (Jowett & Poczwardowski, 2007). Finally, as noted by the authors, the model embraced the “intuitive notion that coaches are influenced in the relationship as well as athletes, growing professionally and maturing personally (Jowett & Poczwardowski, 2007; p. 9). Even though Poczwardowski’s conceptualisation of CAR and the identification of the coach-athlete relationship phases seemed promising in terms of research and practical applications, there has been a lack of research developing this model and thus, its utility remains also questionable.

Jowett’s 3+1C’s Model (2007). Jowett (2007) proposed a conceptual model where the coach-athlete relationship consists of four constructs: closeness (affective), commitment (cognitive), complementarity (behavioural), and co-orientation which refers to coaches’ and athletes’ levels of perceptual consensus in terms of perceived closeness, commitment, and complementarity. The conceptualisation of this model derives from Kelley and Thibaut’s (1978) work on the interdependence theory which focuses on the processes underlying interpersonal relationships.

Closeness describes emotional interdependence and manifests itself in qualities such as trust, respect or liking. Commitment refers to the intention of maintaining a close relationship over time. Whereas complementarity embraces behaviours that are co-operative, such as behaviours which are responsive and receptive as well as friendly and comforting. There are two perspectives that characterise co-orientation and the manner coaches and athletes understand the quality of their relationships with one another. Direct perspective describes one’s own closeness, commitment, and complementarity in relation to the other member (e.g. I respect my coach/athlete). Meta perspective captures how a

member of the dyad thinks the other member perceives closeness, commitment and complementarity towards him or her (e.g. My coach/athlete respects me). Co-orientation also has three dimensions: actual similarity, empathic understanding, and assumed similarity. Actual similarity is a combination of a coach's direct perspective and an athlete's direct perspective; empathic understanding combines an athlete's direct perspective with a coach's meta-perspective or a coach's direct perspective with an athlete's meta-perspective; finally, assumed similarity is a combination of a coach's or an athlete's direct perspective with their meta-perspective (Jowett, 2009). Summarising, the quality of coach-athlete relationship depends on the degree to which all elements (emotions, thoughts, and behaviours) are mutually and causally interdependent (Jowett & Poczwardowski, 2007).

When comparing the 3+1C's model to the above mentioned models of leadership and coach-athlete relationships, it offers additional conceptual strengths which made it the most popular conceptualisation of the coach-athlete relationship in the research conducted over the last decade. In contrast to Wylleman's model (2000) and Mageau & Vallerand's Motivational Model (Mageau & Vallerand, 2003), the 3+1C's model embraces all three: affective, cognitive, and behavioural aspects observed in the interactions between coaches and athletes. Moreover, the model considers both the athletes' and coaches' perspectives on the relationship quality and allows comparison of the agreement between those two perspectives. Finally, thanks to the development of two questionnaires assessing the relationship quality (The Coach-Athlete Relationship Questionnaire [CART-Q] direct perspective, Jowett & Ntoumanis, 2004; and The Coach-Athlete Relationship Questionnaire meta perspective; Jowett, 2006), it was possible to identify some of the antecedents, consequences, moderators, and mediators connected with the concept of CAR (e.g. Jowett & Cockerill, 2003; Jowett & Chaundy, 2004; Adie & Jowett, 2010). As a consequence, the model's and questionnaires' validity and reliability have been confirmed, supporting the model's utility in the context of research and practical application.

2.2.1 Research Investigating the Quality of Coach-Athlete Relationship

Numerous studies have shown that the quality of the relationship between a coach and an athlete is crucial for many outcomes, for example performance, satisfaction, wellbeing, and collective efficacy (e.g. Jowett & Cockerill, 2003; Hampson & Jowett, 2014). Athletes and coaches spend time during practices improving skills and

performance level but time can be also dedicated to strengthen the relationship via activities that are not strictly connected with sport, for example chatting about other close personal relationships or helping out with a university application. Due to the fact that coaches are seen as one of the most influential people in athletes' careers (Wylleman & Lavallee, 2004), studies concerning coach-athlete interactions embrace a broad range of constructs that affect athletes' and coaches' lives.

Coach-athlete partnerships that afford high levels of the 3C's (closeness, commitment, and complementarity) have been found to be positively connected with sport-specific and wellbeing outcomes. For example, in a qualitative study Jowett and Cockerill (2003) revealed that athletes viewed CAR as a contributory factor to performance success. In another study, athletes' meta perception of a good relationship with their coaches was positively associated with mastery approach goal adoption (Adie & Jowett, 2010). Studies conducted by Olympiou and colleagues demonstrated that in sport teams, harmonious and stable CAR associates with lower levels of perceptions of athletes' role ambiguity (Olympiou et al., 2005) and with higher levels of a coach-created task-involving climate (Olympiou et al., 2007).

Time and dedication are necessary to build a relationship of a good quality between a coach and an athlete. In a study by Philippe, Sagar, Huguet, Paquet, and Jowett (2011), the researchers found that there are three dimensions in the development of a coach-athlete relationship: developing bonds, co-operation, and power relations. While developing bonds, the role of the coach changes, from an instructor, to a mentor with whom an athlete can have more personal contact. Co-operation relates to the decision making process; at the beginning all activities are decided by the coach and with time an athlete becomes more participative and the content of the conversations starts to touch upon more private topics. Finally, changes in power relations indicate that the leadership style of a coach alters from autocratic at the beginning to more democratic in the course of time. This study underlines that coach-athlete relationship is a dynamic construct and due to its nature both parts of the dyad have to be sensitive to each other's needs. In addition, the study conducted by Jowett and Nezelek (2011) supports the necessity of taking time into account when considering coach-athlete relationship. The association between relationship interdependence and sport related satisfaction was explored, and the association was found to be stronger for long-term relationships than for short-term relationships. Furthermore, the length of the relationship may constitute an indicator of not only relationship development (e.g. closeness), but also that the relationship has

survived more dynamic events that had built its strength, such as experiencing a number of conflicts (Aune, Buller, & Aune, 1996).

Rhind and Jowett (2010) investigated qualitatively twelve coaches and twelve athletes who worked independently and who experienced different kinds of coach-athlete relationships (different in length, competition level, and conclusions to the relationship). The content analysis revealed that there are seven strategies used to maintain effective and successful relationships: conflict management, openness, motivation, positivity, advice, support, and social network. Conflict management referred to antecedents (pre-emptive behaviours) and consequences of the conflict, as well as stating expectations in a clear manner; those behaviours were divided into two themes: proactive and reactive strategies. Openness was understood as disclosure of feelings and it contains three subcategories: non-sport communication, talk about anything, and other awareness. Indications of an individual's motivation and strategies to motivate athletes/coaches were within the scope of motivation category; there were four themes distinguished: effort, fun, motivate the other, and showing ability. Positivity was described in terms of the three themes of adaptability, fairness, and external pressure. The fifth category, advice, referred to sport communication, reward feedback, and constructive feedback. Showing commitment to the relationship and making oneself available in terms of sport and non-sport matters constituted the category of support and it contained three themes: assurance, sport-specific support, and personal support. The final category, social network, comprised of socialising, thus spending time together, and shared networks – having and spending time with mutual friends.

Evident by the number of constructs defined in relationship maintenance strategies, a coach-athlete partnership is a crucial component of success in sport, as well as for athletes' holistic development. Many studies have also shown that coach-athlete relationship of a good quality contributes to the personal growth of an athlete; as Philippe et al. (2011) stated: “findings show that the evolution and gradual change in the power relation in the coach athlete dyad had a positive impact on the athletes' personal growth and mental strength as well as on their development as athletes” (p.15). The construct of growth also appeared in the study by Poczwardowski and colleagues (2002), and it was described as a result of coaching in terms of improvement in the performance level, as well as with the regard to maturation and growth in life away from sport. The impact of the relationship was visible not only in athletes, but also in coaches. The results indicated

that coaches' professional growth and their influence on athletes were more global and powerful when the quality of relationship was strong and positive.

Achieving higher levels of independence can be viewed as another indicator of growth. The prospering relationship is characterised by changes in power relations where athletes take more responsibility with time, becoming in charge of themselves, and, as suggested by the results of the study by Philippe and Seiler (2005), it can be a mean repaying coaches for the investment they made for their athletes. Furthermore, research on passion for coaching and the quality of coach-athlete relationship (Lafreniere, Jowett, Vallerand, & Carbonneau, 2011) demonstrated that coach autonomy-supportive behaviours predicted the quality of relationship between a coach and an athlete as perceived by the athletes, and in turn positively predicted athletes' general happiness.

The results of the studies mentioned above imply that a positive and prospering bond can enrich athletes' and coaches' lives in many ways, but studies have demonstrated that the opposite is also true and destructive relationship may hinder development in every aspect of life. For example, Gearity and Murray (2010) studied the psychological effects that poor coaching has on athletes, and the results revealed five themes: poor teaching, uncaring, unfair, inhibiting athletes' mental skills, and athlete coping (dealing with poor coaching). Those behaviours not only negatively affected athletes experience with sport at that time but had prolonged negative effects on the athletes. Two participants of this study claimed that because of poor coaching they "carried self-doubt with them after moving to another team" (p.216). Furthermore, a study conducted by Shanmugam, Jowett, and Meyer (2012) has shown that coach-athlete relationship of poor quality described in terms of increased conflict and decreased support was indirectly related to an increased eating psychopathology mediated by low self-esteem, increased self-critical perfectionism, and also depression.

The presented findings of numerous research studies underline the irrefutable role coach-athlete relationship plays in athletes' and coaches' lives as it can act as a nurturing or destructive force. In a social environment, such as a club or team setting, there are many factors affecting athletes' skills acquisition, performance, and growth, including CAR and coach leadership. The next section is dedicated to explore the research findings combining coach-athlete relationship and TL.

2.3 Understanding the Connection between the Coach-Athlete Relationship and Transformational Leadership

While coach transformational leadership and coaching relationship have the potential to influence athletic outcomes, separately and together, there is limited empirical research that investigates such simultaneous associations. In this thesis, we suggest that transformational leadership reciprocally interacts with coach-athlete relationship in order to create a flourishing environment, the features of which have the capacity to promote athletes' wellbeing, functioning, and performance.

Relationship quality may affect how a transformational leader would behave towards followers. Research in the coaching domain has suggested that coach behaviours are influenced by their expectations and judgement of the athletes (Horn & Lox, 1993; Solomon, Striegel, & Eliot, 1996). We infer that the strength of relationships between athletes and coaches may affect the frequency of coach-athlete interactions and internalisation of transformational leadership influence. With the passage of time and increased familiarity between coaches and athletes, the quality of coach-athlete relationship may strongly influence the way transformational coaches communicate and interact. Conversely, one of the unique characteristics of TL is its emphasis on building quality leader-follower relationships (Bass & Riggio, 2006) therefore transformational leadership behaviours can be assumed to affect the relationship quality. If coaches are empowering and supportive towards their athletes, it is likely that athletes will like and trust the coach more, promoting the desire for future collaboration; and thus, the coach behaviours may affect relationship quality. The term "transformational-relational coaching environment" used in the next chapters refers to a social situation which aims to inspire athletes to show extra effort, develop sporting potential, and work collaboratively towards a common goal, as well as ensure wellbeing, healthy emotional development, and teach athletes effective social functioning. Therefore, TL and CAR are believed to interact with one another to create an environment which also supports the reciprocal influence between transformational leadership and coach-athlete relationship.

Researchers have noted that leadership can be seen as a relationship in which leader-follower interactions are based on exchanges (Graen & Uh-Bien, 1995; Bass, 1985) and that they have the emotional and cognitive impact on both the leader and the follower (Popper, 2004). Even though there are theoretical and empirical indications

implying an existence of a common ground between the concepts of the coach-athlete relationship and transformational leadership behaviours, this connection has not been extensively studied. The study conducted by Vella et al. (2013b) showed that the prediction of young athletes' developmental experiences was much stronger when coach transformational leadership behaviours were combined with coach-athlete relationship quality variables (3C's). These findings suggest that the influence of a coach when only leadership behaviours were taken into account may show an incomplete picture and insufficient understanding of the phenomena observed in team sports.

In a qualitative exploration (interviews with a coach and athletes, and participant observations) of the environment created by a transformational coach in a youth volleyball team, Krukowska et al. (2015) revealed five categories characterising this environment: (a) characteristics of a transformational coach, (b) transactional behaviours of a coach, (c) coaching behaviours serving athlete self-determination, (d) factors strengthening coach-athlete relationship, and (e) characteristics of a positive team. The coach was characterised by a high frequency of transformational leadership behaviours, but he also presented two types of transactional behaviours: contingent reward and management-by-exception. Moreover, the athletes indicated the importance of their individual relationships with the coach; they spoke about feelings of closeness, complementary behaviours, and long term commitment to work with this particular coach. The results showed also a supportive role of CAR in athletes' holistic growth and in needs satisfaction, as athletes discussed the coach's behaviours and attitudes directed to satisfy their basic psychological needs for autonomy, competence, and relatedness. Furthermore, it was observed that those needs were being satisfied on two levels: dyad and team, and also the outcomes of being in this team environment were divided into those two perceptual levels, e.g. the team was characterised by a high level of team cohesion, and also high levels of athletes' motivation and wellbeing. In summary, a transformational coach who dedicated time and energy to build positive relationships with volleyball players was satisfying athletes' basic psychological needs and was contributing to high levels of psychological outcomes, as well as many performance achievements.

2.4 Conclusions

Overall, the concept of the transformational leadership in sport has gained appreciation in recent years and it remains as a promising conceptual model to be further developed in various contexts and with the usage of diversified methods. Also the results of the reviewed studies highlight the importance of a coach-athlete relationship in athletes' and coaches' short-term and long-term functioning. Moreover, studying coach-athlete partnerships has generated valuable information regarding the content and functions of CAR, in regards to its effect on transformational leadership; however, there is still a need for further exploration of the interplay between the coach-athlete relationship and transformational leadership, especially in a temporal and an applied perspective. The studies described in the following empirical chapters further explore the theory, research and practice embracing the interplay between the transformational leadership and the coach-athlete relationship models. The aims and objectives of each of the chapter are stated in the section below.

2.5 Thesis Aims

Chapter two, study one. In line with the transformational leadership in sport and coach-athlete relationship literature, and following the results of the study described by Krukowska et al. (2015), the effects' of the transformational-relational coaching environment on athletes' wellbeing were investigated. The mediator of the transformational-relational coaching environment was chosen in accordance with the Basic Psychological Needs Satisfaction Sub-Theory (Ryan & Deci, 2000), as the satisfaction of the autonomy, competence, and relatedness needs was tested as a mechanism through which transformational coaches affect athletes' engagement in and harmonious passion for sport.

Chapter three, study two. Study two was designed to: (a) explore differences in perceptions of coaches TL style and CAR according to athletes' gender and coaching domains; (b) separately investigate how transformational leadership and coach-athlete relationship quality fluctuate across the whole sporting season; (c) explore whether athletes' perceptions of TL and CAR at the end of the season can be predicted by the assessment of those constructs at the beginning and in the middle of the season; and (d)

investigate how the interplay between coach-athlete relationship and transformational leadership measured in three distinct parts of the sporting season influences athletes' collective efficacy and intrinsic motivation at the end of the season.

Chapter four, study three. The objective of study 3 was to explore a training programme for young (inexperienced) coaches guided by the principles of transformational leadership framework (Bass & Riggio, 2006), 3+1C's model of coach-athlete relationship (Jowett, 2009), and Basic Needs Satisfaction Sub-Theory (Ryan & Deci, 2000). Specifically, the study attempted to increase coaches' interpersonal (e.g. using more strategies dedicated to maintain effective coach-athlete relationships; Rhind & Jowett, 2012) and intrapersonal (e.g. through self-reflection; Gibbs, 1988) types of knowledge in order to enhance their effectiveness understood as high levels of athletes' psychological outcomes (satisfaction and performance).

CHAPTER 3: Study One

3.1 Introduction

The coaching environment in which athletes train and compete has a potential to promote not only their performance but also their wellbeing through the satisfaction of basic psychological needs. Self-Determination Theory (SDT) is a meta-theory of motivation and it posits that individuals are oriented towards growth and that nutrients from the environment are necessary in order to flourish (Deci & Vansteenkiste, 2004). One of the sub-theories of SDT, namely Basic Needs Satisfaction sub-Theory (BNST), underlines the role of social environmental factors in the satisfaction of three basic psychological needs: autonomy, competence, and relatedness. In sport, coaches play a pivotal role in shaping the environment that inspires athletes to reach challenging goals while ensuring that their basic needs are being satisfied.

Transformational leadership (TL) aims to enhance understanding about leaders' role relative to their followers' performance and wellbeing as well as ability to cope with stressful situations (e.g. Charbonneau, Barling & Kelloway, 2001; Skakon, Nielsen, Borg, & Guzman, 2010; Bass & Riggio, 2006). In recent years, TL has attracted the attention of researchers in sport (e.g. Price & Weiss, 2013; Cronin, Arthur, Hardy, & Callow, 2015), and also the coach-athlete relationship (CAR) is regarded as a central component of positive athletic experience over the life-span (Wylleman & Lavalle, 2004). The significance of the coach-athlete relationship in team sports maybe instrumental as coaches try to navigate through the distinct personalities, characters, attitudes and developmental stages of each athlete in their team in an attempt to build group dynamics (e.g., team cohesion, collective efficacy) and processes (e.g., empathy, caring and trusting) that are effective and successful.

In line with the theoretical framework of BNST, in the present study the three basic psychological needs were employed to investigate the mechanisms by which the transformational-relational coaching environment (i.e. leadership and relational processes) is related to athletes' wellbeing and functioning (cf. La Guardia & Patrick, 2008). Overall, the aim of the study was to examine whether the effects of the coaching environment defined through the concepts of transformational leadership and coaching

relationship transfer to athletes' engagement in and passion for sport through the satisfaction of their three basic psychological needs.

3.2 Transformational Leadership, Coaching Behaviours, and Basic Needs Satisfaction

Transformational leadership is manifested when a leader's behaviours elevate followers' self-worth and confidence, help them to develop skills, as well as achieve high standards of performance (Bass & Riggio, 2006). Such leaders are inspiring, visionary and engaging, and they focus on developing followers' potentials, not only for their own benefit, but primarily for the followers' benefit. In sport settings, transformational leadership has been found to link with intrinsic motivation (Charbonneau et al., 2001), wellbeing (Stenling & Tafvelin, 2013), developmental experiences of young athletes (Vella, Oades & Crowe, 2013b), collective efficacy (Price & Weiss, 2013), and task cohesion (Smith, Arthur, Hardy, Callow, & Williams, 2013). The results of the study by Stenling and Tafvelin (2013) revealed one of the key qualities for transformational leadership, namely, the importance of satisfying followers' needs. Transformational leader was described by Burns (1978) as a person who "seeks to satisfy higher needs and engages the full potential of the follower" (p. 4). The satisfaction of needs may thus be a priority for leaders in sports because they have the capacity to maximise one's functioning, development, and growth. As stated by Popper (2005), the relationship between the leaders and their followers is based on needs satisfaction of both sides, and it is crucial to consider how a leader can most effectively satisfy needs that help followers enhance performance.

People have an inherent tendency to grow and the social environments can either diminish or facilitate development (Ryan & Deci, 2000b). According to The Basic Needs Satisfaction Sub-Theory (Deci & Ryan, 2000), there are three needs people seek to satisfy in order to flourish. The need for autonomy is supported when a person experiences sense of volition and choice and acts as a causal agent. Competence refers to people's desire to deal effectively with the challenges and observe constant progress of their own skills. Finally, the need for relatedness concerns humans' need to build and maintain meaningful relationships with others (Niemi & Ryan, 2009).

Subsequently, autonomy may be satisfied by the use of intellectual stimulation; a coach encouraging athletes to think deeper about their performance and ways of enhancing it, contributes to athletes gaining more understanding of their performance and thus, it increases athletes' chance of making confidently more autonomous choices, e.g. athletes' leadership on a court during the game. Moreover, by the means of individualised consideration a coach may gain athletes' perspectives on goals and incorporate them when setting the main aims for the season. Inspirational motivation may help athletes in reaching challenging goals, by conveying a belief in athletes' skills and team's performance, a coach may enhance athletes' motivation and passion for sport, and thus further develop skills that show constant progress and by that athletes would also experience sense of competence. Also by the usage of contingent reward, for example seeking occasions and praising athletes when they show improvement, a coach may reinforce athletes' self-esteem and help them feel more competent. Finally, relatedness may be fulfilled by a coach who presents qualities of individual consideration: is attentive to athletes' wellbeing, cares about their non-sport issues, and pays attention to each athlete's needs. By such actions, a coach makes athletes feel cared for and valued. Also, when transformational coaches foster acceptance of group goals by encouraging athletes to be team players, they may affect the bonds between the teammates, and thus, satisfy the need for relatedness. Deci and Ryan (2000) have pointed that "experiences of competence and autonomy are essential for intrinsic motivation and interest" (p.233), and the need for relatedness, however not always key in maintaining intrinsic motivation, it is recognised as enhancing likeability of intrinsic motivation to flourish.

Transformational leadership represents a unique leadership style in which the concept of satisfying followers' needs is central (e.g. Bass, 1990). By addressing the followers' needs, transformational leaders are able to affect numerous positive outcomes, and previous research in domains outside of sport has demonstrated this association. For example, in an organisational domain it has been found that the autonomy, competence, and relatedness needs additively mediated the link between TL and job satisfaction, whereas the relationship between TL and self-efficacy was mediated only by competence need, and the relationship between TL and affective commitment was mediated by the need for relatedness (Kovjanic et al., 2012). In another study (Kovjanic, Schuh, & Jonas, 2013), transformational leadership was found to affect work engagement through the fulfilment of the competence and relatedness needs, and in turn was positively linked to employees' performance indicators: persistence, and quality and quantity of ideas. In an

educational setting, fulfilment of students' needs was found to partially mediate the association between their perceptions of transformational teaching and students' engagement (Wilson et al., 2012).

The Basic Needs Satisfaction Sub-Theory has been widely tested in different contexts, to name a few: education, organizations, close relationships, or health and medicine. The topics of motivation and wellbeing are also crucial when considering outcomes of athletes' and coaches' interactions; thus, this theory gained also a broad interest by the researchers in sport and physical activity domain. Research evidence has investigated the connections between coaches' behaviours and athletes' needs satisfaction and wellbeing. For example, in a study by Reinboth, Duda and Ntoumanis (2004), it was found that coach autonomy supportive behaviours of encouraging effort and persistence, praising improvement and mastering, and actively listening to athletes' views and opinions satisfied the need for autonomy, while social supportive behaviours satisfied the need for relatedness. Furthermore, both the need for autonomy and the need for competence were positively associated with wellbeing (the need of competence was the strongest predictor). The results have shown that athletes' perceptions regarding autonomy supportive behaviours of the coach were positively related to their perceptions of autonomy. The practical importance of this result was underlined by the authors: "an environment low in its controlling features (e.g. a situation where a coach give athletes responsibilities, offer choices and options) is more likely to foster feelings of personal causation and facilitate the perception of oneself as an origin of one's behaviour (deCharms, 1968)" (Reinboth et al.; 2004; p. 307). Moreover, the results of this study have indicated that athletes' perceptions of competence were predicted by the perceptions of coach's mastery approach, and their perceptions of relatedness to the team, were predicted by perceptions of the coach providing emotional support and assistance.

In another study, Reinboth and Duda (2006) found that coach created task-involving climate (e.g., encourages self-improvement, rewards effort) predicted the three needs over the entire sport season. In addition, needs for autonomy and relatedness emerged as predictors of subjective vitality (Reinboth & Duda, 2006). In Coatsworth and Conroy's (2009) study, coaches' autonomy supportive behaviours predicted satisfaction of youth athletes' needs for competence and relatedness in athletes' relationships with their coaches. Moreover, young athletes' self-esteem was predicted by the level of satisfaction for the competence need (indirectly through self-evaluated competence in swimming).

The notion that coaches' autonomy support is relevant in coaching athletes was also confirmed in the study by Sheldon and Watson (2011). The results indicate that coaching characterised by autonomy support predicted intrinsic and identified motivation of the athletes, as well as positive evaluation of the team experience, and this result was much stronger for varsity athletes compared to recreational and club athletes. The need for competence, its satisfaction, was proven to be related to heightened levels of subjective vitality in a longitudinal study on young academy soccer players by Adie, Duda, and Ntoumanis (2012); whereas, satisfaction of the need for relatedness regarding one's own team (the degree of connectedness) was related to athletes' experience of eudemonic wellbeing. Losier and Vallerand (1994) tested how perceived competence and self-determined motivation correlate over time and the findings demonstrated that there is a temporal relation between those two constructs: over time perceived competence determines motivation. It is vital result especially for coaches, who can lead athletes and create environment fostering sense of competence, what in turn will positively influence athletes' motivation. The results of the studies presented above highlight the importance of coaching behaviours in athletes' perceptions of needs satisfaction and exploring transformational leadership behaviours could shed new light on this process.

3.3 The Role of the Coach-Athlete Relationship Quality

Transformational leaders who help their athletes develop skills necessary to achieve their full potential and motivate them to persist in the pursuit of their sporting dreams, take special interest and devote time and energy to build close and positive relationships with their athletes. According to Jowett and Poczwardowski (2007) CAR is defined as a "situation in which a coach's and an athlete's cognitions, feelings, and behaviours are mutually and causally interrelated" (p.13). Effective relationships can be described as containing the following elements: support, empathic understanding, liking, responsiveness, caring, friendliness, and respect (e.g. Jowett & Cockerill, 2003; Jowett & Meek, 2000). Coach-athlete partnerships that afford high levels of the 3C's (closeness, commitment, and complementarity) have been found to be positively connected with sport-specific (e.g. performance) and wellbeing outcomes (e.g. Jowett & Cockerill, 2002).

For example, it was found that CAR is predictive of all three basic psychological needs and in turn the three basic needs predict athletes' satisfaction with performance

accomplishments, team and individual performance, and personal treatment from their coach (Olympiou et al., 2005b). Correspondingly, a study by Felton and Jowett (2013) showed that a social environment consisting of autonomy-supportive coach behaviours and high quality coach-athlete relationships, was positively associated with athletes' wellbeing indicators of vitality and self-concept. Specifically, the need for competence fully mediated the association between CAR and wellbeing and partially mediated the association between autonomy-supportive coach behaviours and wellbeing. Moreover, Felton and Jowett (2015) showed that when athletes' autonomy and competence needs were undermined by their coaches, athletes with insecure attachment styles felt less satisfied with life and experienced negative affect. Within the sporting context, thwarted competence and relatedness needs mediated the link between athletes' attachment style and well/ill-being indicators (life and performance satisfaction, depression, and negative affect).

Coach-athlete relationships of a good quality have the capacity to influence the satisfaction of the basic psychological needs. By the means of collaborative or reciprocal behaviours (e.g. include an athlete in the warm-up preparation) or by allowing athletes to share their expectations, a coach may fulfil the need for autonomy. The need for competence may be affected by the coach showing fairness. Whereas the need for relatedness may be satisfied through disclosure of feelings, non-sport communication, or caring for athletes (e.g. provide additional resources).

The role of coach-athlete relationship and coach leadership behaviours has not been extensively studied. There are only two studies examining both coach leadership and the 3C's of CAR. Jowett and Chaundy (2004) investigated the impact of coach-athlete relationship and coach leadership on task and social cohesion of university athletes. The result of this study showed that more variance in both types of cohesion was predicted when relational variables and leadership variables were considered together. Correspondingly, the study conducted by Vella et al. (2013b) showed that the prediction of young athletes' developmental experiences was much stronger when coach transformational leadership behaviours were combined with coach-athlete relationship quality variables (3C's). These findings suggest that the influence of a coach when only leadership behaviours are taken into account may show an incomplete picture and insufficient understanding of the phenomena observed in team sports. More research is warranted as this set of research findings suggests that both leadership and relationship have a capacity to influence athletes' wellbeing.

3.4 Wellbeing as a Multidimensional Phenomenon

According to Waterman (1993), there are two general perspectives to study wellbeing: (a) the hedonic view of wellbeing focuses on happiness and pleasant experiences; and (b) the eudaimonic approach to wellbeing refers to self-realisation and functioning congruent with one's own values. Ryan and Deci (2001) suggested that "SDT posits that satisfaction of the basic psychological needs typical fosters SWB [subjective well-being] as well as eudaimonic well-being. well-being is probably best conceived as a multidimensional phenomenon that includes aspects of both the hedonic and eudaimonic conceptions of well-being" (p. 147-148). While sport psychologist researchers have started to acknowledge the two distinct yet related dimensions of wellbeing (e.g. Lundqvist, 2011; Lundqvist & Sandin, 2014), research is still vague about the unique contributions that these dimensions may be making to our knowledge.

In sport, the concepts of engagement in sport and harmonious passion for sport can be viewed as distinct manifestations of wellbeing; athletes who are inherently engaged in and harmoniously passionate about training and competition are expected to continuously grow and develop in their chosen sports. *Engagement* is defined as "an enduring, relatively stable sport experience, which refers to generalized positive affect and cognitions about one's sport as a whole" (Hodge, Lonsdale, & Jackson, 2009, p. 187), and is characterised by dedication, confidence, vigour, and enthusiasm (Lonsdale, Hodge, & Jackson, 2007). Previous research has indicated that the fulfilment of basic needs for autonomy, competence and relatedness were positively associated with engagement. For example, athletes' engagement partially mediated the relationship between the satisfaction of the needs of autonomy and flow and competence and flow (Hodge et al., 2009).

Passion is understood as "a strong inclination toward a self-defining activity that one loves, finds important, and invests a significant amount of time and energy" (Vallerand et al., 2008; p.456) and there are two types of passion: obsessive and harmonious. Obsessive passion refers to a force that drives people toward a certain activity and makes them feel compelled to engage in it. Harmonious passion is also a motivational force but this type of passion derives from volition and supports personal endorsement for the activity. Research on passion in sport linked harmonious passion with numerous positive outcomes, for example: positive affect, task focus, feelings of flow, and deliberate practice (e.g. Vallerand et al., 2003; Vallerand et al., 2008). Studies

on the quality of coach-athlete relationship revealed a positive association with harmonious passion for sport (Lafrenière, Jowett, Vallerand, Donahue, & Lorimer, 2008) and with coaches' autonomy supportive behaviours (Lafreniere, Jowett, Vallerand, & Charbonneau, 2011).

3.5 The Present Study

Recent findings have shown that there is a positive association between transformational leadership and the psychological needs of autonomy, competence, and relatedness (Stenling & Tafvelin, 2013), as well as between coach-athlete relationship and these needs (Felton & Jowett, 2013). There is also evidence that coaching behaviours are associated with coaching relationships (see Felton & Jowett, 2013; Olympiou et al, 2005b). More recently, Michel, Jowett, and Yang (2015) found that athletes who perceive the quality of their relationship with the coach to be underlined by mutual trust and respect (closeness), desire to maintain a close relationship (commitment) and co-operative, responsive and receptive behaviours (complementarity) are more likely to also perceive that their coaches supply them with the appropriate coaching environment to develop and flourish (e.g., training and planning, skill demonstrations and feedback, goal setting, competition strategies).

According to BNST, the elements of a social environment, by satisfying basic psychological needs, have the capacity to lead to optimal functioning, wellbeing, and psychological health (Ryan & Deci, 2000). Considering both research and theory, we hypothesise that the social environment (coaching environment) named "transformational-relational", combining characteristics of coach transformational leadership and coach-athlete relationship quality, will have the capacity to influence athletes' wellbeing through the satisfaction of the three basic psychological needs. It is further hypothesised that the active nutriments of autonomy, competence and relatedness will have the capacity to transfer the effects of the transformational leadership and coaching relationship onto athletes' wellbeing indicators (Deci & Ryan, 2000).

3.6 Method

3.6.1 Participants

A sample of 326 athletes, representing variety of team sports: cricket ($N=77$), volleyball ($N=51$), handball ($N=43$), rugby ($N=36$), softball ($N=29$), American football ($N=24$), netball ($N=30$), basketball ($N=14$), baseball ($N=9$), hockey ($N=6$), football ($N=5$), and futsal ($N=2$) participated in the study. The age ranged from 15 to 56 ($M = 23$; $SD = 7.07$) including 39% of female and 61% of male participants. Majority of the participants worked with male coaches (84%).

3.6.2 Procedure

After obtaining institutional ethical approval, the coaches were approached via e-mail or personally by the first author to explain the nature and purpose of the study. They were also informed of the confidentiality and anonymity of the study, as well as the possibility of the prospective participants to withdraw from the study at any point in time without giving a reason. Participants who expressed interest in participating were asked to sign an informed consent and then completed a questionnaire either before, or after a training session; the questionnaire was available as a paper and pencil questionnaire and as an online questionnaire. The criteria of participation included athletes who actively participated (trained and competed) in team sports and who worked with a main coach for at least four weeks.

3.6.3 Measures

Transformational leadership. Differentiated Transformational Leadership Inventory (DTLI; Callow et al., 2009; Hardy et al., 2010) for sport was utilised to assess athletes' perception of their coaches' transformational behaviours. DTLI includes a total of 27 items intended to measure seven transformational leadership behaviours: individual consideration (4 items; e.g., "Treats each member as an individual"), inspirational motivation (4 items; e.g., "Expresses confidence that goals will be achieved"), intellectual stimulation (4 items; e.g., "Challenges me to think about the problems in new ways"), high performance expectations (4 items; e.g., "Expects a lot from us"), contingent reward (4 items; e.g., "Gives us praise when we do good work"), appropriate role model (4 items; e.g., "Leads from the front whenever he/she can"), and fostering acceptance of

group goals (3 items; e.g., “Develops a strong team attitude and spirit among team members”). The response scale ranged from 1 (Not at all) to 7 (All of the time). The Cronbach alpha coefficients for all of the subscales were as following: intellectual stimulation ($\alpha = .71$), individual consideration ($\alpha = .77$), inspirational motivation ($\alpha = .77$), high performance expectations ($\alpha = .77$), contingent reward ($\alpha = .85$), fostering acceptance of group goals ($\alpha = .76$), and appropriate role modelling ($\alpha = .87$). Cronbach alpha coefficient of the whole scale was .93.

Coach-athlete relationship. The quality of the relationship was assessed by using the Coach-Athlete Relationship Questionnaire – meta perspective version (CART-Q; Jowett, 2009). The meta-perspective version refers to athletes’ perceptions of how their coaches view the relationship quality. CART-Q meta-perspective version contains 3 subscales: closeness (4 items; e.g., “My coach likes me”), commitment (3 items; e.g., “My coach is committed to me”) and complementarity (4 items; e.g., “My coach is responsive to my efforts”). The response scale ranged from 1 (Strongly disagree) to 7 (Strongly Agree). The psychometric properties of CART-Q have been assessed in a numerous studies (e.g. Jowett, 2009); within this sample, the main scale (.93 for MCART-Q) and all of the subscales showed the Cronbach alpha coefficients higher than .80, specifically: meta-closeness ($\alpha = .87$), meta-commitment ($\alpha = .81$), and meta-complementarity ($\alpha = .84$).

Basic needs satisfaction. A modified version of Basic Need Satisfaction at Work Scale (Baard, Deci, & Ryan, 2004; Deci et al., 2001) was used for the purpose of this study. The scale contains 21 questions: 7 items assess autonomy (e.g., “In training sessions, I feel like I have opportunities to make decisions”), 6 items assess competence (e.g., “I do not feel very competent when I am training”), and 8 items assess relatedness (e.g., “I consider the people I train with to be my friends”). There are nine reverse items, three for each of the subscales. The response scale ranged from 1 (Not at all true) to 7 (Very true). Cronbach alpha coefficients were: .78 for relatedness subscale, .54 for autonomy subscale and .55 for competence subscale. The scale as a whole showed acceptable reliability level (.83).

Passion for sport. Harmonious passion was measured using the Passion Scale (Vallerand et al., 2003). The scale consists of fourteen items, 7 for obsessive passion (e.g., “My sport is so exciting that I sometimes lose control over it”) and 7 for harmonious passion (e.g., “The new things that I discover with my sport allow me to appreciate it even more”), and the responses ranged from 1 (Not agree at all) to 7 (Very

strongly agree). Only the harmonious passion subscale was utilised for the purpose of this study and the Cronbach alpha coefficients was .76.

Athlete engagement. The Athlete Engagement Questionnaire (Lonsdale et al., 2007) was used in order to investigate athletes' level of engagement in their sport. The 16-item scale measures four dimensions: confidence (4 items; e.g., "I believe I am capable of accomplishing my goals in sport"), dedication (4 items; e.g., "I am determined to achieve my goals in sport"), vigour (4 items; e.g., "I feel energetic when I participate in my sport"), and enthusiasm (4 items; e.g., "I feel excited about my sport"). Items were rated on a 7-point response scale ranging from 1 (Almost never) to 7 (Almost always). The Cronbach alpha coefficients were .89 for each of the subscales and the alpha coefficient for the whole scale was .94.

3.6.4 Data Analysis

Descriptive statistics including means (Ms), standard deviations (SDs), correlations (r 's), and alpha coefficients (alpha's) were calculated using IBM SPSS Statistics 20. The hypothesised mediations were tested through structural model using a robust maximum likelihood method with EQS 6.1 (Bentler, 1995). Item parcelling technique was employed to facilitate the reliability of item parcel responses. Item parcelling allows fewer numbers of parameters for estimation and less violation of normality assumption (Hau & Marsh, 2004). The tested model was estimated as a latent variable model in which transformational leadership was treated as a latent variable and its seven indicators were parcelled into three indicators based on the strength of correlations. Meta-closeness, meta-commitment and meta-complementarity represented a latent variable of meta perspective of the coach-athlete relationship quality. Correspondingly, autonomy, competence and relatedness formed another latent variable of basic needs satisfaction. Finally, the latent variable of engagement was composed of confidence, dedication, enthusiasm, and vigour, whereas harmonious passion was parcelled into three indicators, each indicator contained items highly correlated with one another.

Applying the guidelines of Baron and Kenny (1986), three structural models were tested. Firstly, the model of direct effects was tested where the independent variable (coach-athlete relationship meta perspective and transformational leadership combined) predicted dependent variables (engagement and harmonious passion) without the mediator being involved (see Figure 3.1). In second step, the model with a mediator

(basic needs satisfaction) was tested (see Figure 3.2). Finally in the third step, a combined model (with direct effects and mediation effects) was tested (see Figure 3.3).

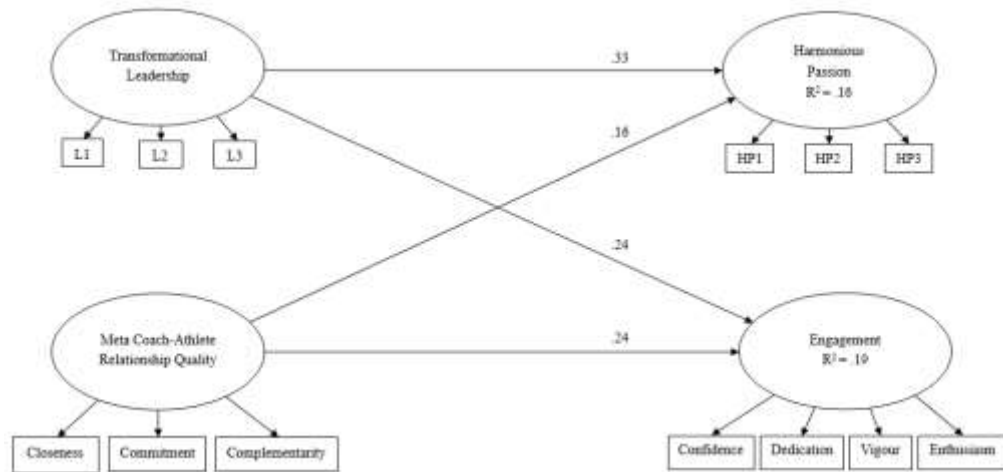


Figure 3.1 Direct model. Standardized coefficients and R^2 are displayed. The solid lines indicate significant relationship.

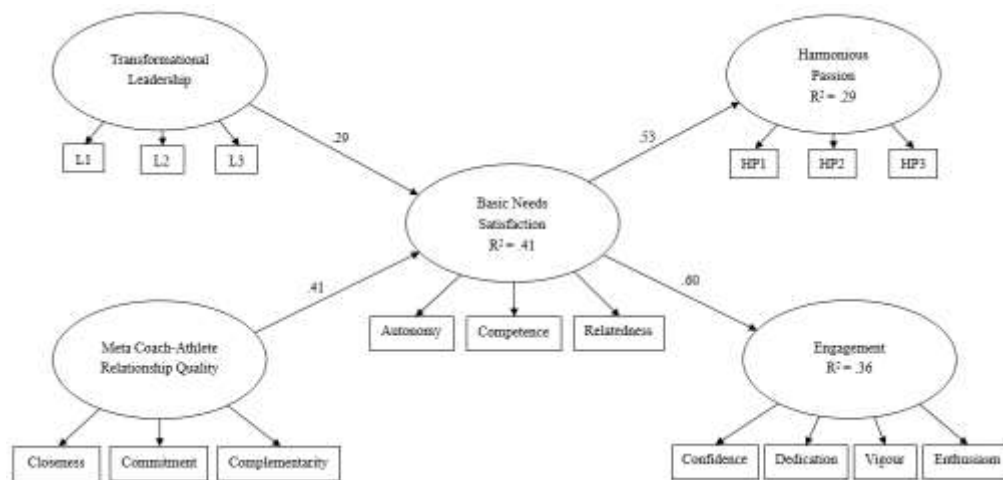


Figure 3.2 Mediation model. Standardized coefficients and R^2 are displayed. The solid lines indicate significant relationship.

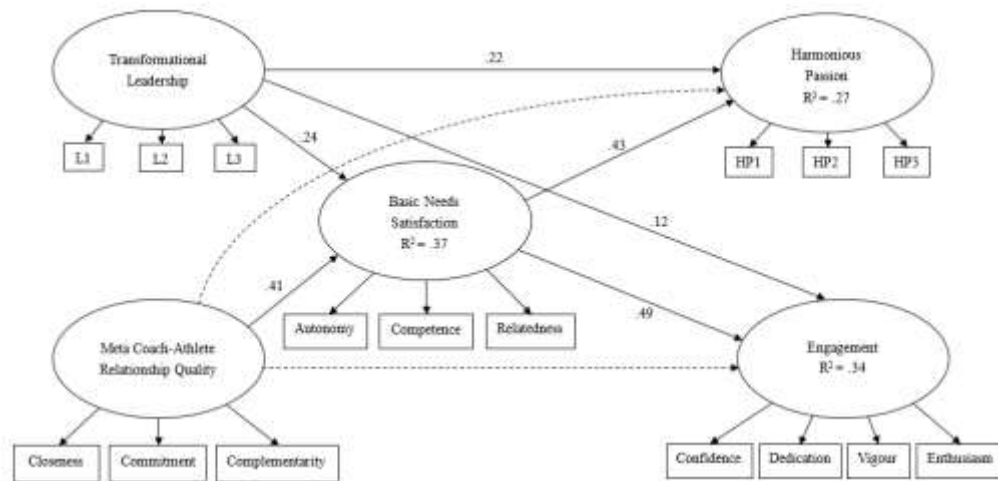


Figure 3.3 Combined model. Standardized coefficients and R² are displayed. The solid lines indicate significant relationship and dotted lines indicate non-significant relationships.

Multiple indices were used to assess adequacy of the proposed model: the comparative fit index (CFI), non-normed fit index (NNFI), and root-mean-square error of approximation (RMSEA). Traditionally, the values to establish acceptable model fit are: $> .90$ for CFI and NNFI, and $< .06$ for RMSEA (Bentler & Bonett, 1980).

3.7 Results

3.7.1 Descriptives

The cases with missing data were deleted from the analysis. Table 3.1 presents means (Ms), standard deviations (SDs), Cronbach alpha coefficients (α s) for all of the variables (main variables and their sub-dimensions), and bivariate correlations for all main variables. Table 3.2 demonstrates a correlation matrix of all of the sub-dimensions. All correlations were significant and in the predicted direction. High performance expectations from the DTLI was excluded from further analysis due to the fact that excluding HPE from the analysis allowed to reach better fit of the model to the data.

Table 3.1 Mean (M), standard deviations (SD), Cronbach Alpha (α) for all the sub-dimensions of main variables (transformational leadership, coach-athlete relationship quality meta perspective, basic need satisfaction, harmonious passion, and engagement) and bivariate correlations of all main variables.

Variables	M	SD	α	1	2	3	4
1. Transformational Leadership	5.53	.76	.96	1			
Individual Consideration	5.49	.90	.77				
Inspirational Motivation	5.74	.87	.77				
Intellectual Stimulation	5.18	.96	.71				
High Performance Expectations	5.66	.90	.77				
Contingent Reward	5.64	.96	.85				
Fostering Acceptance of Group Goals	5.72	.94	.76				
Appropriate Role Model	5.34	1.17	.87				
2. Coach-Athlete Relationship (M)	5.26	.95	.93	.63*			
Meta Closeness	5.34	1.01	.87				
Meta Commitment	4.86	1.12	.81				
Meta Complementarity	5.48	.97	.84				
3. Basic Needs Satisfaction	5.03	.67	.83	.39*	.46*		
Autonomy	4.63	.74	.54				
Competence	4.89	.84	.55				
Relatedness	5.48	.87	.79				
4. Harmonious Passion	5.26	.88	.76	.31*	.30*	.33*	
5. Engagement	5.75	.77	.94	.37*	.37*	.43*	.57*
Dedication	5.62	.99	.89				
Confidence	5.38	.98	.89				
Vigour	5.79	.86	.89				
Enthusiasm	6.19	.80	.89				

* $p < 0.01$

Table 3.2 Correlation matrix of all the sub-dimensions.

	IC	IM	IS	HPE	CR	FAG G	RM	CLO	COM	COP	MCL	MCM	MCP	AUT	CMP	REL	HP	DED	CON	VIG	ENT	
IC	1																					
IM	.65**	1																				
IS	.59**	.59**	1																			
HPE	.34**	.42**	.25**	1																		
CR	.71**	.65**	.60**	.23**	1																	
FAG G	.64**	.64**	.52**	.51**	.61**	1																
RM	.59**	.60**	.62**	.19**	.59**	.55**	1															
CLO	.67**	.61**	.59**	.24**	.66**	.56**	.67**	1														
COM	.55**	.51**	.45**	.42**	.47**	.54**	.48**	.64**	1													
COP	.63**	.57**	.54**	.28**	.58**	.57**	.61**	.78**	.67**	1												
MCL	.52**	.43**	.39**	.26**	.50**	.47**	.41**	.62**	.67**	.64**	1											
MCO	.46**	.33**	.35**	.27**	.41**	.41**	.39**	.52**	.55**	.76**	.76**	1										
MCP	.56**	.47**	.42**	.25**	.56**	.52**	.47**	.67**	.74**	.63**	.85**	.69**	1									
AUT	.39**	.38**	.26**	.12*	.36**	.38**	.31**	.36**	.32**	.43**	.46**	.36**	.46**	1								
CMP	.35**	.39**	.23**	.22**	.32**	.39**	.32**	.38**	.34**	.43**	.41**	.28**	.44**	.55**	1							
REL	.17**	.21**	.07	.24**	.11*	.25**	.08	.19**	.18**	.26**	.27**	.21**	.31**	.44**	.54**	1						
HP	.28**	.29**	.21**	.24**	.29**	.28**	.15**	.25**	.28**	.27**	.28**	.24**	.31**	.29**	.31**	.28**	1					
DED	.24**	.34**	.22**	.36**	.23**	.31**	.14*	.26**	.36**	.25**	.33**	.31**	.34**	.24**	.35**	.25**	.47**	1				
CON	.27**	.34**	.18**	.28**	.24**	.26**	.13*	.25**	.29**	.27**	.36**	.31**	.33**	.37**	.38**	.21**	.51**	.66**	1			
VIG	.20**	.34**	.29**	.32**	.32**	.29**	.15**	.28**	.24**	.29**	.25**	.17**	.29**	.26**	.35**	.27**	.46**	.67**	.57**	1		
ENT	.20**	.25**	.21**	.29**	.21**	.29**	.15**	.27**	.29**	.32**	.23**	.16**	.29**	.25**	.39**	.33**	.48**	.61**	.52**	.57**	1	

*p < 0.05; **p < 0.01

3.7.2 Testing Mediation

The analysis aimed at exploring the mediation effects of satisfaction of the three needs in the association between the transformational-relational coaching environment with the outcomes of engagement and harmonious passion. Firstly, the model with direct effects was evaluated (see Figure 3.1) and the results indicated a good fit to the data: CFI = .91; NNFI = .90; RMSEA = .08; SRMR = .08. Secondly, a mediation model was tested (see Figure 3.2) and this model also indicated a close fit to the data: CFI = .92; NNFI = .91; RMSEA = .08; SRMR = .08. Finally, the combined effects model (see Figure 3.3) also showed a good model fit: CFI = .91; NNFI = .90; RMSEA = .08; SRMR = .08. The strength of path coefficient between transformational leadership and harmonious passion was reduced from .33 in the direct effects model to .22 in the combined model, and the strength of path coefficient between transformational leadership and engagement dropped from .24 to .12 (Table 3.3 shows the strength of the direct effects).

Table 3.3 Direct effects between transformational leadership and meta perception of coach-athlete relationship, and engagement and harmonious passion.

Independent variables	Dependent variables	
	Harmonious passion	Engagement
Transformational leadership	.33	.24
Meta perception of coach-athlete relationship	.16	.24

Therefore, the results indicated a partial mediation between these constructs. The magnitude of path coefficients between meta-perspective of coach-athlete relationship quality and engagement and harmonious passion were no longer significant in the combined model indicating a full mediation effects. Transformational leadership and meta-perspective of coach-athlete relationship positively predicted basic needs satisfaction: $\beta = .24$, $p < 0.05$ and $\beta = .41$, $p < 0.05$ respectively. Basic needs satisfaction positively predicted both engagement ($\beta = .49$, $p < 0.05$) and harmonious passion ($\beta = .43$, $p < 0.05$). In summary, the combined model predicted 34% of the variance in engagement and 27% of the variance in harmonious passion.

3.8 Discussion

Results supported the hypothesis that the effects of both TL and CAR quality were transferred onto athletes' perceptions of engagement in and harmonious passion for sport through the satisfaction of their needs for autonomy, competence, and relatedness. Consequently, a transformational-relational coaching environment associates with athletes' perceptions of engagement in sport (i.e., dedication, confidence, vigour and enthusiasm) and harmonious passion for sport (i.e., for the love and appreciation of participating in it) because it satisfies their basic psychological needs. It would appear that the social ingredients of a group phenomenon in the form of transformational leadership and of a dyadic phenomenon in the form of coach-athlete relationship create a transformational-relational coaching environment that is capable to trigger enthusiasm and excitement by fulfilling athletes' psychological needs. As engagement and passion are thought to be central for performance success and personal satisfaction (e.g., Vallerand, 2007), this study highlights that coaches have the means to reach these outcomes through their leadership behaviours and relationships. Moreover, the results of this study add to the evidence that the satisfaction of needs is important and support Ryan and Deci's (2001) assertion that "(...) positive relations with others [are] an essential element in human flourishing" (p.155).

A close examination of the findings of this study highlights that basic needs satisfaction partially explained the association between transformational leadership and wellbeing indicators, whereas the association between meta-perception of coach-athlete relationship and wellbeing was fully explained by the satisfaction of the three psychological needs. These results imply that the link between transformational leadership and the wellbeing indicators of engagement and harmonious passion may be explained by other mechanisms than the three basic needs satisfaction. Nonetheless, there is both theoretical evidence from transformational leadership theorists like Burns (1978) and Bass (Bass & Riggio, 2006) that acknowledges the important role of needs satisfaction, and empirical evidence from sport psychology researchers that supports the mediating role of needs between transformational leaders' influence and positive affect in sport (Stenling & Tafvelin, 2014). It is possible that the choice of outcomes determines whether basic needs satisfaction function as full mediators or not. For example, the results of a study conducted by Charbonneau, Barling and Kelloway (2001) showed that intrinsic motivation mediated the link between transformational leadership and sports

performance. Therefore it can be expected that the influence of transformational leadership can be fully transferred onto various outcomes by distinct mechanisms or different mediators other than the ones assessed in this study.

It has been suggested that empathy (Bass, 1990a) may be a key mediator as it captures social skills that transformational leaders require to achieve outcomes. In sport, empathy and communication strategies (e.g., openness, conflict management, social support; see Rhind & Jowett, 2010) as well as team cohesion and collective efficacy are interpersonal and group processes respectively that have been found to function as mediators within the context of coach-athlete relationship research (e.g., Hampson & Jowett, 2012; Lorimer & Jowett, 2009). Future research studies should examine such processes in the context of the transformational-relational coaching environment.

It is also important to mention that one of the transformational leadership subscales, namely, high performance expectations, was not considered in the mediation analysis due to the lack of significant correlations between this subscale and the rest of the TL subscales. Previous research also showed this component to be problematic. For example, in a study conducted by Vella et al. (2013b), after removing the high performance expectations subscale, the model gained a better fit. The notion of challenging expectations plays a crucial role in the transformational leadership theory (Bass & Bass, 2008) and the weak correlations within this study implies that further testing of the validity of the items representing high performance expectations may be required.

What would further appear interesting to note is that while needs satisfaction partially mediated the link between TL and wellbeing, the full mediation gained between CAR and wellbeing suggests the importance of transformational coaches to focus on developing and maintaining good quality relationships with each one athlete in the team as this seems to satisfy athletes' basic needs of competence, relatedness and autonomy. The effect of CAR on positive outcomes such as athletes' engagement in sport and passion for sport would seem to be effective through coaches' efforts to satisfy their athletes' basic needs. It would further appear that coaching relationships are more likely and directly to satisfy athletes' needs, whereas transformational leadership is more likely and more directly to associate with outcomes. Subsequently, as recent studies have highlighted, this study suggests that it might prove useful to study leadership and relationship variables together rather than in isolation because a combination of the two

concepts provides a much more informed picture of their effects (e.g., Chaundy & Jowett, 2004).

There are still numerous research questions awaiting answers such as, what are the effects of TL and CAR on dropout, burnout, and injury for example. Initial findings show that CAR was negatively associated with burnout (Isoard-Gauthier, Trouilloud, Gustafsson, & Guillet-Descas, 2016). With the findings of this study in mind, could it be that CAR acts as a buffer to negative outcomes because it stops athletes from feeling that their needs are undermined (cf. Felton & Jowett, 2015)? Moreover, as noted by Kidman (2005), “the key to the athlete-centred approach is a leadership style that caters to athletes’ needs and understandings where athletes are enabled to learn and have control of their participation in sport” (p. 16). TL values and acknowledges each member of the team through its construct of individual consideration (Bass & Riggio, 2006); however, this construct does not measure the quality of the connection developed by the leader (coach) and follower (athlete), nor the degree to which this connection is a genuine, close, and trustworthy one. Thus, the partial and full mediations may suggest that TL and CAR work in synergy and are both necessary when coaches wish to satisfy their athletes’ needs through CAR and achieve important outcomes through TL. Future research should focus more closely on the interplay between TL and CAR both cross-sectional and longitudinally.

In the present study, the quality of the coach-athlete relationship was measured through athletes’ meta-perspective. Meta-perspective “aims to assess the degree to which one relationship member can accurately infer the other member’s closeness, commitment, and complementarity” (Jowett, 2007; p. 17). Subsequently, athletes were assessing their coaches’ interpersonal thoughts, feelings, and behaviours towards them. Findings of this study suggest that connection between CAR meta-perspective and needs satisfaction ($r = .46$) is likely to have practical importance for the coaches. For example, coaches who emit behaviours that clearly and unambiguously demonstrate their trust, respect, commitment, responsiveness and consideration are more likely to be evaluated by their athletes positively. Thus, athletes who perceive a positive transformational-relational coaching environment are more likely to satisfy their needs and meet their goals while feeling confident, enthusiastic, energised, determined and happy.

3.8.1 Limitations and Future Research

There are limitations of the study that would need to be addressed. The data was collected only amongst athletes and an investigation of coaches' perspective could bring new and valuable information, especially in identifying other mediators responsible for transferring the effect of the transformational-relational environment on athletes but also coaches' wellbeing and performance outcomes. Conceptually and empirically, group dynamic constructs such coach leadership, collective efficacy and coach-athlete relationship have been found to be associated (Feltz & Chase, 1998; Hampson & Jowett, 2014). Thus, considering intragroup dynamics (e.g. team cohesion, collective efficacy, social identity) and analysing group data as opposed to individual data, could shed a new light on the creation of the effective coaching environments in team sports. Further, the cross-sectional design of the study does not permit drawing cause and effect inferences, and therefore, future research should employ experimental designs in order to draw causal conclusions. Last, intervention studies would assist in transferring empirical findings to the field of practice. Thus far, there is only one intervention study that implements a training programme for coaches based on transformational leadership principles (Vella, Oades & Crowe, 2013a). Interventions studies that integrate principles from both transformational leadership and coach-athlete relationships may help promote more effective coaching environment capable to both satisfy psychological needs and fulfil performance goals.

3.8.2 Conclusions

The present study expands understanding of the role transformational leadership and coach-athlete relationship play in athletes' engagement in and passion for sport. While the integration of BPNS as well as leadership and relationship is not new (Felton & Jowett, 2013; Reinboth et al., 2006), the findings of this study supplied new insights about the potentially differential roles basic needs satisfaction may play in the association between coach transformational leadership and outcomes as well as coach-athlete relationship and outcomes. Overall, the findings would suggest that the notions of transformational leadership and coach-athlete relationship may serve different functions though they complement one another to promote athletes' self-actualisation and psychological growth (Ryan & Deci, 2001).

CHAPTER 4: Study Two

The results of Study 1 showed that the transformational-relational coaching environment has the capacity to influence athletes' wellbeing indicators by satisfying basic psychological needs. Study 2 was designed to explore the effect transformational-relational coaching environment has on performance outcomes, and to investigate the temporal patterns of TL and CAR in one sporting season. The data was gathered in three distinct measurement points: at the beginning of the sporting season (at least in 4th week of the training), in the middle of the season (approximately 1.5-2 months after the initial assessment), and at the end of the season (2 weeks before the final game). The following research aims were set for Study 2:

- (1) To explore differences in perceptions of coaches TL style and coach-athlete relationship according to athletes' gender and coaching domains.
- (2) To separately investigate the temporal patterns of transformational leadership and coach-athlete relationship fluctuation during one whole sporting season.
- (3) To explore whether athletes' perceptions of TL and CAR at the end of the season can be predicted by the assessment of those constructs at the beginning and in the middle of the season.
- (4) To investigate the effect of an interplay between transformational leadership and coach-athlete relationship in three distinct parts of the sporting season on athletes' positive psychological outcomes measured at the end of the season.

This chapter will introduce the notion of the importance of studying the transformational-relational coaching environment in the context of performance orientated outcomes. Moreover, the connection between transformational leadership and coach-athlete relationship will be elaborated, as well as the temporal perspective on leadership and relationships.

4.1 Introduction

The transformational-relational coaching environment is reflected in transformational coaches who help their athletes develop skills necessary to win trophies, motivate them to be persistent in pursuit of their sporting dreams, and take a special

interest and devote time and energy to build positive relationships with their athletes. The transformational-relational coaching environment is important in the context of performance because studies have highlighted that its characteristics are connected with achieving performance accomplishments. For example, the results of a study conducted by Din, Paskevich, Gabriele, and Werthner (2015) explored Olympic medal-winning leadership. Interviews with ten coaches and twelve successful athletes (gold and silver medallists of 2010 Winter Olympic Games) revealed that the leadership environment preceding their Olympic podium finishes included, among other things, TL and CAR elements. The leadership styles of those Olympic coaches were based on individual connections with the athletes created over time, role modelling, and communicating appealing visions – elements that are specified in a description of transformational leadership (Bass & Riggio, 2006). Moreover, coaches were perceived as demanding and directive (providing clear expectations is a part of the Openness, one of the communication strategies described in COMPASS Model; Rhind & Jowett, 2012), and the relationships they built “allowed them to read the athlete accurately and understand when to issue a challenge or offer encouragement” (p. 595).

More specifically and in relation to relationships, the empirical findings have shown that an effective coach-athlete relationship has the capacity to increase outcomes which affect performance, such as team cohesion (Jowett & Chaundy, 2004), collective efficacy (Hampson & Jowett, 2014), and performance accomplishments (Olympiou, Jowett, & Duda, 2005b). In addition, studies investigating transformational leadership have shown that this kind of leadership is positively related to performance orientated outcomes such as collective efficacy (Price & Weiss, 2013; Jung & Sosik, 2002) and intrinsic motivation (Price & Weiss, 2013; Charbonneau, Barling, & Kelloway, 2001).

The existing body of research separately shows that transformational leadership and coach-athlete relationship affect variables connected with performance. However, current theories and models describing effective coaching environments have not made substantial efforts to connect and explore the two constructs together to show the effects of the interplay between TL and CAR. Moreover, the present study incorporated two important factors which affect coaching context: athletes’ gender and coaching domains. Studies have shown that athletes’ gender can affect coaches’ expectancies and the way they plan and conduct training sessions (Gilbert & Trudel, 2004a), and gender has been pointed out as an important individual difference characteristics, an antecedent of the coach-athlete relationship quality in the integrated research model of coach-athlete

relationships (Jowett & Poczwardowski, 2007). Moreover, coaching domains are viewed as “sporting milieus” which “place specific demands on the coach’s expertise and behaviours, and require domain-specific knowledge and understanding to operate within them” (Cushion & Lyle, 2010; p. 5). Interactions between coach and athletes are dependent on the coaching domain in which they train and compete; for example, whether a coach leads a university team or works with athletes competing in regional or national league outside of the collegiate environment, may have a substantial influence on e.g. goals, performance, and quality of interactions (e.g. in the case of the university sport, very often coaches provide a pastoral care to the athletes). Therefore, taking into account important context’s features (time of the sporting season, different coaching domains and athletes’ gender) the present study aimed to investigate the TL-CAR interplay in order to explore the dynamics sustaining a coaching environment which provides conditions for athletes to prosper.

4.2 The Connection between and Temporal Perspectives on Leadership and Coach-Athlete Relationship

The relationship developed between coaches and athletes is often perceived as central to athletes’ optimal functioning and to effective coaching (e.g. Lyle, 2002; Jowett, 2007). As mentioned in Chapter 2, the multidimensional model (MDML; Chelladurai, 2001) and the mediational model (Smoll & Smith, 1989) are the two most explored and described leadership models in sport psychology literature and they are used to study interpersonal interactions between coaches and athletes; however, they represent a uni-directional approach. Therefore, only the importance of coaches’ behaviours and their impact on athletes’ outcomes are acknowledged and the reciprocal effects of athletes’ behaviours and attitudes are omitted. Similarly, the transformational leadership model in sport (Callow et al., 2009) represents coaches’ actions towards athletes and, as concluded in Chapter 3, the influence of a coach when only leadership behaviours are taken into account may show an incomplete picture and insufficient understanding of the phenomena of a team sports environment. However, transformational leadership, by its properties (especially individual consideration), opens itself up to possible close connections with a genuinely close coach-athlete relationship.

There are only few empirical studies directly investigating the joint effects of coach leadership variables (measured either with the usage of Leadership Scale for Sport (LSS; Chelladurai & Saleh, 1980) or Differentiated Transformational Leadership Inventory (Callow et al., 2009; Hardy et al., 2010) with 3C's+1 conceptual model of coach-athlete relationship. Jowett and Chaundy (2004) investigated the impact of coach-athlete relationship quality and the leadership behaviours on task and social cohesion of university athletes. The results of this study showed that more variance in both types of cohesion was predicted when relational variables were included into leadership variable. Similarly, CAR quality and coach leadership were investigated as predictors of collective efficacy, and the results revealed that leadership variables predicted more of collective efficacy variance when coach-athlete relationship was added to the prediction (Hampson & Jowett, 2014). Further, the results of a study exploring a group of Scandinavian coaches and their perceptions of self-reported behavioural components of leadership and coach-athlete relationship demonstrated a positive relationship: between commitment and training and instruction, positive feedback and social support, and complementarity and training and instruction (Enoksen et al., 2014). Finally, the study conducted by Vella, Oades and Crowe (2013b) showed that when coach transformational leadership behaviours were combined with coach-athlete relationship quality it constituted the best predictor of the developmental experiences for young athletes.

Even though definitions of leadership portray that leadership involves the process of influence (Vroom & Jago, 2007) and that “relationships between followers and leaders occur over time, it is difficult, if not impossible, to consider leadership without time playing a role” (p. 657; Bluedorn & Jaussi, 2008), acknowledging temporal aspects in research on coaching behaviours (or leadership) and coach-athlete relationship remained unpopular until recently. Moreover, when it comes to exploring the temporal patterns, the transformational leadership and coach-athlete relationship has never been considered or studied together, and the separate investigations are limited.

Changes in perceptions of leadership outcomes are susceptible to external events (e.g. winning or losing a game) as well as the leader's reactions to these events (Shamir, 2011). For example, if a team loses a crucial game leading to exclusion from play-offs, which means for a coach that his contract will not be renewed next season, this event is likely to impact upon perceived motivation, team cohesion, as well as coach's commitment. However, a lost game in the first phase of a league competition that does not have immediate consequences on final classification, is likely to have a different

effect on athletes and a coach. Moreover, positive perception of some of the leadership behaviours may depend on the phase of a project or the moment in the sporting season. The leadership theory proposed by Kozlowski, Watola, Nowakowski, Kim, and Botero (2008) underlines that team development is a dynamic process and leadership has to be adaptable to different phases; therefore, the same leadership behaviours may have different effects on team or individual outcomes depending on the circumstances. Similarly in sport, perhaps a transformational leader who stimulates athletes to look at difficulties from different angles at the onset of the sporting season is seen as motivating and stimulating, whereas the same behaviours a week before the final game may add to the perception of pressure or cognitive overload. To our knowledge there is only one research study exploring longitudinally transformational leadership. Bormann and Rowold (2016) investigated the effect of transformational leadership presented by the head coaches on objective performance of professional German basketball players. The results of this study showed that two TL dimensions were effective in positively influencing players' performance: articulating a vision and individualized consideration; while fostering acceptance of group goals was found to negatively affect athletes' performance.

According to Cushion (2010) "neither coach, the player, nor the context has the capacity to unilaterally determine action; the key to understanding the coaching process lies in the relationship between the three variables" (p. 43), and the demands of various parts of the sporting season and the role of time in leadership processes may be seen as one of the crucial aspects of a coaching context. Lyle (2010) noted that the sporting season can be divided into: pre-season (or preparatory), competition season, and post-season (or play-offs), and each of those phases are characterised by emphasis on various elements of coaching practice. For example, during pre-season, the focus typically is on physical preparation, high volume of technical work, and gradually increasing importance of tactical preparation, whereas in a competitive season, the focus is on all physical, technical, tactical, and psychological aspects, and a variation in intensity, duration, and complexity is based on macrocycles, mesocycles, and microcycles. Correspondingly, it can be hypothesised that transformational leadership behaviours and elements of coach-athlete relationship may vary in their importance, frequency, and effect on athletes' psychological outcomes (and on each other) in those three distinct parts of the sporting season.

In recent years, sport psychology researchers began to consider temporal influences

within their investigations of coaching practice and coach-athlete relationship. For example, the results of a study on high performance coaches conducted by Bentzen, Lemyre and Kentaa (2016), where data was measured 3 weeks before the beginning of competitive season and 3 weeks before the end of the season, showed significant changes including a decrease in: perceived autonomy support, the basic needs satisfaction (autonomy, competence, and relatedness needs), vitality, and satisfaction with work, as well as an increase in: controlled motivation, exhaustion, cynicism, and reduced accomplishment. Moreover, the findings of this study revealed that perceived changes in workload positively predicted changes in exhaustion and cynicism, and negatively predicted changes in vitality, satisfaction with work, and in the need for autonomy, competence, and relatedness.

The length of a relationship may moderate the perceptions of relationship quality between coaches and athletes, as for example, in the early stages of a relationship, dyad members give more consideration to each other (Kenny & DePaulo, 1993). Research in the sports domain has proven that time affects athletes' interpersonal perceptions. In a study by Jowett and Clark-Carter (2006) findings showed that athletes who were in moderately developed relationships, were the most accurate in inferring the content of their coaches' commitment and complementarity. As the authors noted "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" (p. 632). Stronger associations between coach-athlete relationship interdependence and satisfaction with training and instruction, satisfaction with individual performance, and satisfaction with personal treatment were found for lengthier relationships than for shorter ones due to invested resources such as time or energy (Nezlek & Jowett, 2012).

4.3 The Present Study

Due to the fact that there is limited longitudinal research on coach transformational leadership and coach-athlete relationship, and that those constructs are based on a process of interactions and are changeable in nature, the aim of this study was to investigate how athletes' perceptions of the quality of CAR and TL fluctuate across the sporting season, and to explore the effect of their interplay (i.e. the transformational-relational environment) on performance-related outcomes. Coaching effectiveness is

perceived through the successful performance and/or positive psychological outcomes (e.g. winning games, increased wellbeing; Horn, 2008). The results of the first study described in Chapter 3 showed the positive effect of a transformational-relational coaching environment on the wellbeing indicators engagement in and harmonious passion for sport. This type of environment is likely to be considered as effective because, aside from the positive effect on wellbeing, it may also be beneficial to performance or performance-related outcomes. Both coach leadership and coach-athlete relationship have been studied in the context of performance orientated psychological outcomes (e.g. team cohesion, intra-team communication, satisfaction). Collective efficacy and intrinsic motivation are two constructs which have been identified as mediators of performance (Bandura, 2006; Bass & Riggio, 2006) and have also been explored in the contexts of transformational leadership (e.g. Price & Weiss, 2013; Charbonneau, Barling, & Kelloway, 2001) and coach-athlete relationship (e.g. Jowett, Shanmugam, & Caccoulis, 2012; Adie & Jowett, 2010). Therefore, collective efficacy and intrinsic motivation were chosen as measures of athletes' performance-orientated outcomes and they are described in the sections below.

Collective Efficacy. According to Bandura (1997), collective efficacy refers to a perception of team's capability to successfully perform a certain task, and it also has a capacity to influence performance (Hodges & Carron, 1992) or satisfaction (Feltz & Chase, 1998). As Jowett, Shanmugam, and Caccoulis (2012) suggested "collective efficacy is important for sport teams because cognitive (e.g., decision making), behavioural (e.g., performance accomplishments) and affective (e.g., satisfaction) outcomes are dependent on how team members independently and collectively interact and communicate" (p.66). Moreover, Feltz and Chase (1998) suggested that interpersonal behaviours demonstrated by coaches may affect a team's sense of collective efficacy, hence researchers in the domain of sport psychology have been studying collective efficacy in conjunction with coach-athlete relationship, as well as coach leadership.

The study conducted by Hampson and Jowett (2014) showed that a leadership variable when combined with coach-athlete relationship variable constituted a better predictor of collective efficacy than when was tested alone. Additionally, Jowett, Shanmugam, and Caccoulis (2012) underlined that "the manner in which an athlete interacts, communicates, and relates with the coach is likely to influence athletes' perceived collective efficacy in such a way that a sense of affiliation and competence transmits from one athlete to the next within the team (cf. Bandura, 1997)" (p. 69). The

results of their study demonstrated that collective efficacy constituted a mediator transferring an effect of CAR onto athletes' perception of satisfaction with strategy and team integration.

There are also research findings confirming the positive connection between leadership and collective efficacy. In a sport setting, it has been found that in a professional Iranian volleyball league, athletes' perceptions of their coaches' leadership behaviours (training and instruction, and social support) were positively correlated with collective efficacy (Keshtan, Ramzaninezhad, Kordshooli, & Panahi, 2010). Moreover, multivariate analyses of data from 180 university athletes revealed that changes in athletes' perceptions of collective efficacy over the length of one sporting season were significantly predicted by the perceptions of their coach's leadership behaviours (Ronayne, 2004). There was a positive correlation between perception of coaches' democratic behaviour, training and instruction, social support, positive and informational feedback, and athletes' level of collective efficacy. In the military domain, a study conducted by Bass, Avolio, Bearson, and Jung (2003) has demonstrated that the effect of platoon leaders' and sergeants' transformational leadership on a unit's performance was partially mediated by unit potency and cohesion. Moreover, it was found that transactional contingent reward and transformational leadership equally predicted unit performance, indicating the importance of contingent reward behaviours, which were originally conceptualised as transactional, for achieving high levels of performance.

Intrinsic Motivation. Intrinsic motivation refers to active engagement with tasks that a person finds enjoyable and interesting, without the necessity of obtaining any reward or avoiding punishment (Deci & Ryan, 2000). A plethora of research studies (e.g. Wu, Lai, & Chan, 2014; Banack, Sabiston, & Bloom, 2011; Zhang, Solmon, Kosma, Carson, & Gu, 2011) have shown that social-contextual factors may enhance intrinsic motivation by fulfilment of basic psychological needs for autonomy, competence, and relatedness. Even though the autonomy and competence needs have been found as the most important in affecting intrinsic motivation (Deci & Ryan, 2000), the need for relatedness has also been studied as a crucial contributor to the levels of intrinsic motivation. Positive relationships with significant people constitute the foundation of effective functioning (La Guardia & Patrick, 2008) and in an environment represented by ensured relatedness, it is more likely that intrinsic motivation will flourish (Ryan & La Guardia, 2000). The qualitative investigation of elite coach-athlete relationships revealed that relationships underlined by, among other things, mutual liking, trust, care, support,

and corresponding behaviours were also a source of improved performance and feelings of enjoyment (Jowett & Cockerill, 2003). As Deci and Ryan (2000) concluded: “a secure relational base appears to provide a needed backdrop - a distal support - for intrinsic motivation, a sense of security that makes the expression of this innate growth tendency more likely and more robust” (p. 235).

Leadership and coaching behaviours have been found to directly and indirectly affect intrinsic motivation. In a study conducted by Amorose and Horn (2000), the results showed that a coaching style characterised by a high level of training and instruction, a low level of autocratic behaviours, and a low level of non-reinforcement and ignoring mistakes significantly predicted athletes’ high level of intrinsic motivation. Moreover, it was demonstrated that athletes scoring high in two of the intrinsic motivation subscales: interest-enjoyment and perceived competence recognised their coaches as presenting high levels of training and instruction, social support, and positive feedback. Also, higher level of intrinsic motivation was found to be related to playing for democratic coaches (Vallerand & Rousseau, 2001) and receiving positive feedback from coaches (Vallerand, 1983). In transformational leadership in sport literature, intrinsic motivation was found to mediate the relationship between coach transformational behaviours and athletes’ performance at the end of the sporting season (Charbonneau, Barling, & Kelloway, 2001). The results demonstrated also that intellectual stimulation and individual consideration contributed more to perceived level of intrinsic motivation than did coaches’ charisma. Furthermore, in a youth sport setting it was shown that both coach and peer transformational leadership behaviours were positively related to female soccer players’ psychological and team outcomes including intrinsic motivation. However, when peer leadership and coach leadership were examined simultaneously, the results revealed that coach transformational leadership overshadowed peer leadership in relation to individual outcomes (Price & Weiss, 2013).

In the present study, the data was collected at three times throughout the sporting season: at the beginning (4 weeks into a sporting season), in the middle (approximately 1.5-2 months after the initial assessment), and at the end of the sporting season (approximately 2 weeks before the final game). Due to the fact that each of those three parts of the season are characterised by different demands and with the progress of time, and therefore probable change in the quality of relationships with coach and other teammates but also increased pressure on performance outcomes, it was speculated that

the pattern of leadership behaviours of a coach, as well as levels of closeness, commitment, and complementarity will vary.

The degree to which athletes feel connected with, trust and appreciate their coaches has a capacity to influence how they perceive coaching behaviours. On the other hand, exhibiting TL behaviours to various degree may alter the perception of a connection that coaches and athletes share. Therefore, the aim of this study was to explore the interplay between TL and CAR; specifically to answer the following research questions:

- (1) Are there differences in perceptions of coaches' transformational leadership style and coach-athlete relationship according to athletes' gender and coaching domains?
- (2) What are the temporal patterns of transformational leadership and coach-athlete relationship during one whole sporting season?
- (3) Is it possible to predict athletes' perceptions of transformational leadership and coach-athlete relationship at the end of the season through the assessment of those constructs earlier in the season?
- (4) What is the effect of the interplay between transformational leadership and coach-athlete relationship throughout the sporting season on athletes' positive psychological outcomes at the end of the season?

4.4 Method

4.4.1 Participants

Participants were asked to fill in questionnaires three times in a sporting season; 503 athletes took part in the first assessment, 122 athletes took part in first and second assessments, and finally a sample of 102 athletes took part in all three assessments. Athletes (final sample of 102) represented variety of team sports: volleyball (N=41), handball (N=17), rugby (N=12), American football (N=11), cricket (N=9), netball (N=8), hockey (N=2), ice hockey (N=1) and water polo (N=1) participated in the study. The sample had ages ranging from 16 to 39 ($M = 21.6$; $SD = 3.95$), consisted of 38% female and 62% male participants, and the athletes competed at either university (59%) or club (athletes belonging to clubs and competing in regional and national leagues; 41%) levels.

The criteria of participation included athletes who actively participated (trained and competed) in sports, who were planning to stay with the current team for the length of the whole sporting season, and who at that time have been working with a main coach for at least four weeks. All of the athletes stated that they worked with male coaches.

4.4.2 Procedure

After obtaining institutional ethical approval, the coaches were contacted via e-mail or in person to discuss the nature and purpose of the study and obtain permission to collect data. Prospective participants were informed about the confidentiality and anonymity of the research process and about a possibility to withdraw from the study at any point in time without giving a reason. Willing participants were asked to sign an informed consent and then complete a questionnaire either before, or after a practice three times in the sporting season; the questionnaire was available as a hard copy or online.

4.4.3 Measures

Transformational leadership. See section 3.6.3. All of the transformational leadership subscales in all three measurements had high reliabilities, all Cronbach's $\alpha > .70$, with an exception of the fostering acceptance of group goals subscale in first measurement ($\alpha = .67$). All of the reliability statistics are presented in Table 4.1.

Coach-athlete relationship. The quality of coach-athlete relationship was measured with a usage of the Coach–Athlete Relationship Questionnaire (CART-Q; Jowett & Ntoumanis, 2004, direct perspective). CART-Q was designed to measure three interpersonal constructs that define the quality of relationships: closeness (4 items; e.g. “I like my coach”), commitment (3 items; e.g. “I am committed to my coach”), and complementarity (3 items; e.g. “When I am coached by my coach, I am responsive to his/her efforts). Also, the meta-perspective of the CART-Q (Jowett, 2009) was used to assess athletes' perceptions of their coaches' closeness (e.g., “My coach respects me”), commitment (e.g., “My coach is committed to me”), and complementarity (e.g., “My coach adopts a friendly stance when he/she coaches me”). Both versions of this questionnaire contain 22 questions and the response scale ranged from 1 (Strongly disagree) to 7 (Strongly Agree). All of the CAR subscales in all three measurements had high reliabilities, all Cronbach's $\alpha > .70$, with an exception of the commitment subscale in first measurement ($\alpha = .67$). All of the reliability statistics are presented in Table 4.1.

Collective efficacy. Athletes' perception of their team's ability to collectively organize and execute a task was assessed using Collective Efficacy Questionnaire for Sports (CEQ; Short, Sullivan, & Feltz, 2005). CEQ comprises of a total of 20 items measuring five collective efficacy factors: ability (4 items; e.g. "Outplay the opposing team"), effort (4 items; e.g. "Overcome distractions"), persistence (4 items; e.g. "Stay in the game when it seems like your team isn't getting any breaks"), preparation (4 items; e.g. "Physically prepare for this competition"), and unity (4 items; e.g. "Maintain effective communication"). Athletes were asked to rate how confident they are that their team has various abilities in terms of the upcoming game or competition, and the response scale ranged from 1 (Not at all confident) to 7 (Extremely confident). The collective efficacy scale had high reliability, Cronbach's $\alpha = .94$.

Intrinsic motivation. The Intrinsic Motivation Inventory Interest/Enjoyment subscale (IMI; McAuley, Duncan, & Tammen, 1987) was used to evaluate athletes' level of subjective experience related to participation in their chosen sports. The Interest/Enjoyment subscale contains 7 items (e.g. "I enjoyed doing this activity very much") and the response scale ranged from 1 (Not at all true) to 7 (Very true). The intrinsic motivation scale had high reliability, Cronbach's $\alpha = .85$.

Table 4.1 Alpha Cronbach coefficients for all scales and subscales in all 3 measurement waves.

	I wave	II wave	III wave
TL	.93	.96	.96
IC	.85	.90	.83
IM	.86	.91	.83
IS	.78	.77	.83
HPE	.81	.84	.87
FAGG	.67	.81	.79
CR	.83	.85	.83
RM	.81	.86	.87
CAR	.90	.93	.92
CLO	.83	.90	.86
COM	.67	.78	.79
COMP	.81	.79	.82
MCAR	.91	.93	.93
MCLO	.82	.83	.85
MCOM	.72	.76	.77
MCOMP	.80	.84	.84
Collective Efficacy	X	X	.94
Intrinsic Motivation	X	X	.85

4.4.4 Data Analysis

In first part of the study, transformational leadership and coach-athlete relationship were described and analysed separately. Descriptive statistics including means (Ms), standard deviations (SDs), and correlations (r's) were calculated using IBM SPSS Statistics 20.

Following this initial analysis, all of the gathered data was amalgamated to analyse the season-long influence of TL and CAR on athletes' performance oriented outcomes. Based on the similarity in regards to perceived collective efficacy and intrinsic motivation, and with the usage of K-Means algorithm, participants were grouped into clusters. Silhouette coefficient, which is a cluster validity measure, was employed to relocate participants in the merging process (Aranganayagi & Thangavel, 2007). Further, prediction of participants' assignment to clusters, based on their perception of transformational leadership behaviours and coach-athlete relationship quality, was analysed with the usage of the logistic regression. The models were controlled for participants' gender and coaching domains (university athletes vs. club athletes), and Cluster 1 constituted a reference category.

Throughout this chapter, the following abbreviations are used: TL – transformational leadership (general score), IC – individualised consideration, IM – inspirational motivation, IS – intellectual stimulation, HPE – high performance expectations, FAGG – fostering acceptance of group goals, CR- contingent reward, RM – role modelling, CAR – coach-athlete relationship direct perspective (general score), CLO – closeness, COM – commitment, COMPL – complementarity, MCAR – coach-athlete relationship meta perspective (general score), MCLO – meta-closeness, MCOM – meta-commitment, and MCOMPL – meta-complementarity.

4.5 Results

4.5.1 Transformational Leadership

The analysis revealed high stability of the measured variables, and strong, positive correlations of all TL subscales between the first, second and third measurement. The only exceptions are CR and IC subscales where correlation between first and second measurement was non-significant (although in case of IC, the result was in accordance

with a statistical tendency). The results are shown in Table 4.1.

Table 4.2 Transformational leadership – Pearson’s r correlations of all TL subscales between all 3 measurement points.

	I-II wave	I-III wave	II-III wave
IC	0.191 [^]	0.227*	0.676***
IM	0.291**	0.314**	0.727***
IS	0.244*	0.282**	0.649***
HPE	0.497***	0.405***	0.688***
FAGG	0.201*	0.271**	0.700***
CR	0.163	0.254*	0.666***
RM	0.411***	0.459***	0.675***

[^]p < .10, *p < .05, **p < .01, ***p < .001

Table 4.2 shows descriptive statistics of transformational leadership subscales. Moreover, means (M) and standard deviations (SD) are presented separately for the athletes’ gender (male and female athletes) and the coaching domains (university athletes and club athletes).

Table 4.3 Mean (M) and standard deviation (SD) for all the subscales of transformational leadership at all 3 measurement points, and according to athletes’ gender and coaching domain.

TL subscales	General		Gender				Domain			
			Female		Male		University		Club	
	M	SD	M	SD	M	SD	M	SD	M	SD
IC1	5.66	0.75	5.89	0.69	5.51	0.76	5.65	0.74	5.69	0.77
IC2	5.47	0.89	5.33	1.05	5.56	0.78	5.25	0.96	5.77	0.68
IC3	5.43	0.96	5.40	1.05	5.44	0.91	5.18	1.04	5.78	0.69
IM1	5.90	0.75	6.17	0.53	5.74	0.82	5.89	0.77	5.92	0.74
IM2	5.64	0.90	5.62	0.97	5.65	0.87	5.42	0.98	5.95	0.68
IM3	5.67	0.84	5.79	0.84	5.59	0.83	5.53	0.93	5.86	0.63
IS1	5.36	0.92	5.57	0.74	5.22	0.99	5.34	0.93	5.38	0.91
IS2	5.22	0.88	5.10	0.96	5.30	0.82	4.97	0.96	5.58	0.69
IS3	5.22	0.92	5.19	0.97	5.23	0.89	4.99	1.04	5.53	0.71
HPE1	5.54	0.97	5.53	0.96	5.55	0.98	5.31	1.01	5.86	0.82
HPE2	5.66	0.99	5.58	0.97	5.71	1.01	5.35	1.11	6.09	0.56
HPE3	5.50	1.02	5.64	0.93	5.42	1.07	5.30	1.15	5.80	0.71

CR1	5.75	0.89	6.09	0.75	5.53	0.91	5.74	0.84	5.76	0.97
CR2	5.51	0.96	5.23	1.10	5.67	0.82	5.28	1.07	5.84	0.65
CR3	5.58	0.89	5.46	0.96	5.64	0.84	5.40	0.99	5.86	0.58
RM1	5.46	1.04	5.72	0.81	5.31	1.14	5.37	0.98	5.59	1.13
RM2	5.37	1.09	5.29	0.98	5.42	1.15	5.14	1.08	5.71	1.02
RM3	5.20	1.08	5.14	0.96	5.23	1.16	4.79	1.09	5.79	0.77
FAGG1	5.84	0.79	5.95	0.77	5.77	0.79	5.69	0.73	6.06	0.83
FAGG2	5.47	1.04	5.32	1.19	5.57	0.93	5.25	1.13	5.80	0.81
FAGG3	5.52	1.00	5.57	1.14	5.49	0.91	5.31	1.09	5.83	0.76

4.5.2 Coach-Athlete Relationship (Direct and Meta Perspectives)

The analysis revealed high stability of the measured variables. Pearson's r correlation showed strong, positive correlations of all CAR and MCAR subscales between first, second, and third measurement (see Table 4.3).

Table 4.4 Coach-athlete relationship (direct and meta) – Pearson's r correlations of all CAR and MCAR subscales between all 3 measurement points.

CAR and MCAR Subscales	I-II wave	I-III wave	II-III wave
Closeness	0.263**	0.192 [^]	0.654***
Commitment	0.260**	0.276**	0.552***
Complementarity	0.369***	0.266**	0.589***
Meta-Closeness	0.423***	0.287**	0.675***
Meta-Commitment	0.418***	0.369***	0.628***
Meta-Complementarity	0.448***	0.444***	0.570***

[^] $p < .10$, * $p < .05$, ** $p < .01$, *** $p < .001$

Table 4.4 shows descriptive statistics of all of the CAR and MCAR subscales at each of the three measurement points. Moreover, means (M) and standard deviations (SD) are presented separately for athletes' gender (male and female athletes) and the coaching domain (university athletes and club athletes).

Table 4.5 Mean (M) and standard deviation (SD) for all the subscales of coach-athlete relationship at all 3 measurement points, and according to athletes' gender and coaching domain.

CAR and MCAR subscales	General		Gender				Context			
			Female		Male		University		Club	
	M	SD	M	SD	M	SD	M	SD	M	SD
Clo1	6.13	0.77	6.27	0.77	6.05	0.76	6.17	0.76	6.09	0.79
Clo2	5.88	0.99	5.71	1.15	5.99	0.87	5.60	1.11	6.29	0.60
Clo3	5.85	0.94	5.88	0.94	5.83	0.94	5.60	1.01	6.21	0.68
Com1	5.21	0.85	5.15	0.78	5.25	0.89	5.02	0.84	5.49	0.78
Com2	5.22	0.98	5.09	1.05	5.30	0.93	4.94	1.02	5.62	0.77
Com3	4.97	1.05	4.67	1.25	5.15	0.87	4.61	1.07	5.48	0.79
Compl1	5.90	0.75	5.93	0.71	5.88	0.78	5.89	0.74	5.92	0.77
Compl2	5.70	0.82	5.67	0.84	5.72	0.82	5.51	0.86	5.98	0.69
Compl3	5.81	0.83	5.92	0.81	5.73	0.84	5.68	0.94	5.99	0.61
MClo1	5.49	0.89	5.50	0.87	5.48	0.91	5.42	0.84	5.58	0.96
MClo2	5.39	0.85	5.16	0.89	5.53	0.79	5.07	0.84	5.85	0.63
MClo3	5.42	0.93	5.33	1.04	5.45	0.86	5.09	0.97	5.88	0.64
MCom1	4.93	0.96	4.88	0.72	4.96	1.08	4.74	0.91	5.21	0.97
MCom2	4.90	0.96	4.66	1.08	5.04	0.86	4.56	0.56	5.30	0.75
MCom3	4.90	0.98	4.69	1.16	5.02	0.83	4.56	1.02	5.37	0.69
MCompl1	5.65	0.90	5.67	0.97	5.63	0.87	5.56	0.90	5.78	0.89
MCompl2	5.51	0.86	5.28	0.95	5.65	0.77	5.21	0.89	5.93	0.63
MCompl3	5.68	0.87	5.79	0.92	5.61	0.84	5.55	0.99	5.86	0.61

4.5.3 Transformational leadership and coach-athlete relationship in different parts of the sporting season according to athletes' gender and coaching domain

In order to separately investigate the perceptions of transformational leadership and coach-athlete relationship in three different parts of the sporting season according to athletes' gender and to their coaching domain (university athletes vs. club athletes), Mann-Whitney U-Test was utilised. At the beginning of the sporting season, male athletes perceived their coaches to be more transformational than the female athletes did

in regards to the following subscales: individual consideration ($p < .05$), inspirational motivation ($p < .01$), intellectual stimulation ($p = .06$), and contingent reward ($p < .001$). However, in the middle of the sporting season, female athletes perceived their coaches to show more contingent reward behaviours ($p = .061$). All other subscales showed no significant differences. In terms of the coaching domains, club athletes differ significantly from the university athletes in regards to fifteen measurements. Club athletes perceived their coaches to show significantly more behaviours of: inspirational motivation in the middle of the season, and individualised consideration, intellectual stimulation, contingent reward, and role modelling in the middle and at the end of the sporting season, as well as more high performance expectations and fostering acceptance of group goals across the whole sporting season, then did university athletes. All of the results are displayed in Table 4.5.

The analysis of coach-athlete relationship direct perspective revealed a statistical tendency that female athletes scored higher than male athletes on the commitment subscale. In the case of CAR meta perspective, the analysis demonstrated that in the mid-season, female athletes scored higher than the male athletes on the closeness and complementarity subscales. In terms of the coaching domains, club athletes differ significantly from the university athletes in regards to eleven measurements. Athletes in a club environment perceived to feel closer to their coaches and show more complementary behaviours in the middle and at the end of the season, as well as they were more committed to their coaches across the whole season, then the university athletes. Moreover, club athletes perceived that their coaches were more committed to them coaches across the whole season, they were closer in the middle and at the end of the season, and showed more complementary behaviours in the middle of the sporting season. The results are demonstrated in Table 4.6.

Table 4.6 The relationship between coaches' TL behaviours, and athletes' gender and coaching domains.

TL subscales	Male		Female		Difference		University		Club		Difference	
	Mean rank	Sum of ranks	Mean rank	Sum of ranks	U	p	Mean rank	Sum of ranks	Mean rank	Sum of ranks	U	p
IC1	45.66	2876.5	60.94	2376.5	860.5	0.011	51.48	3088.5	51.54	2164.5	1258.5	0.993
IC2	52.79	3326.0	49.41	1927.0	1147.0	0.572	44.60	2676.0	61.36	2577.0	846.0	0.004
IC3	51.56	3248.0	51.41	2005.0	1225.0	0.981	44.63	2678.0	61.31	2575.0	848.0	0.005
IM1	45.50	2866.5	61.19	2386.5	850.5	0.009	51.63	3098.0	51.31	2155.0	1252.0	0.958
IM2	51.51	3245.0	51.49	2008.0	1228.0	0.997	44.85	2691.0	61.00	2562.0	861.0	0.006
IM3	47.85	3014.5	57.40	2238.5	998.5	0.111	48.12	2887.0	56.33	2366.0	1057.0	0.166
IS1	47.18	2972.5	58.47	2280.5	956.5	0.060	51.61	3096.5	51.35	2156.5	1253.0	0.966
IS2	53.64	3379.5	48.04	1873.5	1093.5	0.349	42.58	2555.0	64.24	2698.0	725.0	0.000
IS3	51.83	3265.5	50.96	1987.5	1207.5	0.884	45.14	2708.5	60.58	2544.5	848.0	0.005
HPE1	51.87	3268.0	50.90	1985.0	1205.0	0.871	44.99	2699.5	60.80	2553.5	869.5	0.007
HPE2	53.80	3389.5	47.78	1863.5	1083.5	0.315	43.02	2581.0	63.62	2672.0	751.0	0.000
HPE3	49.23	3101.5	55.17	2151.5	1085.5	0.322	46.48	2788.5	58.68	2464.5	958.5	0.039
CR1	43.20	2721.5	64.91	2531.5	705.5	0.000	51.38	3082.5	51.68	2170.5	1252.5	0.961
CR2	55.79	3515.0	44.56	1738.0	958.0	0.061	45.44	2726.5	60.15	2526.5	896.5	0.013
CR3	50.48	3079.0	45.06	1577.0	947.0	0.355	43.85	2631.0	56.25	2025.0	801.0	0.033
FAGG1	48.52	3057.0	56.31	2196.0	1041.0	0.192	46.28	2776.5	58.96	2476.5	946.5	0.031
FAGG2	53.29	3357.5	48.60	1895.5	1115.5	0.433	45.58	2735.0	59.95	2518.0	905.0	0.015
FAGG3	49.24	3102.0	53.92	2049.0	1086.0	0.433	45.44	2726.5	59.13	2424.5	896.5	0.020
RM1	47.96	3021.5	57.22	2231.5	1005.5	0.123	47.91	2874.50	56.63	2378.5	1044.5	0.143
RM2	53.44	3366.5	48.37	1886.5	1106.5	0.399	44.63	2677.5	61.32	2575.5	847.5	0.005
RM3	52.60	3314.0	48.34	1837.0	1096.0	0.477	40.27	2416.0	66.71	2735.0	586.0	0.000

Table 4.7 The relationship between CAR and MCAR, and athletes' gender and coaching domain.

CAR and MCAR subscales	Male		Female		Difference		University		Club		Difference	
	Mean rank	Sum of ranks	Mean rank	Sum of ranks	U	p	Mean rank	Sum of ranks	Mean rank	Sum of ranks	U	p
Clo1	47.81	3012.0	57.46	2241.0	996.0	0.11	51.48	3088.5	51.54	2164.5	1258.5	0.993
Clo2	53.83	3391.5	47.73	1861.5	1081.5	0.31	44.60	2676.0	61.36	2577.0	846.0	0.004
Clo3	50.52	3183.0	53.08	2070.0	1167.0	0.67	44.63	2678.0	61.31	2575.0	848.0	0.005
Com1	52.99	3338.5	49.09	1914.5	1134.5	0.51	51.63	3098.0	51.31	2155.0	1252.0	0.958
Com2	52.76	3324.0	49.46	1929.0	1149.0	0.58	44.85	2691.0	61.00	2562.0	861.0	0.006
Com3	55.42	3491.5	45.17	1761.5	981.5	0.09	48.12	2887.0	56.33	2366.0	1057.0	0.166
Compl1	51.04	3215.5	52.24	2037.5	1199.5	0.84	51.61	3096.5	51.35	2156.5	1253.0	0.966
Compl2	52.30	3295.0	50.21	1958.0	1178.0	0.73	42.58	2555.0	64.24	2698.0	725.0	0.000
Compl3	49.27	3104.0	55.10	2149.0	1088.0	0.33	45.14	2708.5	60.58	2544.5	848.0	0.005
MClo1	51.49	3244.0	51.51	2009.0	1228.0	0.99	44.99	2699.5	60.80	2553.5	869.5	0.007
MClo2	55.91	3522.5	44.37	1730.5	950.5	0.05	43.02	2581.0	63.62	2672.0	751.0	0.000
MClo3	52.24	3291.0	50.31	1962.0	1182.0	0.75	46.48	2788.5	58.68	2464.5	958.5	0.039
MCom1	53.02	3340.5	49.04	1912.5	1132.5	0.51	51.38	3082.5	51.68	2170.5	1252.5	0.961
MCom2	54.75	3449.5	46.24	1803.5	1023.5	0.15	45.44	2726.5	60.15	2526.5	896.5	0.013
MCom3	54.00	3402.0	47.46	1851.0	1071.0	0.27	43.85	2631.0	56.25	2025.0	801.0	0.033
MCompl1	50.18	3161.5	53.63	2091.5	1145.5	0.57	46.28	2776.5	58.96	2476.5	946.5	0.031
MCompl2	55.40	3490.5	45.19	1762.5	982.5	0.09	45.58	2735.0	59.95	2518.0	905.0	0.015
MCompl3	48.70	3068.0	56.03	2185.0	1052.0	0.22	45.44	2726.5	59.13	2424.5	896.5	0.020

4.5.4 The Difference in Athletes' Perception of Coach Transformational Leadership in Various Parts of the Sporting Season

3 x 7 ANOVA (Part of the season by TL subscales) confirmed all 3 analysed effects:

- Main effect of measurement point: $F(2,146) = 4.60$; $p < .05$; $\eta^2 = 0.046$,
- Main effect of subscales: $F(4,288) = 14.56$; $p < .001$; $\eta^2 = 0.133$,
- Interaction: $F(9,811) = 2.70$; $p < .01$; $\eta^2 = 0.028$.

When examining the main effect of the measurement point, the participants showed a significant decrease in perception of TL at the end of the sporting season in comparison to the beginning of the sporting season ($p < .05$), $M1 = 5.63$, $M2 = 5.45$, and $M3 = 5.41$. Moreover, post hoc analysis with Sidak correction showed differences in average scores of different TL subscales: the IS and RM scores were significantly lower than other TL subscales ($p < .05$) (see Figure 4.1).

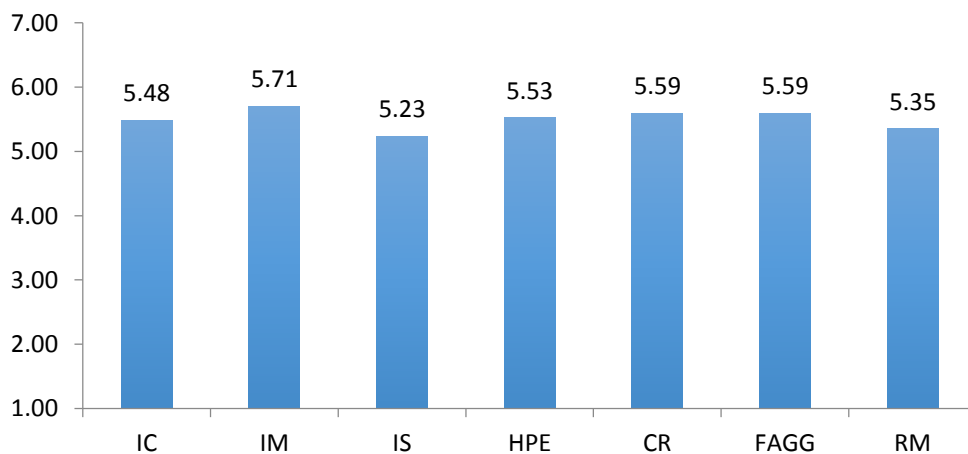


Figure 4.1 Average results of TL subscales.

The interaction effects were calculated using direct effects with Sidak correction. The analysis revealed that in the cases of the IC, IS, HPE, and CR subscales there were no differences between the different times of the sporting season. The analysis of IM and FAGG subscales showed a significant decrease in the middle and at the end of the sporting season (in comparison with the results at the beginning of the sporting season), and the RM subscale decreased significantly between first and third measurement. Figure

4.2 shows the differences between all of TL subscales at all three measurement points.

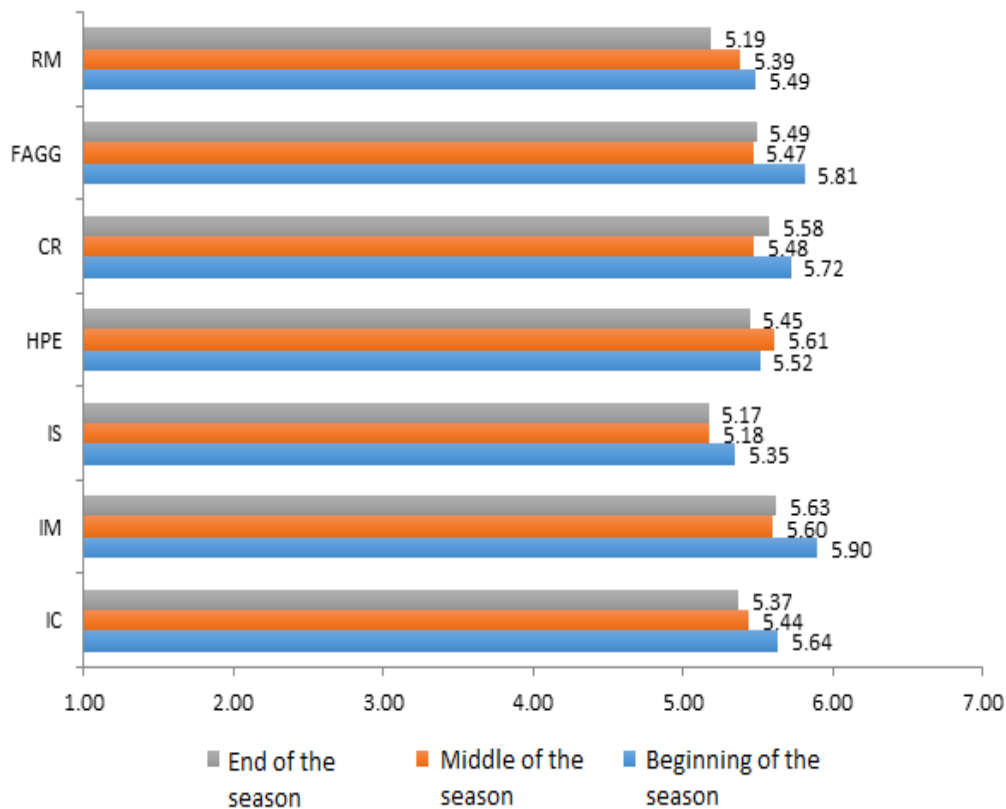


Figure 4.2 TL subscales across the whole sporting season.

4.5.5 The Difference in Athletes' Perception of Coach-Athlete Relationship (Direct) in Various Parts of the Sporting Season

3 x 3 ANOVA (Part of the season by CAR subscales) confirmed all 3 effects:

- Main effect of measurement point: $F(2,179) = 3.28$; $p < .05$; $\eta^2 = 0.031$,
- Main effect of subscales: $F(2,171) = 175.92$; $p < .001$; $\eta^2 = 0.635$,
- Interaction: $F(3,347) = 5.24$; $p < .01$; $\eta^2 = 0.049$.

The participants scored significantly lower in their perception of CAR (direct perspective) at the end of the sporting season in comparison to the beginning of the sporting season (the difference was significant at the $p < .05$ level), $M1 = 5.75$, $M2 = 5.60$, and $M3 = 5.54$. Moreover, the participants scored significantly lower on the commitment subscale in comparison to the closeness and complementarity subscales ($p < .001$) (see Figure 4.3).

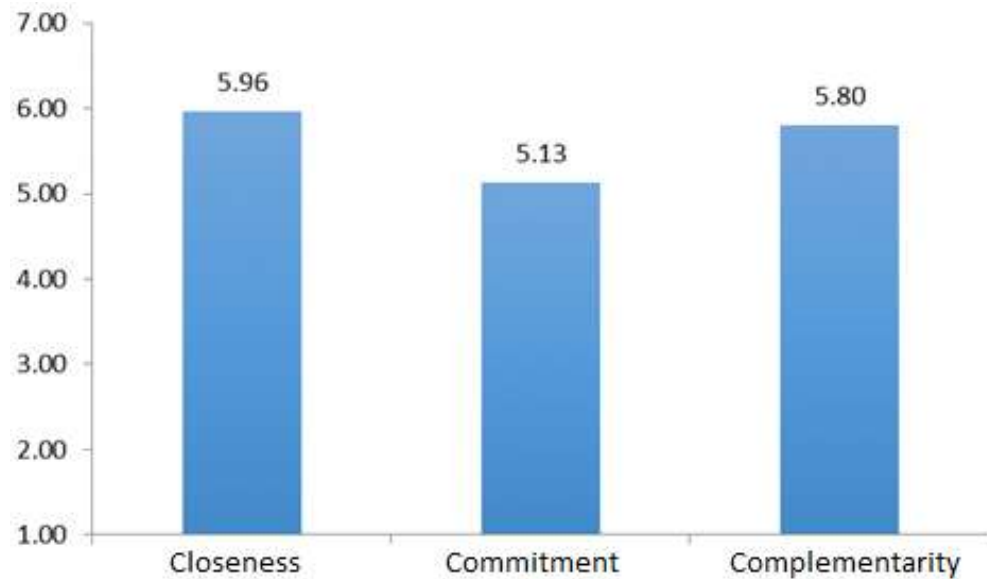


Figure 4.3 Average closeness, commitment, and complementarity scores across the sporting season.

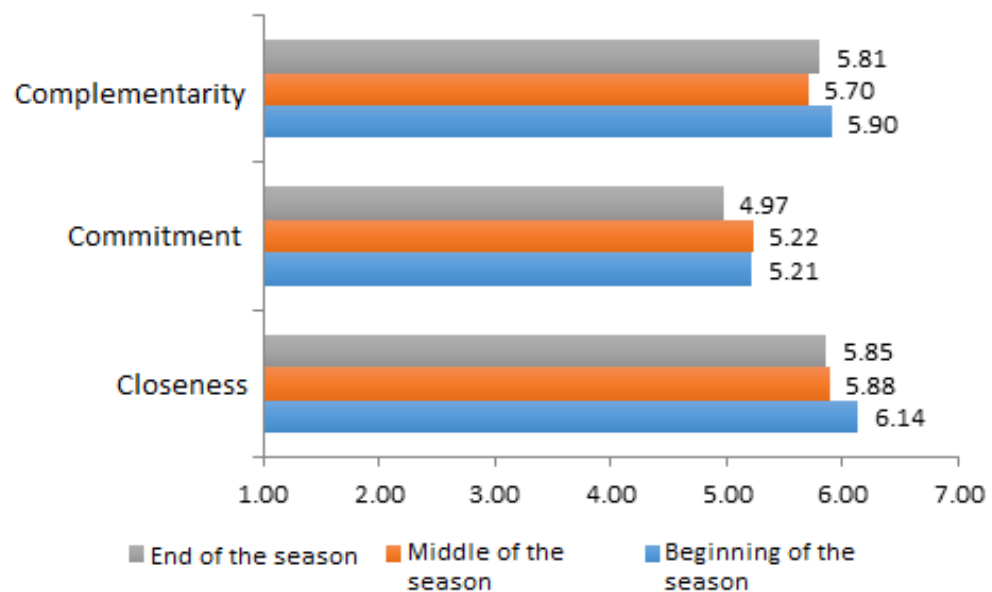


Figure 4.4 Average scores of CAR subscales in various parts of the sporting season.

The analysis of the interaction's direct effects showed that in the case of the complementarity subscale there were no differences between athletes' responses in various parts of the sporting season. The closeness subscale showed a significant decrease between first and third measurement ($p < .05$), and the commitment subscale displayed a significant decrease between second and third measurement point ($p < .05$) (see Figure 4.4).

4.5.6 The Difference in Athletes' Perception of Coach-Athlete Relationship (Meta) in Various Parts of the Sporting Season

3 x 3 ANOVA (Part of the season by MCAR subscales) demonstrated that only the main effect of the subscales was significant:

- Main effect of measurement point: $F(2,176) = 0.69$; $p > .05$,
- Main effect of subscales: $F(1,149) = 131.71$; $p < .001$; $\eta^2 = 0.566$,
- Interaction: $F(3,343) = 1.30$; $p > .05$.

The results of the main effect of the subscales was analogous to the results of the CAR direct perspective. The participants scored significantly lower on the commitment subscale than on the closeness and complementarity subscales. The differences between the subscales were significant at the $p < .001$ level and are displayed in Figure 4.5.

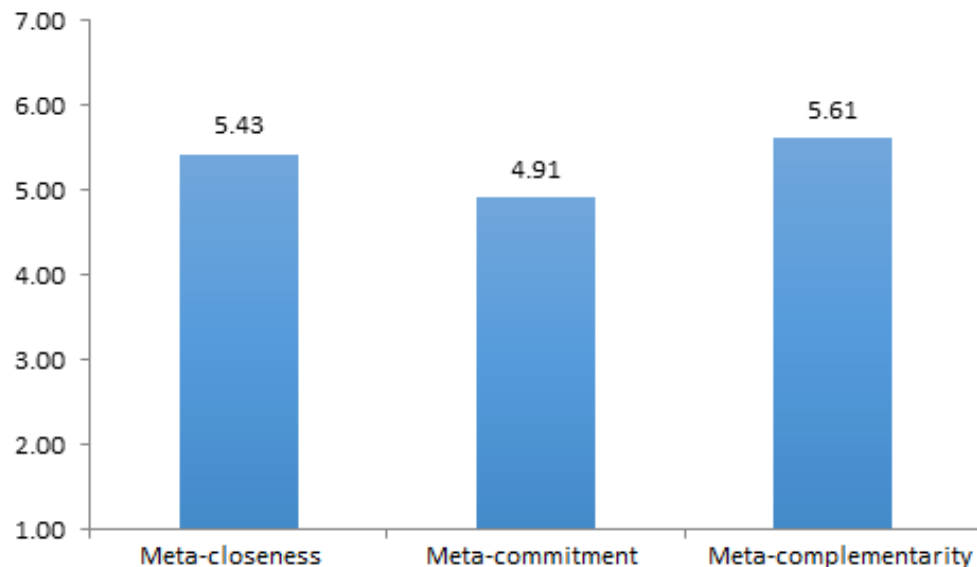


Figure 4.5 Average scores for meta-closeness, meta-commitment, and meta-complementarity scores across the sporting season.

4.5.7 The Relationship between Transformational Leadership and Coach-Athlete Relationship in Various Parts of the Sporting Season

Pearson r correlations were used to test whether there are significant relationships between TL subscales and the subscales of CAR and MCAR. Separate analyses were conducted for each measurement point (see Table 4.7). The results have shown that all of TL subscales were significantly correlated with all subscales of CAR and MCAR.

Table 4.8 Correlations between TL subscales and CAR and MCAR subscales in three measurement points.

TL Subscales	Clo1	Com1	Compl1	MClo1	MCom1	MCompl1
IC1	.574**	.525**	.569**	.443**	.364**	.481**
IM1	.602**	.400**	.570**	.385**	.267**	.491**
IS1	.469**	.424**	.517**	.303**	.359**	.370**
HPE1	.357**	.554**	.471**	.263**	.329**	.327**
CR1	.543**	.280**	.468**	.367**	.219*	.443**
FAGG1	.527**	.556**	.534**	.397**	.480**	.471**
RM1	.516**	.304**	.458**	.226*	.275**	.312**
	Clo2	Com2	Compl2	MClo2	MCom2	MCompl2
IC2	.654**	.644**	.548**	.592**	.570**	.626**
IM2	.707**	.669**	.688**	.619**	.565**	.664**
IS2	.666**	.745**	.562**	.598**	.650**	.684**
HPE2	.448**	.504**	.455**	.446**	.387**	.477**
CR2	.740**	.710**	.632**	.708**	.633**	.722**
FAGG2	.590**	.598**	.533**	.580**	.521**	.602**
RM2	.556**	.568**	.482**	.476**	.395**	.508**
	Clo3	Com3	Compl3	MClo3	MCom3	MCompl3
IC3	.605**	.637**	.551**	.661**	.618**	.578**
IM3	.584**	.578**	.522**	.596**	.580**	.588**
IS3	.619**	.621**	.549**	.578**	.533**	.547**
HPE3	.367**	.386**	.375**	.350**	.367**	.389**
CR3	.595**	.617**	.515**	.645**	.607**	.555**
FAGG3	.524**	.582**	.479**	.625**	.574**	.531**
RM3	.536**	.514**	.494**	.570**	.532**	.530**

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

4.5.8 Predicting Transformational Leadership and Coach-Athlete Relationship Levels at the End of the Sporting Season

Hierarchical regression analysis was used to analyse models showing whether it is

possible to predict TL and CAR levels at the end of the sporting season based on the results athletes scored at the beginning and in the middle of the sporting season. According to Cohen, Cohen, West and Aiken (2003), by the means of a hierarchical analysis one can produce a reduced form equation in which variables are entered in order of causal priority. In the present study, the results from the first measurement (beginning of the sporting season) were entered in the first step and the results from the second measurement (middle of the sporting season) were entered in the second step. The results are displayed below for each of the subscale.

4.5.8.1 Transformational leadership

In the case of four TL dimensions: individual consideration (IC), inspirational motivation (IM), intellectual stimulation (IS), and high performance expectations (HPE), both steps were significant and adding the results of the second measurement changed the significance of the measurement 1 predictor and increased the percentage of explained variance at the end of the sporting season ($p < .001$).

Individual Consideration

- 1. Step: $F(1,101) = 5.41$; $p < .05$; $R^2 = 0.051$, $R = 0.227$,
- 2. Step: $F(2,101) = 43.31$; $p < .001$; $R^2 = 0.456$, $R = 0.683$.

Inspirational Motivation

- 1. Step: $F(1,101) = 10.94$; $p < .01$; $R^2 = 0.099$, $R = 0.314$,
- 2. Step: $F(2,101) = 58.01$; $p < .001$; $R^2 = 0.530$, $R = 0.735$.

Intellectual Stimulation

- 1. Step: $F(1,101) = 8.67$; $p < .01$; $R^2 = 0.080$, $R = .282$,
- 2. Step: $F(2,101) = 38.48$; $p < .001$; $R^2 = 0.426$, $R = .661$.

High Performance Expectations

- 1. Step: $F(1,101) = 19.65$; $p < .01$; $R^2 = 0.164$, $R = 0.405$,
- 2. Step: $F(2,101) = 45.52$; $p < .001$; $R^2 = 0.469$, $R = 0.692$.

In the case of contingent reward (CR), fostering acceptance of group goals (FAGG), and role modelling (RM) also both steps of the analysis were significant, but adding the results of the second measurement only decreased the significance of the measurement 1 predictor and increased the percentage of explained variance at the end of the sporting season ($p < .001$). Table 4.8 displays all the results.

Contingent Reward

- 1. Step: $F(1,95) = 6.46$; $p < .05$; $R^2 = 0.064$, $R = 0.254$,
- 2. Step: $F(2,95) = 40.68$; $p < .001$; $R^2 = 0.455$, $R = 0.683$.

Fostering Acceptance of Group Goals

- 1. Step: $F(1,100) = 7.84$; $p < .01$; $R^2 = 0.073$, $R = 0.271$,
- 2. Step: $F(2,100) = 50.14$; $p < .001$; $R^2 = 0.496$, $R = 0.711$.

Role Modelling

- 1. Step: $F(1,100) = 26.40$; $p < .001$; $R^2 = 0.211$, $R = 0.459$,
- 2. Step: $F(2,100) = 46.53$; $p < .001$; $R^2 = 0.477$, $R = 0.698$.

Table 4.9 Results of the hierarchical regression analysis of all transformational leadership dimensions.

Model	Unstandardized Coefficients		Standardized Coefficients		Sig.
	B	Std. Error	Beta	t	
1 (Constant)	3.791	0.709		5.347	.000
IC1	0.289	0.124	0.227	2.327	.022
2 (Constant)	0.838	0.631		1.327	.188
IC1	0.129	0.095	0.101	1.353	.179
IC2	0.706	0.080	0.657	8.780	.000
1 (Constant)	3.602	0.629		5.725	.000
IM1	0.350	0.106	0.314	3.307	.001
2 (Constant)	1.308	0.510		2.567	.012
IM1	0.125	0.079	0.112	1.570	.120
IM2	0.643	0.066	0.694	9.737	.000
1 (Constant)	3.698	0.523		7.075	.000
IS1	0.283	0.096	0.282	2.944	.004
2 (Constant)	1.153	0.521		2.212	.029
IS1	0.132	0.078	0.132	1.698	.093
IS2	0.642	0.081	0.617	7.932	.000
1 (Constant)	3.146	0.540		5.826	.000
HPE1	0.426	0.096	0.405	4.433	.000
2 (Constant)	1.252	0.494		2.536	.013
HPE1	0.088	0.088	0.084	1.008	.316
HPE2	0.665	0.086	0.646	7.735	.000
1 (Constant)	4.121	0.579		7.117	.000
CR1	0.254	0.100	0.254	2.541	.013
2 (Constant)	1.463	0.542		2.698	.008

	CR1	0.155	0.077	0.155	2.018	.046
	CR2	0.589	0.070	0.642	8.376	.000
1	(Constant)	3.518	0.721		4.881	.000
	FAGG1	0.342	0.122	0.271	2.801	.006
2	(Constant)	1.032	0.593		1.740	.085
	FAGG1	0.164	0.092	0.130	1.784	.078
	FAGG2	0.646	0.070	0.673	9.259	.000
1	(Constant)	2.606	0.514		5.074	.000
	RM1	0.474	0.092	0.459	5.138	.000
2	(Constant)	0.941	0.475		1.982	.050
	RM1	0.205	0.083	0.198	2.453	.016
	RM2	0.585	0.080	0.587	7.269	.000

4.5.8.2 Coach-athlete relationship (direct and meta perspectives)

In the case of four CAR dimensions: commitment, complementarity, meta-closeness, and meta-commitment, both steps were significant and adding the results of the second measurement changed the significance of the measurement 1 predictor and increased the percentage of commitment variance explained at the end of the sporting season ($p < .001$).

Commitment

- 1. Step: $F(1,101) = 8.22$; $p < 0,01$; $R^2 = 0.076$, $R = 0.276$,
- 2. Step: $F(2,101) = 23.62$; $p < 0.001$; $R^2 = 0.309$, $R = 0.568$.

Complementarity

- 1. Step: $F(1,101) = 7.62$; $p < .01$; $R^2 = 0.071$, $R = 0.266$,
- 2. Step: $F(2,101) = 26.58$; $p < .001$; $R^2 = 0.336$, $R = 0.591$.

Meta Closeness

- 1. Step: $F(1,101) = 8.98$; $p < .01$; $R^2 = 0.082$, $R = 0.287$,
- 2. Step: $F(2,101) = 41.34$; $p < .001$; $R^2 = 0.444$, $R = 0.675$.

Meta Commitment

- 1. Step: $F(1,101) = 15.72$; $p < .001$; $R^2 = 0.136$, $R = 0.369$,
- 2. Step: $F(2,101) = 34.11$; $p < .001$; $R^2 = 0.396$, $R = 0.639$.

In the case of closeness and meta-complementarity also both steps of the analysis were significant, but adding the results of the second measurement only decreased the significance of the measurement 1 predictor and increased the percentage of explained variance at the end of the sporting season ($p < .001$). Table 4.9 displays all the results.

Closeness

- 1. Step: $F(1,101) = 3.82$; $p = .054$; $R^2 = 0.037$, $R = 0.192$,
- 2. Step: $F(2,101) = 37.08$; $p < .001$; $R^2 = 0.417$, $R = 0.654$.

Meta Complementarity

- 1. Step: $F(1,101) = 24.52$; $p < .001$; $R^2 = 0.197$, $R = 0.444$,
- 2. Step: $F(2,101) = 29.00$; $p < .001$; $R^2 = 0.357$, $R = 0.608$.

Table 4.10 Results of the hierarchical regression analysis of all coach-athlete relationship dimensions.

Model	Unstandardized		Standardized		Sig.
	B	Std. Error	Beta	t	
1 (Constant)	4.425	0.737		6.005	.000
Clo1	0.233	0.119	0.192	1.953	.054
2 (Constant)	2.085	0.637		3.272	.001
Clo1	0.026	0.096	0.021	0.267	.790
Clo2	0.614	0.075	0.649	8.234	.000
1 (Constant)	3.186	0.629		5.061	0.000
Com1	0.342	0.119	0.276	2.867	0.005
2 (Constant)	1.167	0.637		1.831	0.070
Com1	0.176	0.106	0.142	1.653	0.101
Com2	0.552	0.092	0.515	6.010	0.000
1 (Constant)	4.073	0.633		6.437	.000
Compl1	0.294	0.106	0.266	2.761	.007
2 (Constant)	2.169	0.607		3.572	.001
Compl1	0.062	0.096	0.056	0.647	.519
Compl2	0.574	0.088	0.568	6.510	.000
1 (Constant)	3.771	0.556		6.776	.000
MClo1	0.300	0.100	0.287	2.996	.003
2 (Constant)	1.435	0.516		2.782	.006
MClo1	0.003	0.086	0.002	0.030	.976
MClo2	0.737	0.090	0.674	8.229	.000
1 (Constant)	3.038	0.477		6.367	.000
MCom1	0.377	0.095	0.369	3.964	.000
2 (Constant)	1.387	0.466		2.975	.004

	MCom1	0.131	0.087	0.129	1.510	.134
	MCom2	0.584	0.087	0.574	6.746	.000
1	(Constant)	3.260	0.494		6.597	.000
	MCompl1	0.428	0.086	0.444	4.952	.000
2	(Constant)	1.799	0.522		3.446	.001
	MCompl1	0.227	0.086	0.235	2.636	.010
	MCompl2	0.471	0.091	0.465	5.204	.000

4.5.9 Season-Long Influence of Transformational Leadership and Coach-Athlete Relationship on Athletes' Performance Orientated Outcomes

Firstly, multiple regression analysis for intrinsic motivation and collective efficacy separately were conducted to assess whether transformational leadership and coach-athlete relationship measured at the beginning of the season can predict those two performance orientated outcomes measured at the end of a season. The analyses were performed separately for the university and club athletes, and the results are presented in Table 4.11.

Table 4.11 Multiple regression analysis predicting separately collective efficacy and intrinsic motivation

		B	SE B	β	Sig.
Intrinsic Motivation					
University	Constant	3.40	.88		.00
	TL1	-.12	.21	-.09	.58
	CAR1	.59	.20	.51	.01
Club	Constant	4.31	1.01		.00
	TL1	.01	.32	.01	.98
	CAR1	.29	.31	.28	.35
Collective Efficacy					
University	Constant	3.72	.88		.00
	TL1	.52	.21	.45	.05
	CAR1	-.23	.19	-.21	.25
Club	Constant	3.48	1.07		.01
	TL1	.74	.35	.63	.05
	CAR1	-.47	.33	-.43	.16

The results have shown that in the case of the intrinsic motivation, this variable (measured at the end of a sporting season) can be predicted by only coach-athlete relationship; TL behaviours did not constitute a significant predictor. The model turned out to be nonsignificant for the club athletes. In the second analysis, only TL behaviours were found to constitute a significant predictor of collective efficacy for both groups of athletes.

In the second step, intrinsic motivation and collective efficacy were considered together and on the basis of a K-means cluster analysis, the results revealed that scores of collective efficacy and intrinsic motivation allow significant assignment of the participants to three independent homogenous clusters ($p < .001$). Twelve participants were excluded from the analysis due to heterogeneity with the three created clusters. Moreover, the Silhouette coefficient, which shows high internal reliability and high heterogeneity between the clusters, was calculated. Brief characterisations of the created clusters are presented below and the results are displayed in Figure 4.6:

- Cluster 1 (n = 39) describes athletes with high results on both collective efficacy and intrinsic motivation scales; Silhouette coefficient = 0.69,
- Cluster 2 (n = 28) describes athletes with low collective efficacy scores and average scores on intrinsic motivation scale; Silhouette coefficient = 0.75,
- Cluster 3 (n = 22) describes athletes with average collective efficacy scores and low scores on intrinsic motivation scale; Silhouette coefficient = 0.74.

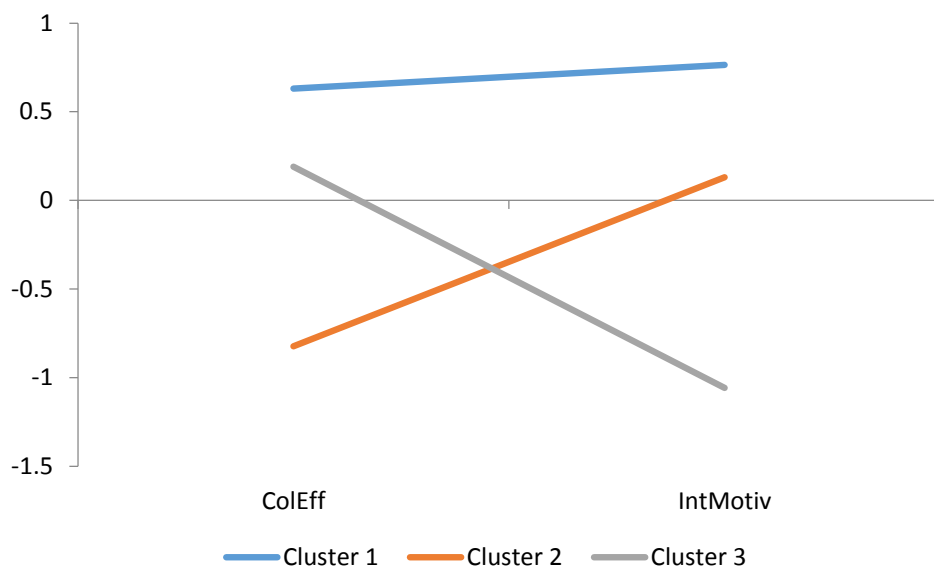


Figure 4.6 The graphical characteristics of the created clusters.

Further analysis did not confirm the hypothesis that the cluster assignment depends on participants' gender ($\chi^2 (2) = 4.11; p > .05$). However, the column proportions with Bonferroni correction demonstrated that there were significantly more male participants in cluster 2 than female participants ($p < .05$). The results are displayed in Table 4.10.

Table 4.12 Relationship between clusters and participants gender.

Cluster	Gender		Total
	Male	Female	
1	37.7% ^a	52.8% ^a	43.80%
2	39.6% ^a	19.4% ^b	31.50%
3	22.6% ^a	27.8% ^a	24.70%
Total	100.00%	100.00%	100.00%

Note: Each letter refers to a sub-category of gender in which the column proportions are the same on a level: $p < .05$.

Moreover, the analysis revealed that there is a significant relationship between the created clusters and coaching domains (university or club) $\chi^2 (2) = 6.97; p < .05$. The column proportions with Bonferroni correction showed that there were significant differences— club athletes were more often classified to cluster 2 ($p < .05$; see Table 4.11).

Table 4.13 Relationship between clusters and coaching domains.

Cluster	Coaching Domains		Total
	University	Club	
1	50.9% ^a	33.3% ^a	43.80%
2	20.8% ^a	47.2% ^b	31.50%
3	28.3% ^a	19.4% ^a	24.70%
Total	100.00%	100.00%	100.00%

Note: Each letter refers to a sub-category of coaching domains in which the column proportions are the same on a level: $p < .05$.

Logistic regression analysis was used to test whether it is possible to predict cluster assignment based on athletes' perception of transformational leadership and coach-athlete relationship (direct perspective). The models were controlled for participants' gender and coaching domain. Cluster 1 constituted a reference category

(high scores of collective efficacy and intrinsic motivation at the end of the sporting season).

In the case of transformational leadership, the model did not fit the data well ($\chi^2(10) = 13.68$; $p > .05$); however, the model created for coach-athlete relationship showed a good fit to the data ($\chi^2(10) = 26.40$; $p < .01$). The CAR model explained 29.1% of the cluster classification variance. When comparing cluster 2 to 1, the results demonstrated there was an 82.7% decrease in probability of assignment to cluster 2 in the case of university athletes. In addition, there is a statistical tendency that the higher the score of coach-athlete relationship at the end of a season, the lower probability (54.6%) of assignment to cluster 2 ($p = .092$). When comparing clusters 3 to 1, the analysis revealed that with an increase in CAR quality (measurement 1, at the beginning of a season), there was a 69% decrease in the probability of being classified to cluster 3 ($p < .05$). The results are displayed in Table 4.12.

Table 4.14 Wald statistic (Wald) showing contribution of the predictors to clusters' assignment and the odds ratio (Exp(B)) indicating the change in odds resulting from a unit change in the predictor.

Cluster		B	Std. Error	Wald	Sig.	Exp(B)
2	Constant	7.159	3.533	4.106	.043	
	CAR1	-0.129	0.461	0.078	.780	0.879
	CAR2	-0.295	0.454	0.422	.516	0.744
	CAR3	-0.790	0.469	2.834	.092	0.454
	[Gender=1.00]	0.555	0.621	0.801	.371	1.743
	[PC=1.00]	-1.756	0.671	6.861	.009	0.173
3	Constant	9.239	3.506	6.943	.008	
	CAR1	-1.170	0.488	5.735	.017	0.310
	CAR2	-0.469	0.470	0.997	.318	0.625
	CAR3	-0.035	0.503	0.005	.944	0.965
	[Gender=1.00]	0.027	0.627	0.002	.966	1.027
	[PC=1.00]	-0.408	0.729	0.313	.576	0.665

Note: Reference category is: Cluster 1.

Hierarchical logistic regression was used to compare (separately for the university and club athletes) two pairs of clusters: 1 and 2, and 1 and 3. This analysis was conducted due to the fact that the models tested without the division of coaching domains were not significant, whereas models divided by the coaching domain fitted the data well.

When comparing clusters 1 and 2, the model showed good fit to the data for the university athletes ($\chi^2(6) = 17.70$; $p < .01$), as well as for the club athletes ($\chi^2(6) = 12.35$; $p = .055$). The model for the university athletes explains 36.9% of the cluster 1 and 2 classification variance and the model for the club athletes explains 34.7% of the variance. Furthermore, there was a high level of accuracy between the observed data and model's predictions. In the case of university athletes, the accuracy equalled 81.6% and the model allowed better prediction of assignment to cluster 1 (92.6%) than to cluster 2 (54.5%). For the club athletes, the accuracy equalled 72.4%, and the model allowed better prediction of assignment to cluster 2 (82.4%) than to cluster 1 (58.3%).

The results showed that in case of the university athletes, only CAR and TL measured at the beginning of the sporting season constituted significant predictors of cluster assignment – with an increase of CAR1 and TL1 there was an increase of the probability to be assigned to cluster 2. Moreover, there was a significant interaction effect of CAR and TL in the 1st measurement ($p = .068$). The analysis did not reveal any significant predictors for the club athletes. The results are shown in Table 4.13.

Table 4.15 Wald statistic (Wald) showing contribution of the predictors to clusters 1 and 2 assignment and the odds ratio (Exp(B)) indicating the change in odds resulting from a unit change in the predictor.

Perf. Context		B	Std. Error	Wald	p
University	TL1	20.13	11.525	3.051	.081
	CAR1	20.736	10.819	3.673	.055
	CAR1 by TL1	-3.819	2.091	3.336	.068
	TL3	0.896	4.352	0.042	.837
	CAR3	-2.01	4.379	0.211	.646
	CAR3 by TL3	-0.072	0.85	0.007	.933
	Constant	-101.523	59.603	2.901	.089
Club	TL1	-15.82	10.739	2.17	.141
	CAR1	-7.354	10.059	0.534	.465
	CAR1 by TL1	1.969	1.71	1.327	.249
	TL3	-25.36	15.568	2.654	.103
	CAR3	-23.437	15.058	2.423	.120
	CAR3 by TL3	3.968	2.514	2.492	.114
	Constant	216.359	113.292	3.647	.056

Detailed analysis of the interaction effect showed that the observed relationship is true only for athletes with high scores on the CAR scale in measurement 1 – with an increase in TL1 the probability of being assigned to cluster 1 decreases ($p = .091$). This relationship was non-significant for athletes with average or low scores on CAR scale in measurement 1. The graphical representation is shown in Figure 4.7.

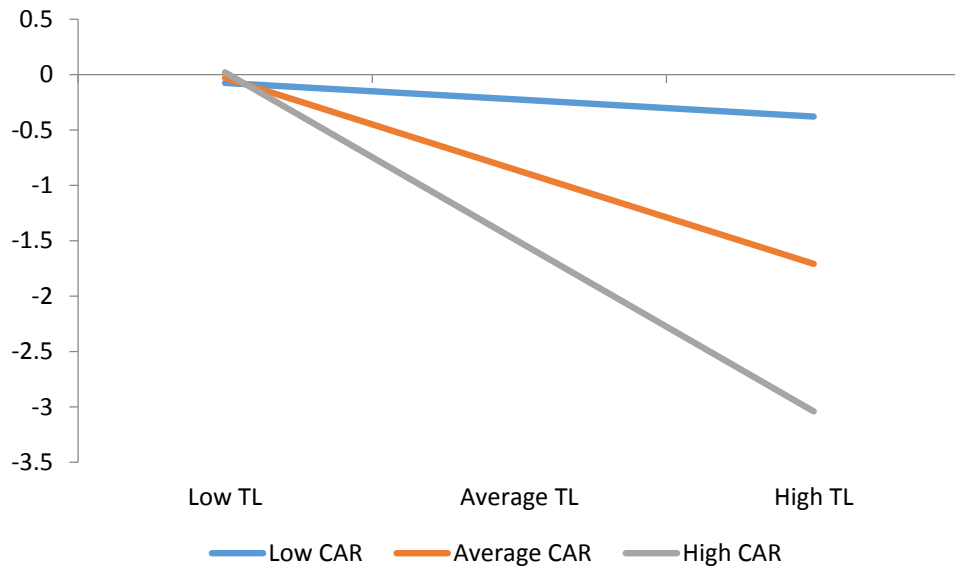


Figure 4.7 CAR as a moderator of the relationship between TL and classification to clusters 1 and 2.

Both models comparing classification to clusters 1 and 3 showed good fit to the data: $\chi^2(6) = 18.53$; $p < .01$ for the university athletes (explaining 35.7% of the cluster 1 and 3 classification variance) and $\chi^2(6) = 11.10$; $p = .085$ for the club athletes (explaining 44.2% of the cluster 1 and 3 classification variance). Also, there was a high level of accuracy between the observed data and the model's predictions. In the case of university athletes, the accuracy equalled 76.2%, and the model was able to better predict assignment to cluster 1 (88.9%) than to cluster 3 (53.3%). For the club athletes, the accuracy equalled 84.2%, and the model allowed to better predict assignment to cluster 1 (91.7%) than to cluster 3 (71.4%). Detailed analysis revealed that in case of the university athletes, the coach-athlete relationship quality measured at the end of the sporting season was a significant predictor of cluster assignment – with an increase of CAR3, there was a decreased probability of being assigned to cluster 3. Moreover, there was a significant interaction effect of TL3 and CAR3 ($p = .095$). For the club athletes, both CAR1 and TL1

constituted significant predictors of cluster assignment – with an increase in both TL1 and CAR 1, there was a decrease in probability of being assigned to cluster 3; the interaction effect of those two constructs was also significant ($p = .086$; see Table 4.14).

Table 4.16 Wald statistic (Wald) showing contribution of the predictors to clusters 1 and 3 assignment and the odds ratio ($Exp(B)$) indicating the change in odds resulting from a unit change in the predictor.

Perf. Context		B	Std. Error	Wald	p
University	TL1	11.333	7.764	2.131	.144
	CAR1	6.228	7.407	0.707	.400
	CAR1 by TL1	-1.628	1.307	1.551	.213
	TL3	-13.631	8.941	2.324	.127
	CAR3	-15.818	9.280	2.905	.088
	CAR3 by TL3	2.735	1.638	2.789	.095
	Constant	31.003	27.974	1.228	.268
Club	TL1	-38.830	22.668	2.934	.087
	CAR1	-39.471	22.873	2.978	.084
	CAR1 by TL1	6.603	3.852	2.939	.086
	TL3	-14.109	16.993	0.689	.406
	CAR3	-6.841	14.508	0.222	.637
	CAR3 by TL3	1.587	2.663	0.355	.551
	Constant	296.716	174.800	2.881	.090

Detailed analysis of the interaction effects showed that, in the case of university athletes significant direct effects were observed in athletes with high scores of CAR3– with an increase of TL3, there is an increase in probability of being assigned to cluster 3 (see Figure 4.8).

However, the analysis revealed also significant direct effects for athletes with low ($p < .05$) and average ($p = .075$) TL3 levels. In both cases with an increase of CAR3, there was an increased probability of being assigned to cluster 1. In the case of athletes with high perception of transformational leadership scores in the third measurement, this relationship was non-significant (see Figure 4.9). Detailed analysis of direct effects of a group of club athletes did not show any significant relationships or statistical tendencies.

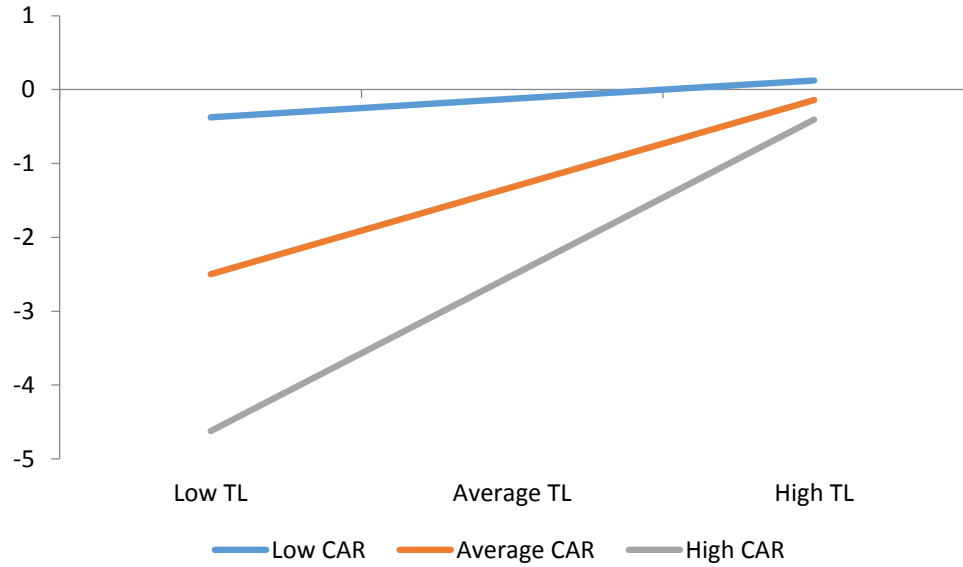


Figure 4.8 CAR as a moderator of a relationship between TL and classification to clusters 1 and 3.

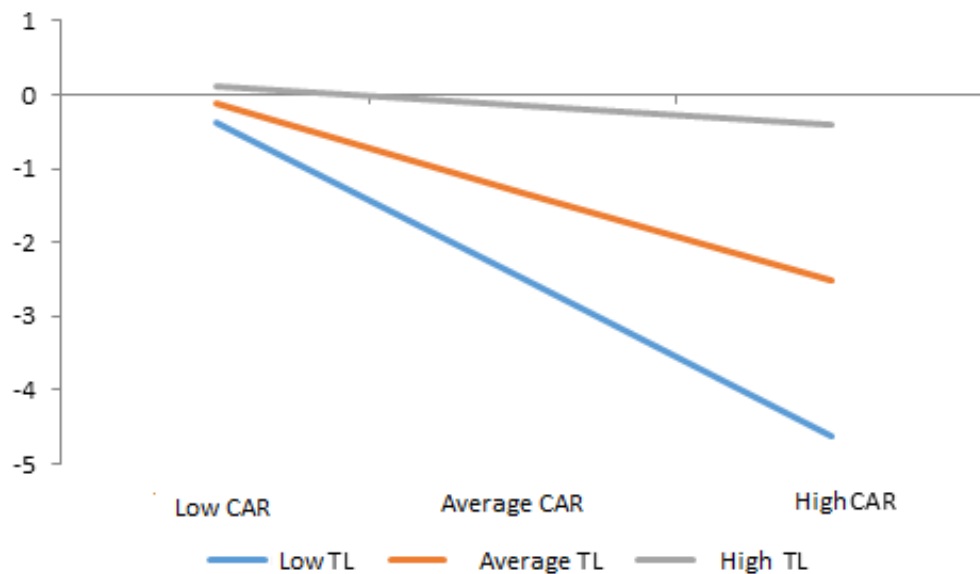


Figure 4.9 TL as a moderator of a relationship between CAR and classification to clusters 1 and 3.

Logistic regression analysis was also used to test whether it is possible to predict the assignment to clusters based on athletes' perception of transformational leadership and meta perspective of coach-athlete relationship. At first, none of the models fit the data well; however, after excluding the interaction between the predictors, the models showed good fit to the data:

- University sports: $\chi^2(4) = 45.50$; $p < .001$,
- Club sports: $\chi^2(4) = 24.58$; $p < .001$.

In the case of the university athletes, the model explains 59.7% of the variance of cluster assignment and 48.5% for the club athletes. Good fit to the data was also confirmed with the usage of Hosmer and Lemeshow's test ($p > 0,05$).

In addition, there was a high level of accuracy between the observed data and the model's predictions. In the case of the university athletes, the accuracy equalled 84% and the model allowed to predict almost equally the assignment to cluster 1 (85.7%) and to cluster 2 (81.8%). For the club athletes, the accuracy equalled 94.6%, and the model allowed to predict better the assignment to cluster 1 (96.8%) than to cluster 2 (83.3%). The results revealed that in case of the university athletes, with an increase in MCAR3 and TL3 there was an increase in probability of being classified to cluster 1 ($p < .05$). In the case of the club athletes, the results showed only a statistical tendency indicating that with an increase in MCAR3, there was an increased probability of being classified to cluster 1 (see Table 4.15).

Table 4.17 Wald statistic (Wald) showing contribution of the predictors to clusters 1 and 2 assignment and the odds ratio (Exp(B)) indicating the change in odds resulting from a unit change in the predictor.

Coaching Domains		B	Std. Error	Wald	p
University	TL1	-0.981	1.723	0.324	0.569
	CAR1	2.305	1.634	1.991	0.158
	TL3	-3.852	1.752	4.832	0.028
	CAR3	-5.492	2.162	6.457	0.011
	Constant	41.420	17.769	5.434	0.020
Club	TL1	0.566	2.202	0.066	0.797
	CAR1	0.379	2.573	0.022	0.883
	TL3	0.499	3.157	0.025	0.874
	CAR3	-8.697	5.311	2.682	0.101
	Constant	37.880	25.358	2.232	0.135

4.6 Discussion

The present study had five research questions to explore. The first research question concerned differences in athletes' perceptions of TL and CAR according to athletes' gender and coaching domain. The results showed that male athletes perceived their coaches to present more behaviours of individual consideration, inspirational motivation, intellectual stimulation, and contingent reward than the female athletes did but only in the beginning of the season. In the middle of the season, there was only one significant difference in athletes' perception of TL behaviours; female athletes perceived their coaches to use more contingent reward behaviours. The results are partially in agreement with previous research findings. In a study by Vella, Oades, and Crowe (2013), conducted during the last two weeks of the sporting season, the interaction between adolescent soccer players' perceptions of coach TL behaviour and positive developmental experiences was not moderated by athletes' gender. On the other hand, in the wider sport leadership literature it was found that male athletes prefer coaches who provide more training and instruction, positive feedback, and autocratic behaviours, in contrast to female athletes who prefer high levels of social support and democratic behaviours (Riemer, 2007; Riemer & Toon, 2001). Perhaps, transformational leadership behaviours associated with helping team members to develop skills based on individual athlete's strengths and abilities, conveying enthusiasm, challenging athletes to work out how to solve problems in training sessions, and praising and recognising even small progress contribute to male athletes' perception of positive feedback, and training and instruction, which in turn may affect their season-long motivation. Mid-season change of perceived increase in contingent reward behaviours by female athletes may suggest that with the passage of time and with getting to know their coaches better, female athletes have more information to recognise the behaviours of male coaches (as represented by the present study) which are directed to praise achievements.

In terms of direct perspective of CAR, female athletes perceived higher levels of commitment than the male athletes did across the whole sporting season. Moreover, the analysis demonstrated two statistical tendencies showing that in the middle of the sporting season female athletes perceived their coaches to be closer to them and show more complementary behaviours than did male athletes. A possible reason for the result that male athletes perceived lower levels of commitment throughout the whole sporting season may be explained by the fact that their judgement regarding how promising the

cooperation with a coach is, is based more on the final result than on the situation during the sporting season. Previous research findings exploring variations in perception of CAR dependent on athletes' gender demonstrated: no significant differences between female and male athletes in regards to the effect of the coach-athlete relationship quality on physical self-concept (Jowett, 2008); and that female athletes display greater assumed similarity (Jowett & Clark-Carter, 2006) and empathic understanding when compared to male athletes (Lorimer & Jowett, 2010). Assumed similarity refers to the degree to which one of the dyad member's assumption of how he/she feels, thinks and behaves, is congruent with the other member's perception (Jowett, 2007), and empathic accuracy reflects the ability to infer the psychological condition of another person (such as feelings, thoughts, and motivations) (Lorimer & Jowett, 2009a). Therefore, the significantly higher levels of some of the MCAR aspects in mid-season may suggest that female athletes need to perceive their coaches to be close and exhibit cooperative behaviours more than male athletes but when the competition stage is the most stressful and intense time, there should be no differences in the ways that coaches maintain relationships with either male or female athletes. Further longitudinal studies with athletes from various sports (e.g. individual sports, different competitive levels) are needed to confirm those relationships and temporal patterns.

Moreover, the analysis of athletes performing in the two distinct coaching domains of university and club sport showed many significant differences. In general, athletes who were part of a team training and competing in a club environment perceived their coaches to show more transformational leadership behaviours and perceived better coach-athlete relationships from both the direct and meta perspectives. This result indicates the importance of the context in which athletes and coaches interact, as club and university environments put different demands on coaches in terms of: knowledge, behaviours, expertise (Cushion & Lyle, 2010), and may also influence the relationship quality. As noted by Shanmugam and Jowett (in press), coaches who work within a university setting very often have to face demands which are unique to this environment (e.g. provide pastoral care), and that "this may be viewed as a unique phenomenon for university competitive sport whereby a number of athletes, usually the most experienced (and possibly the most talented), leave at the end of every academic year having spent around two to three years with the squad". Athletes who belonged to the club group are perhaps more likely to have known their coaches longer and better than the university athletes, and therefore have better relationships with them. Furthermore, we can speculate

that coaches working in the club environment were more performance orientated than the coaches working in the university context, consequently giving them more opportunities to manifest transformational leadership behaviours. Also, assuming that, due to the length of relationships, the degree of familiarity between club coaches and their athletes was higher than in the university context, might have been a factor in the enhancement of athletes' perceptions of their coaches' transformational leadership behaviours.

The second research question aimed to separately investigate the temporal patterns of transformational leadership and coach-athlete relationship fluctuation during one whole sporting season. The comparison of average TL scores at three phases of the sporting season revealed that the participants perceived a significant decrease in frequency of transformational leadership behaviours presented by their coaches at the end of the sporting season relative to the beginning of the sporting season. The analysis showed also that intellectual stimulation was perceived to be used significantly less often than all other TL behaviours. In addition, when the TL subscales were investigated separately, the analysis revealed that athletes did not perceive any differences in individual consideration, intellectual stimulation, high performance expectations, and contingent reward depending on the time of the sporting season. On the other hand, inspirational motivation, fostering acceptance of group goals, and role modelling were seen to be used less often with the passage of time. Longitudinal research on coaches' wellbeing and stress showed that the greatest stress (Kelley, 1990), higher levels of depersonalisation (burnout dimension) and coaching issues (Kelley, 1994) are perceived towards the end of a sporting season: "Coaches who were more concerned with issues related to the pressures surrounding winning and losing, not having enough time for coaching and other responsibilities, inadequate and shrinking budgets for program needs, and being a role model for their athletes were higher in their levels of stress appraisal" (Kelley, 1994; p. 55).

Regardless of the level at which coaches work, they experience a number of demands and pressures which contribute to their wellbeing (Fletcher & Scott, 2010). According to Frey (2007) there are nine themes describing stressors coaches encounter at work: interpersonal/personal sources, other people, sources that would lead to quitting, task related sources, recruiting, time demands, being the head coach, outcome of competition, and self-imposed stress. These stressors may affect how coaches influence athletes' attitudes and performance; for example, a reaction to a stressor may cause coaches to become less approachable and in turn cause athletes to start avoiding coaches

(Frey, 2007). Therefore, a decrease in athletes' perceptions of TL behaviours towards the end of the season may be caused by an increased level of pressure, workload and exhaustion, prolonged exposure to stressors experienced by the coaches, and a time when the burnout cycle is at its highest point. Moreover, a significant decrease in 3 out of 7 TL subscales and a lower level of intellectual stimulation in comparison to other TL aspects, may suggest that being inspirational (e.g. talking enthusiastically, showing confidence, using optimistic language), encouraging players to be team players (e.g. developing team spirit), conducting oneself as a role model for athletes to follow (e.g. leading by example, being charismatic), and stimulating athletes to challenge their assumptions require more energy, motivation, planning, and resources, and with the progression of the sporting season (therefore increases in fatigue and pressures, and a higher significance put on results), those four types of behaviours exhibited by coaches are decreasing the quickest.

There was also a significant decrease in athletes' perceptions of coach-athlete relationships (direct perspective); the participants scored significantly lower at the end of the sporting season in comparison to the beginning of the season. When all three subscales were investigated separately, the analysis revealed that even though the level of complementarity was stable across the sporting season, the levels of closeness and commitment significantly decreased to reach their lowest points at the end of the season. The complementarity subscale refers to coaches' and athletes' cooperative actions (reciprocal and corresponding behaviours) and due to the fact that sport is a domain based on behavioural interactions, the fact that a behavioural category of coach-athlete relationship remains stable across a season is not surprising. A perceived decrease in closeness and commitment may have similar reasons as to why TL decreases with time; the end of a sporting season is characterised by pressures that may affect coaches' relationships with athletes. As mentioned in a study by Kelley (1994), "toward the end of the regulation collegiate baseball and softball seasons, the coaches in this study felt emotionally drained and depleted, needed to psychologically distance themselves from their athletes, and had a reduced sense of meaning about their work" (p. 56).

Moreover, the temporal pattern of the decrease is in accordance with Popper's (2005) suggestion, that the relationship between a leader and a follower is similar to the one of romantic partners where "this subjective and sometimes totally idealized picture of the beloved changes after a time, and suddenly those characteristics that were not seen before "appear" " (p. 37). Perhaps at the beginning of the sporting season athletes do not have enough information to adequately assess their relationship with coaches (the

coaches in this study exhibited high levels of TL behaviours and thus appeared as positive and encouraging), and with the passage of time they acquire more knowledge, based on interactions during training sessions and competitions, which allows them to make an informed opinion. These results have further research applications – future studies in the domain of transformational leadership and/or coach-athlete relationship should take the time of data collection into consideration as it influences athletes' perception of those constructs.

Third research question aimed to explore whether athletes' perceptions of TL and CAR at the end of the season can be predicted by the assessment of those constructs at the beginning and in the middle of the season. According to Gollob and Reichardt (1991), it is important to investigate longitudinal relationships due to the fact that it takes time for variables to show an effect, and because variables may have an effect on themselves. Hierarchical regression analyses were used to test the constructs, and adding the results of the second measurement changed the significance of the measurement 1 predictor for the following subscales: individual consideration, inspirational motivation, intellectual stimulation, high performance expectations, commitment, complementarity, meta-closeness, and meta-commitment. On the other hand, it was found that for contingent reward, fostering acceptance of group goals, closeness, and meta-complementarity, the direct effect was still present. Therefore, the results showed that in the case of 4 TL subscales and 4 CAR/MCAR subscales the way coaches behave and the relationship quality in mid-season transfer the effect from the beginning to the end part of the sporting season, and thus it confirms the underlying gradual process of influence. However, the influence of contingent reward, fostering acceptance of group goals, closeness, and meta-complementarity from the beginning of a sporting season also has a direct effect on athletes' perceptions of those variables at the end of the sporting season; therefore, the perceived levels in mid-season is potent, albeit not sufficient for an effect to take place. Contingent reward refers to a process of transaction between leaders and followers during which followers' performance or effort is exchanged for a reward (e.g. praise) (Northouse, 2001), whereas promoting cooperation among teammates and encouraging players to work together towards a common aim is reflected in the category of fostering acceptance of group goals (Callow et al., 2009). Closeness is seen as mutual feelings of appreciation, trust, respect and liking, and meta-complementarity as athletes' perception of their coaches' actions of cooperation towards them (Jowett, 2007). Perhaps the high frequency of transformational leaders' usage of these two types of behaviour at the

beginning of the sporting season helps athletes build attitudes towards their sense of individual and group efficacy; and feelings of closeness and perceptions of coaches' cooperative behaviours help athletes build attitudes towards the quality of the relationship, which is of special importance at the end of the season, during the most important games. According to Petty and Cacioppo (1981) attitude can be defined as "a general and enduring positive or negative feeling about some person, object, or issue" (p. 7), and those attitudes are shaped in the initial stages of group development (so called forming; Tuckman & Jensen, 1977) when group members are uncertain about the purpose, confused of their roles, and dependent on leaders to initiate group interactions (Wheelan, Davidson, & Tulin, 2003). Moreover, it is expected of a leader to facilitate an atmosphere characterised by trust and understanding during the forming stage (Corey, 2012), and therefore it is hypothesised that in the case of the four aforementioned attitudes towards transformational coach-athlete interactions, the way they are formed during first few weeks influences their perceptions in the final stages.

The final set of analyses was performed to investigate whether and how perception of transformational leadership and coach-athlete relationship in various parts of the sporting season affects athletes' collective efficacy and intrinsic motivation at the end of the sporting season. The aim of the analysis was to look not only at the separate impact TL or CAR has on collective efficacy and intrinsic motivation, but also how the interaction (moderation) between the two affects those chosen outcomes. Firstly, separate multiple regression analyses have shown that for the university athletes, only coach-athlete relationship measured at the beginning of a season significantly predicted intrinsic motivation measured at the end of a sporting season; TL behaviours did not constitute a significant predictor. On the other hand, only TL behaviours measured at the beginning of a season significantly predicted collective efficacy (measured at the end of a season) for both groups of athletes, whereas CAR did not constitute a significant predictor. It has been shown that intrinsic motivation is likely to flourish if the level of relatedness is high (Ryan & La Guardia, 2000), and high quality CAR is likely to support this basic psychological need. Collective efficacy, on the other hand, refers to athletes' perception of their team's capability to successfully perform a certain task (Bandura (1997), which is likely to be supported by TL behaviours such as fostering acceptance of group goals, intellectual stimulation, or inspirational motivation.

In the second stage, athletes were grouped into three clusters based on the similarity in their perception of performance orientated outcomes; cluster 1 constituted

the reference category for further investigation (cluster 1 describes athletes with high results on both collective efficacy and intrinsic motivation scales). When the data from all three measurements was entered into analysis, the results showed that high scores of CAR at the beginning and at the end of the sporting season, decreased the probability of assignment to cluster 3 and cluster 2 respectively; the analysis did not show similar effect of TL influence or a significant effect of CAR quality measured in mid-season. This result underlines the importance of initial coach-athlete relationship quality, as well as the quality perceived in the time of the highest pressure. Partnerships built on trust, commitment, support and cooperative interactions from the initial stages of team development and which experience a few months of adversity, have the capacity to decrease the probability that athletes will experience low or average levels of collective efficacy and enjoyment. Therefore, a strong coach-athlete relationship may be seen as a “safety net” protecting athletes’ welfare and also contributing to their performance success (Jowett & Poczwardowski, 2007).

Due to the fact that participants trained and competed in two distinct coaching domains: university or club (characterising teams which competed in national and regional leagues in their respective sports outside of the university environment), participants’ contexts of competition were taken into consideration in an additional analysis. The separate analysis demonstrated that in the case of the university athletes, the quality of coach-athlete relationship and perception of TL behaviours at the beginning of the sporting season constituted significant predictors of cluster assignment; however, the prediction was in an unexpected direction - with an increase of CAR1 and TL1 there was an increase of the probability to be assigned to cluster 2 (low level of collective efficacy and average level of intrinsic motivation). There was also a significant interaction effect and a detailed analysis of it showed that only high CAR1 scores moderated the relationship between TL1 and the probability of being assigned to cluster 1 - with an increase in TL1 the probability of being assigned to cluster 1 decreased. Therefore, perception of a high level of CAR by the university athletes at the beginning of the season was moderating the probability of athletes who regarded their coaches to be transformational, to be less likely to show high levels of collective efficacy and intrinsic motivation at the end of the season. This result is contradictory to what is known about CAR and TL in sport, since almost all of the research findings show positive effect of both of those constructs on various desirable outcomes in sport (e.g. Jowett, 2008; Jowett,

2009; Smith, Arthur, Hardy, Callow & Williams, 2012; Stenling & Tafvelin, 2013; Hampson & Jowett, 2014).

Further analysis of the university athletes' data showed that with an increase of CAR3, there was a decreased probability of being assigned to cluster 3. The detailed analysis of the interaction between CAR3 and TL3 showed that high scores of CAR3 positively moderated the link between TL3 and probability of being assigned to cluster 3. However, low and average scores of CAR3 positively moderated the link between TL3 and probability of being assigned to cluster 1. Therefore, in a university environment perception of the high relationship quality at the beginning, as well as the end of the sporting season was influencing the link between transformational leadership and low or average levels of collective efficacy and intrinsic motivation at the end of the season. The university and college sport structure is characterised by high levels of players' turnover between seasons, athletes' lower maturity level, relationships which typically are limited to 3 years, concern to help athletes achieve not only athletically, but also academically (Shanmugam & Jowett, in press) and usually by a short pre-season training time. Perhaps, taking into account all of those characteristics, a high degree of connection between a coach and an athlete (a dyadic variable) in team sports can negatively affect coaches' effect on group and individual outcomes due to the resources invested in this relationship. In many cases coaches working in a university context are either only few years older than their players, or have a dual role of a player-coach. In such situations, the obtained results may suggest that due to overfamiliarity between a coach and an athlete, the high level of CAR and blurred boundaries negatively influence the effect of transformational leadership on intrinsic motivation and collective efficacy. As mentioned above, thus far there are no other studies showing even a mildly negative effect of a sound coach-athlete relationship on desirable psychological variables and future studies are needed to verify this effect. The results obtained in this analysis should be interpreted with caution and no generalisation should be made without further findings supporting these results.

Finally, the results showed that with an increase in meta perception of coach athlete relationship (athletes' understanding of their coaches' thoughts, feelings and behaviours towards them) and transformational behaviours at the end of the sporting season, athletes were more likely to experience high levels of enjoyment and collective efficacy; however, it was not possible to determine which of the variables acted as a moderator. This result has a practical application; transformational coaches should be aware of the importance of helping their athletes see them as caring, supportive and

cooperative in the final stage of the competition, to bolster their athletes' performance related outcomes.

In the group of the club athletes, both CAR1 and TL1 constituted significant predictors of cluster assignment - with an increase in athletes' perception of both transformational leadership and coach-athlete relationship at the beginning of the sporting season, there was a decrease in probability of experiencing low level of intrinsic motivation and average level of collective efficacy. In a club environment, coaches who transfer an appealing vision of the future, stimulate athletes to reach beyond initial expectations, transcend their own self-interest to the benefits of the team, and who care about developing sound relationships with each of the athletes from the forming stage of the team development, have the capacity to influence variables linked to athletes' performance in the last stage of the season. Therefore, in a club setting, coaches should pay special attention to their leadership behaviours and ways of initiating and maintaining positive relationships with athletes because those elements can influence outcomes at the end of the season.

4.6.1 Limitations and Future Directions

The present study is subject to limitations that in an ideal setting would be addressed. Due to the limited sample of athletes that participated in the study, some of the measured effects displayed weak relationships and more studies are needed to verify the moderating effect of high coach-athlete relationship quality on the link between transformational coaching and performance orientated outcomes. Furthermore, future studies should attempt to understand the interplay between CAR and TL in various contexts as in this study athletes only represented two coaching domains; for example there is a limited number of studies exploring transformational leadership in elite sports (Arthur & Tomsett, 2015) and a detailed investigation of transformational-relational coaching experienced by the best athletes may bring different results. Moreover, the present study adopted an individualistic approach as only data from athletes was collected and it was analysed accordingly. Multilevel analysis of team's combined score could shed new light on the effect transformational leadership has on teams to help understand the complex nature of team setting, especially if stages of team development are taken into consideration.

4.6.2 Conclusions

The present study expands understanding of the transformational-relational environment by exploring the temporal patterns of an influence on performance related outcomes. The findings of this study also supply new insights about the interplay between transformational leadership and coach-athlete relationship in various phases of the sporting season, as well as the development of both of those constructs individually over time. The present research could make a potential contribution to coach education programmes by facilitating coaches' and athletes' awareness of the impact of the interplay between transformational leadership and coach-athlete relationship has on performance related outcomes, especially in different stages of the season and in various sporting/coaching contexts. Knowledge that with the passage of time athletes' tend to perceive a decrease in coach-athlete relationship quality and in the usage of transformational leadership behaviours may enable coaches to prevent the decrease, by, for example, planning to dedicate time in the final stage of the season for relationship maintenance (e.g. making sure that the coaches show that they care about athletes' lives outside of sport), and by scheduling time dedicated for coaches' mental and physical rest in order to perform to the best of their ability in the most important moments of the season. Finally, the findings of the present study suggest that both transformational leadership and coach-athlete relationship should be developed simultaneously as the reciprocal influence of those two constructs may enhance athletes' psychological growth.

CHAPTER 5: Study Three

5.1 Introduction

As the results of the study 1 and 2 have shown, coaches who create environments based on transformational leadership (TL) principles and who dedicate time and effort to build and maintain potent relationships, can be seen as effective in supporting athletes' basic psychological needs, and positively affecting athletes' wellbeing and performance related outcomes. Coaching effectiveness is a criterion used to describe "good" coaches (Lyle, 2002) and according to Cotê and Gilbert (2009) it is defined as "the consistent application of integrated professional, interpersonal, and intrapersonal knowledge to improve athletes' competence, confidence, connection and character in a specific coaching context" (p. 316). The knowledge component refers to three types: professional (sport specific knowledge), interpersonal (knowledge about building and managing relationships with other people engaged in sport), and intrapersonal (knowledge stemming from self-awareness and self-reflection). Even though all three types of knowledge are necessary to be an effective coach, current trends in coach development focus mostly on professional knowledge (Cotê & Gilbert, 2009). Coaching does not only encompass behaviours and outcomes, but takes also into account social, moral, and intrapersonal influences.

In terms of the second component, athletes' outcomes, Horn (2008) stated that coaching can be regarded as effective if it results in success (understood as high performance outcomes) or in athletes' positive psychological response, such as increased levels of self-esteem. Finally, effective coaching takes into consideration context in which it takes place, for example professional sport versus university sport. Different stages in athletes' development require diverse approaches, different parts of a sporting season require a variety of leadership behaviours (Shamir, 2011), and different lengths of relationships between athletes and coaches are associated differently with relationship interdependence and sport-related satisfaction (Jowett & Nezelek, 2012). Due to the complex nature of the coach-athlete relationship (C-A-R) context plays a major role in shaping coaches goals, behaviours, and communication style. Coach educators who aim to empower coaches' development should therefore integrate all of the aforementioned components in order to promote coaching effectiveness.

Even though transformational leadership has been proven to be an effective coaching approach, thus far there has been only one intervention study incorporating transformational leadership framework. Vella, Oades, and Crowe (2013a) conducted a coach transformational leadership training programme on a group of eighteen Australian youth coaches. Nine coaches and 116 players constituted an active (experimental) group and nine coaches and 67 players comprised a control group. Coaches from the experimental group underwent a training programme which was based on the technical principles of CET (Coaching Effectiveness Training; Smith, Smoll, & Curtis, 1979) but reflected the transformational leadership framework. Participants took part in one two-hour long group session, and received five follow-up telephone calls which were designed according to the GROW model: G – Goals, R – Reality, O – Options, and W – What (Wilson, 2007). The researchers hypothesized that athletes of coaches who underwent the training programme will not only report a higher rate of their coaches' transformational leadership behaviours, but also a higher rate of positive developmental experiences in comparison to a baseline measurement and to a control group score. The results partially supported the hypothesis. Athletes of the trained coaches presented higher levels of perceived intellectual stimulation, appropriate role modelling, and an overall measure of transformational leadership behaviours, as well as two out of five elements of developmental experiences (cognitive skills and goal setting experiences). Even though the results of this study are promising, conclusions should be drawn with caution; restrictions within the studies meant that data was collected anonymously making it impossible to assess how many players filled in the questionnaire twice and so any causal interferences cannot be made.

Successful transformational leadership interventions have been delivered predominantly in military and organisational domains, and all of the studies presented were associated with numerous positive psychological and performance outcomes, and with an increase in perceived TL behaviours presented by the leaders.

The study conducted by Dvir, Eden, Avolio, Bass and Shamir (2002) focused on delivering a TL intervention for the leaders of the Israeli Defense Force army group, and investigating the differences in their effect on their direct and indirect followers. The results have shown that the intervention had a positive effect on a followers' development (extra effort, collectivistic orientation, internalisation of organisational moral values, active engagement, self-efficacy, and critical-independent approach) and performance, and that leaders had a greater effect on the development of direct followers' and the

performance of indirect followers. The study conducted by Hardy and colleagues (2010) looked at effectiveness of TL intervention on Marine recruits' self-confidence, resilience, satisfaction, and perceived leadership behaviours of their direct leaders (section commanders). The study used a differentiated approach to examine which specific TL behaviours were enhanced. The results have shown that in comparison to a control group, recruits in the intervention condition perceived a significant increase in three out of five measured TL behaviours (individual consideration, fostering acceptance of group goals, and contingent reward), and also in self-confidence, resilience, and satisfaction with training. Moreover, findings have underlined that different leadership behaviours were affected by the intervention in different ways, supporting the notion suggested by other researchers (e.g. Rafferty & Griffin, 2004) that TL behaviours should be investigated as separate factors. In a transformational leadership intervention in an infantry recruit training establishment, Arthur and Hardy (2012) demonstrated that the majority of TL indices, team cohesion, and training outcomes were positively affected by the intervention. Transformational leadership training was delivered by the researchers to four Warrant Officers and a Major, who were then responsible for designing and implementing a training programme for section commanders within the organisation, who were then in turn responsible for training recruits. This study provided an important first step, showing a significant positive change on an organisational level, not only on a specific training team, especially when the dynamic context (large turnover) was taken into account. Interestingly, the study was conducted during a decline in recruitment and training climate, which allowed the researchers to examine and conclude that a TL intervention can have a capacity to thwart a decline during negative events.

In the organisational domain, intervention studies have shown that training leaders to exhibit more transformational leadership behaviours can have a positive impact on numerous outcomes. In the study by Barling, Weber, and Kelloway (1996) a group of nine managers underwent a day-long group session and four individual sessions on the principles and application of transformational leadership. The results have shown that in comparison to the control group, the subordinates of the experimental group had a higher perception of their managers in three aspects of transformational leadership: intellectual stimulation, charisma, and individual consideration. Moreover, there was a significant positive change in the intervention's effect on subordinates' organisational commitment. In another study, Kelloway, Barling, and Helleur (2000) demonstrated that through training (a one-day workshop on how to apply the principles of transformational

leadership in a workplace) and counselling feedback, subordinates' perceptions of their supervisors' transformational leadership increased. The results demonstrated that both training and feedback were effective in increasing TL behaviours, however, the combination of the two means was not suggesting that using either of the options alone would bring positive change. Finally, in a study by Brown and May (2010), an intensive year-long training program for first-line supervisors was positively associated with a significant increase in employees' perception on the levels of both transformational and contingent reward leadership behaviours presented by the line supervisors. Moreover, an increase was also seen in productivity and satisfaction with supervision levels.

5.2 Coaching Effectiveness

5.2.1 Coaches' Interpersonal Knowledge Development

Developmental programmes for coaches are rarely designed to develop coaches' interpersonal and intrapersonal types of knowledge (Cotê & Gilbert, 2009). Langan, Blake, and Lonsdale (2013) conducted a systematic review on coach education interventions which focused on interpersonal knowledge but also took into account context and outcomes. The inclusion criteria were as follows: target participants were coaches, the aim was to change coaches' interpersonal effectiveness, there was a control group, and athletes' behaviours, cognitions, or affect were measured as outcomes. Only four independent interventions met the criteria: (1) training designed to enhance relationship skills in youth sport (Smith, Smoll, & Curtis, 1979); (2) intervention constructed to reduce sport performance anxiety in young athletes by providing coaches with social support and stress reduction training (Barnett, Smoll, & Smith, 1992; Smoll, Smith, Barnett, & Everett, 1993; Smith, Smoll, & Barnett, 1995); (3) coach training intervention designed to reduce fear of failure and improve self-esteem of youth swimmers (Conroy & Coatsworth, 2004; Coatsworth & Conroy, 2006); and (4) motivational climate intervention aiming at changing achievement goal orientations of young athletes (Smith, Smoll, & Cumming, 2007; Smoll, Smith, & Cumming, 2007).

The study conducted by Smith et al. (1979) aimed to enhance relationship skills by providing coaches with CET. The development of the CET programme was informed by research of coaching behaviours and their effect on young athletes. The CET

programme was based on a cognitive-behavioural approach and it contained a two hour workshop where behavioural guidelines were presented and modelled, along with behavioural feedback and self-monitoring procedures. The training session focused on ways of responding to specific situations, for example: good plays, mistakes, misbehaviours, or lack of attention. Presenters accentuated the role of encouragement, reinforcement, and technical instructions in enhancing positive desirable behaviours of the young athletes. The group of coaches who participated in the training session (N = 18) was compared to the control group (N = 13) who did not receive any treatment. The results of the intervention showed that coaches who took part in the training session differed from the control group in terms of presented behaviours which were coherent with the guidelines (measured by the independent trained observers using CBAS - Coach Behaviour Assessment System). Moreover, at the end of the season Self-Esteem Inventory was distributed to the athletes of coaches from both groups and structured interviews were conducted to investigate their perceptions and attitudes. The results indicated that athletes of the trained coaches showed greater enjoyment and stronger desire to continue collaboration in the future than athletes working with coaches from the control group. There was no significant difference in the level of postseason self-esteem between athletes from the two groups (Smith, Smoll, & Curtis, 1979).

The second intervention (Barnett, Smoll, & Smith, 1992; Smoll, Smith, Barnett, & Everett, 1993; Smith, Smoll, & Barnett, 1995) aimed at reducing young athletes' performance anxiety by providing coaches with training based on social support and stress reduction. Two weeks prior to the beginning of the season coaches in the experimental condition took part in a 2.5 hour training session aiming to increase positive interactions; the control group did not receive any treatment. The training session was based on CET principles and underlined the importance of four types of behaviours: reinforcement, mistake-contingent encouragement, corrective instruction, and technical instruction. Furthermore, there were four types of behaviours identified as undesirable and it was stressed that the number of these behaviours should decrease: non-reinforcement, punishment, punitive instruction, and controlling behaviours. Coaches received the behavioural guidelines not only during the session, but they were also given a pamphlet with all the important materials. The results of this intervention showed that coaches who received training were perceived as more engaging in providing reinforcement, encouragement, and technical instructions than the control group coaches; there was no difference between the groups in athletes' perception of behaviours used to

maintain order and to provide corrective instruction after mistakes. Moreover, the groups differ in terms of postseason evaluations: coaches who underwent training were seen as better skills teachers, their athletes indicated to have more fun training and playing, and they liked their coaches and teammates more. The final results demonstrated that there was a significant postseason drop in the level of competitive trait anxiety compared to preseason in the group of athletes who collaborated with the trained coaches. No such change was observed in the group lead by coaches who did not take part in the workshop.

The third intervention aimed to reduce fear of failure and improve self-esteem of young swimmers and was divided into two studies. The first study investigated the effects of psychosocial training for coaches ($N = 4$) on fear of failure (Conroy & Coatsworth, 2004) over time. The control group ($N = 3$) also received treatment; an injury prevention workshop. The participants ($N = 135$) were more heterogeneous than in the previous two interventions, there were male and female swimmers age 7 to 18 who took part in the study. Coaches received one 2-hour workshop based on CET principles in the second week of a season. Athletes' level of fear of failure (measured with the usage of Performance Failure Appraisal Inventory; Conroy, 2001b) and self-esteem (measured with the usage of Washington Self-Description Questionnaire; Smoll et al, 1993) were assessed three times: at the beginning, midpoint, and at the end of the season. The results of the first study showed that there was a significant increase in use of reward/reinforcement behaviours of the coaches who received psychosocial training in comparison to the group with injury-prevention training. In terms of the effect on athletes' level of fear of failure, the results of latent growth curve analysis showed that there was no significant change in the level of fear of failure over time for either of the groups (Conroy & Coatsworth, 2004). The second study (Coatsworth & Conroy, 2006) used the same participants and design but the researchers focused on changes in perceived level of athletes' self-esteem. The results showed that the training was not a significant predictor of the rate with which intra-individual change in positive self-esteem occurred. Further, the analysis of different age groups revealed that the intervention had the most pronounced effect on the youngest swimmers (<11 years), the increase in positive self-esteem was the biggest for this group. Finally, it has been demonstrated that those swimmers who were assessed lower on the self-esteem scale at the beginning of the season, benefited the most from their coaches taking part in the psychosocial training. This relationship was only true for female swimmers; there was not a significant change in self-esteem level for male swimmers of trained coaches compared to control group

coaches who received session on injury prevention. This conclusion was in contrast to the results provided by Smoll et al. (1993).

The final intervention proposed by Smith, Smoll, and Cumming (2007) focused on the effect of Mastery Approach Coaching (MAC) on sport performance anxiety in young basketball players (age: between 10 and 14 years old). There were 37 coaches, 20 in the experimental group and 17 in the control group, and 216 athletes. Coaches in the experimental condition attended a 2-hour workshop. Participants were introduced to the behavioural guidelines proposed in MAC which were in line with CET principles and underlined two major recommendations: the distinction between positive and aversive control behaviours (increase the number of following behaviours: positive reinforcement, corrective instruction, technical instruction, and encouragement following a mistake; decrease the number of following behaviours: non-reinforcement and punishment), and identifying success with giving maximum effort for the activity rather than winning over another team. Sport Performance Anxiety Scale (SAS-2; Smith et al., 2006) was distributed to athletes twice: early in the preseason and 12 weeks later; also, basketball players were asked to fill in Motivational Climate Scale for Youth Sport (MCSYS; Smith, Cumming, & Smoll, 2008) at the second assessment session. The results of multilevel analyses showed that athletes of coaches from the experimental group declared higher levels of mastery-climate coaching behaviours and lower levels of ego climate behaviours than athletes of coaches who did not receive the training session. Moreover, there was a significant decrease in performance anxiety scores over time for the athletes of trained coaches in terms of SAS-2 total scores and Somatic Anxiety and Worry subscales. Finally, there was no significant difference between female and male players.

5.2.2 Coaches' Intrapersonal Knowledge Development

Intrapersonal knowledge refers to the ability to reflect, leading to gaining deeper understanding about oneself. Reflection has been pointed out as one of the crucial elements of coach education (Cushion, Armour, & Jones, 2003) and it is defined as:

“A purposeful and complex process that facilitates the examination of experience by questioning the whole self and our agency within the context of practice. This examination transforms experience into learning, which helps us to access, make sense of and develop our knowledge-in-action in order to better understand and/or improve practice and the situation in which it occurs” (Knowles, Gilbourne, Cropley, & Dugdill, 2014).

Even though education programmes in UK emphasise the development of professional knowledge rather than underlining the importance of improving intrapersonal knowledge (Knowles, Borrie, & Telfer, 2005), research has also shown that progressing one's reflective skill can be highly beneficial. The study conducted by Knowles, Tyler, Gilbourne, and Eubank (2006) aimed to investigate how coaching science graduates expand reflective process in their coaching practice. Participants were six coaches who possessed a level 3 coaching award and were coaching on regular basis. The participants took part in semi-structured interviews based on Gibbs' (1988) six-stage reflective model which contains following steps: (1) description, (2) feelings, (3) evaluation, (4) what sense can you make? (5) what else can we do? and (6) what would you do next time? The data analysis revealed that reflection was used as a form of evaluation and source of information for improvement. Time and techniques were described as two major obstacles, as well as ability to focus on positives. Finally, it was stressed that having an opportunity to reflect with others who share similar experience is crucial for further development. This study is one of the examples proving how important is the role of reflection for coaching practice and the statement given by Huntley et al. (2014) illustrates further the issue: "knowledge and experience alone are not necessarily enough to develop effectiveness in ever-changing environments where textbooks do not always provide solutions to real life problems" (p. 863).

Moreover, the study conducted by Saury and Durand (1998) showed that high level coaches tend to base their practices on previous experiences and knowledge (rather than on training manuals), and that the level of automation may make it more difficult to articulate the source of behaviour and communication. Therefore, self-knowledge may enhance the quality of coaching and, as pointed out by Bowes and Jones (2006), reflection "supports the impact of this evaluative or self-modifying process, where the implications for the act of coaching look more like a complex picture given elsewhere, and less like a knowable coaching process" (p. 18).

5.2.3 Other Theory-Based Coaching Programmes

Within the United Kingdom, the Empowering Coaching Programme created through the PAPA Project (Duda et al., 2013) by the researchers from School of Sport and Exercise Science in the University of Birmingham has gained appreciation. It was developed to improve grassroots coaches', P.E. teachers' and dance instructors' practice by focusing on ways to create a more empowering motivational climate. The aim was to

make sports participation of young athletes more enjoyable and engaging. In the long term perspective, the main goal is to provide a healthy sport experience and decrease drop-out rate in teenage sport. The Promoting Adolescent Physical Activity (PAPA) Project incorporates collaboration between researchers from a few European countries (UK, Norway, Greece, Spain, and France) and it is dedicated to “develop, deliver and evaluate a theoretically-grounded and evidence-based coach education programme that can help coaches foster quality motivation and make youth sport engaging, empowering, and enjoyable” (<http://www.projectpapa.org/>). Two contemporary motivation theories were used as framework for PAPA Project’s development: Achievement Goal Theory (AGT; Ames, 1992) and Self-Determination Theory (SDT; Deci & Ryan, 2000). Within the Project, coaches underwent the Empowering Coaching Programme to optimise the motivational climate they create. The content was focused on increasing coaches’ understanding of the nature of motivation and the consequences of motivational processes. Video clips, self-reflective activities, interactive activities and activities designed to set goals how to become more empowering were utilised in the programme (Duda, 2013).

All of the previous studies were conducted in youth sport and there are no studies showing effectiveness of the empirically derived and theory-driven coach effectiveness programmes in such contexts as university sport or elite sport. Moreover, all of the described interventions, except for the most recent Empowering Coaching Programme, employed similar formats – participants were presented with behavioural guidelines and in some cases the behaviours were modelled. As Nelson, Cushion and Potrac (2013) discovered in their study, coaches enjoy learning opportunities where they can interact with other participants. In most of the presented intervention studies there was only one session lasting from 75 to 150 minutes. Also, it has been pointed out that it is crucial to coaches’ learning process to be able to implement new knowledge and skills to their own individual practices (Nelson et al., 2013; Nelson & Cushion, 2006). Therefore, simply presenting guidelines without consideration of participants’ contexts may have less impact than allowing participants to apply the knowledge to their own coaching reality.

5.3 The Present Study

The present study focused on exploring a training programme for young (inexperienced) coaches guided by the principles of transformational leadership framework (Bass & Riggio, 2006), 3+1C's model (Jowett, 2009), and Basic Needs Satisfaction Sub-Theory (Ryan & Deci, 2000). To address some of the aforementioned issues discovered in the previous studies, in the present study, the participants were British students-coaches who collaborated with athletes and teams competing in university and local leagues in their respective sports. Participants took part in four interactive workshop sessions where many possibilities for discussions were created for them. Moreover, in order to make the sessions as personally relevant as possible, time was dedicated during each session to set an individual goal corresponding to each coach's needs and environment in which they work. Along with the measurement of athletes' outcomes pre and post of the coaches' training programme, also a measurement of coaches' perceptions of their own practice was conducted quantitatively and qualitatively. Furthermore, reflections of coaches own practice and perceptions of the usefulness of the course content were explored in semi-structured interviews conducted six weeks after the last workshop session. Knowles et al. (2006) pointed out that reflection is especially useful at the beginning of a new experience and for that reason the reflective journals constructed according to Gibbs' (1988) six-stage reflective process were used to develop participants' intrapersonal knowledge and by that to enhance learning process.

Furthermore, reflections of coaches own practice and perceptions of the content of the course usefulness were explored in the semi-structured interviews conducted few weeks after the last workshop session. Knowles et al. (2006) pointed out that reflection is especially useful at the beginning of a new experience and for that reason the reflective journals constructed according to Gibbs' (1988) six-stage reflective process were used to develop participants' intrapersonal knowledge and by that to enhance learning process.

Finally, as proposed by Langan et al. (2013), "researchers should focus attempts on creating theoretically grounded coach education programmes" (p. 48), the present study investigates a model based on Basic Needs Satisfaction Sub-theory (Ryan & Deci, 2000), a sub-theory which underlines humans' growth and striving for potential fulfilment. This theory was also chosen as it had been used to explain the effectiveness of the transformational-relational coaching model described in Chapter 3. Additionally, the principles of BNSS were applied to the way the workshops were delivered, as the coach

educator attempted to create an environment focused on the satisfaction of the participants' (coaches) needs for autonomy, competence, and relatedness.

In summary, it was hypothesised in the present study that an intervention underpinned by the model of transformational-relational coaching environment would have a positive effect on followers' perceptions of TL behaviours, CAR, MCAR, CAR maintenance strategies, coach autonomy supportive behaviours, satisfaction, and performance, and a negative effect on followers' perceptions of coach controlling behaviours:

H1. The transformational-relational intervention will increase followers' perceptions of their coaches' transformational behaviours, quality of a relationship with a coach (direct and meta perceptions), and the usage of CAR maintenance strategies when compared to the control group.

H2. The transformational-relational intervention will positively impact athletes' perceptions of satisfaction with training, and performance when compared to the control group.

H3. The transformational-relational intervention will result in an increase in followers' perceptions of their coaches' autonomy supportive behaviours and a decrease in followers' perceptions of their coaches' controlling behaviours when compared to the control group.

5.4 Method

5.4.1 Study Design

5.4.1.1 Experimental group

Coaches. Five coaches, two female and three male, age 20 – 22 ($M = 21$; $SD = .71$) with the coaching experience ranging from 5 months to 2.5 years participated in the study. The content of the intervention was offered through a university administered programme as a CPD workshop and coaches voluntarily enrolled to it. The decision to offer the programme to the novice coaches was guided by the assumption that less experienced coaches tend to not yet have strong coaching habits and therefore their style is more malleable. Research in the education domain confirms this line of reasoning with regards to young teachers (e.g. Hoy & Woolfolk, 1990). Coach A was a rugby coach

working with a university team. Coach B was at the time of the study working as a fitness instructor and she had previous experience working with an athletics club. Coach C was working with an adult athletics club as well as two cricket youth teams as an assistant coach and strength and conditioning coach. Coach D led an adult football team and Coach E was working with youth college football team as an assistant coach. Due to the fact that athletes of Coach E were minors and due to a lack of approval from the head coach, athletes did not take part in the assessment.

The study was designed as a pre-post intervention on individual cases in which data was collected from all of the five coaches and it was analysed individually. It was a mixed-method approach combining questionnaires and interviews. The interviews were used to obtain data to better understand coaches' perceptions of the constructs presented in the intervention, and as a form of social validation. In the single case research, social validation refers to procedures which are used to determine satisfaction with an intervention (Page & Thelwell, 2013) The present study drew from the single case research approach (Barker, McCarthy, Jones, & Moran, 2011); however, instead of establishing a baseline for participants' target variable, which is then measured repeatedly after introducing an intervention, the data was collected only once a week prior to the commencement of the intervention. Moreover, in the single case research behaviour changes are monitored during the intervention, whereas in the present study there was only a retention assessment seven weeks after the end of the intervention. As Barker et al. (2011) explained: "The validity of the intervention is determined by observing changes in the target variable(s) after introducing an intervention. If similar changes are observed across participants, it supports the efficacy of the technique employed" (p. 19). In the present study, data analysis followed a graphical approach procedure which comprises presenting the data on a graph, inspecting the data visually, and interpreting the change in target variable(s). Moreover, to compare phases of the study, the effect size statistics were analysed. There are two main methods to calculate an effect size in a single-case research: Δ -Index and g-Index, and in the present study the Δ -Index was used due to the fact that the g-index depends on the subjective definition of the 'desired zone' and it is insensitive to changes in the 'not-desired zone'. For example, if the 'desired zone' is a score 'at least 5', then an improvement from 2.5 to 4.5 would be ignored as it does not meet the criteria of the 'desired zone', even though this increase could be a substantial one in the practical terms. Therefore, the Δ -Index was calculated and the interpretation

followed guidelines presented by Parker and Vannest (2009): < 0.87 small effect size; $0.87 - 2.67$ medium effect size; and > 2.67 large effect size.

Athletes experimental group. Thirty-four athletes of four coaches took part in the initial assessment: 15 rugby players, 6 fitness class participants, 5 runners, and 8 football players. The age ranged from 18 to 44 years old ($M = 22.6$; $SD = 5.6$) and there were 4 female and 30 male athletes. In the second assessment twenty-eight players filled in the questionnaires: 2 female and 26 male athletes.

Athletes control group. In the initial assessment, twenty-six athletes representing three sports clubs constituted the control group: 15 volleyball players and 11 cricket players. The age ranged from 18 to 36 years old ($M = 23.1$; $SD = 5.6$) including 18 male and 8 female athletes. In the second assessment twenty-one athletes took part: 15 male and 6 female athletes. Athletes in the control group did not receive any treatment.

5.4.1.2 Experimental Procedure

The present study used a quasi-experimental design as a condition regarding random assignment to the control and experimental groups was not possible to be met. According to Grant and Wall (2009; p. 655):

A quasi-experiment is a study that takes place in a field setting and involves a change in a key independent variable of interest but relaxes one or both of the defining criteria of laboratory and field experiments: random assignment to treatment conditions and controlled manipulation of the independent variable.

The intervention effects were considered as a change in the experimental group in relation to the control group from pre-test to post-test. Table 5.1 shows the time scale over which the intervention was conducted.

Table 5.1 Intervention timescale.

Week								
1	2	3	4	5	6	7-11	12	13
Int. 1	DC 1	WKSP 1	WKSP 2	WKSP 3	WKSP 4	Break	Int. 2	DC 2

Note: Int. = Interview, DC = Data Collection, WKSP = Workshop

In week 1 each participant met with the principal investigator. The aim of the meeting was to get to know each other and to conduct a semi-structured interview. The interview explored coaches' philosophy of work and perception of their own practice; it was also a first opportunity to start building a rapport between participants and the

educator. Moreover, each of the coaches filled in a questionnaire assessing: transformational leadership behaviours; coach-athlete relationship quality; usage of relationship maintenance strategies; and levels of vitality, satisfaction with performance, belonging, and controlling behaviours. The measurement of the athletes' outcomes was conducted in week 2 (a full list of the questionnaires is stated in the section below); both experimental and control groups were approached at approximately the same time. Athletes were informed about the purpose of the study and ensured about the confidentiality policy.

In weeks 3, 4, 5 and 6 four workshop sessions were conducted exploring different yet interconnected topics: coaching philosophy, transformational leadership (transformational leader's behaviours and communication), social interactions in sport (coach-athlete relationship and communication strategies to maintain effective relationships), and athletes' needs satisfaction and positive outcomes (well-being, engagement, harmonious passion, and motivation). The workshop series started with exploring coaching philosophy to help coaches learn about themselves and prepare them to adapt new information to their own coaching contexts.

Over the next four weeks (between week 7 and 11) the participants were assigned a task to reflect on how the knowledge from each of the sessions can change their coaching practice. They were presented with questions aiming to help them focus on different areas of the programme: (1) How transformational can I be? What transformational leader's qualities can I manifest more and how? How does transformational leadership link to my coaching philosophy and what do I want to achieve in sport? (2) How do I build my relationships (focus on the process)? What am I comfortable with in my relationships with athletes? How can I use some of the communication strategies to further improve my relationships? (3) What can I do more to support autonomy, competence and relatedness (ACR) of my athletes? How does it link to my coaching philosophy? Are there any obstacles I might face when trying to incorporate more ACR focused tasks? In week 12 each of the participants met with the principal investigator again and underwent a semi-structured interview. The second interview focused on investigating coaches' perceptions of the usefulness of the programme as well as perceptions of changes in their coaching practice (for full list of questions see Appendix III (B)). The questions touched upon the topics of successful and unsuccessful attempts to implement new knowledge, the obstacles which were perceived by coaches as crucial in this process, and how future continuous professional

development courses could be delivered (considering topics and format). Finally, in week 13 athletes were approached again to fill in the questionnaires assessing their outcomes and perceptions of their coaches' practice.

5.4.2 Questionnaires

5.4.2.1 Questionnaires completed by the athletes

Transformational Leadership. See section 3.6.3. All subscales showed high reliabilities ($\alpha > .70$) measured in both groups during pre- and post-tests, with the exception of individualised consideration, high performance expectations, contingent reward, and fostering acceptance of group goals subscales in the control group, and inspirational motivation in the experimental group ($\alpha < .70$). Table 5.2 shows the value of Cronbach's α for all of the subscales.

Coach-Athlete Relationship. See section 4.4.9. All subscales showed high reliabilities ($\alpha > .70$) measured in both groups during pre- and post-tests, with the exception of closeness, meta-closeness, and meta-complementarity in the control group, and complementarity in the experimental group ($\alpha < .70$). Table 5.2 shows the value of Cronbach's α for all of the subscales.

Coach-Athlete Relationship Maintenance Strategies. The usage of communication strategies enhancing coach-athlete relationship was measured with the Coach-Athlete Relationship Maintenance Strategies Questionnaire (CARM-Q; Rhind & Jowett, 2012). The questionnaire contains 28 items measuring seven strategies: conflict management (5 items; e.g., "I try not to lose my temper during disagreements"), openness (4 items; e.g., "I state my opinion when we are setting goals"), motivation (5 items; e.g., "I show that I am motivated to work hard with my coach/athlete"), preventative (4 items; e.g., "I tell my coach/athlete when he/she has not met my expectations"), assurance (3 items; e.g., "I show my coach/athlete that he/she can rely on me when things are not going well"), support (3 items; e.g., "I give my coach/athlete support when they are going through difficult times"), and social networks (4 items; e.g., "I like to spend time with our mutual friends"). The questionnaire contains 28 items and the response scale ranged from 1 (*Strongly Disagree*) to 7 (*Strongly Agree*). The scale showed high reliability ($\alpha > .90$) measured in both groups during pre- and post-tests; the value of Cronbach's α is presented in Table 5.2.

Satisfaction. Participants' satisfaction with performance was assessed with 8 items from the Athlete Satisfaction Questionnaire (Riemer & Chelladurai, 1998). Two subscales were used: satisfaction with individual performance (3 items; e.g., "The degree of which you have reached your performance goals during the season") and satisfaction with team performance (3 items; "The extent to which the team has met its goals for the season thus far"). The response scale ranged from 1 (*Not at all satisfied*) to 7 (*Extremely satisfied*). The internal reliability of the questionnaire has been previously demonstrated (Riemer & Chelladurai, 1998). In the present study, the scale showed high reliability ($\alpha > .85$) measured in both groups during pre- and post-tests; the value of Cronbach's α is presented in Table 5.2.

The Controlling Coach Behaviours. To assess coaches controlling interpersonal style, the Controlling Coach Behaviour Scale (CCBS; Bartholomew, Ntoumanis, & Thøgersen-Ntoumani, 2010) was used. The scale contains 15 items measuring four subscales: controlling use of rewards (4 items; e.g., "My coach tries to motivate me by promising to reward me if I do well"), negative conditional regard (4 items; e.g., "My coach is less friendly with me if I don't make the effort to see things his/her way"), intimidation (4 items; e.g., "My coach shouts at me in front of others to make me do certain things"), and excessive personal control (3 items; e.g., "My coach tries to interfere in aspects of my life outside of sport"). The response scale ranged from 1 (*Strongly Disagree*) to 7 (*Strongly Agree*) and the psychometric properties have been assessed in previous studies (e.g., Bartholomew et al., 2010). In the present study, the scale showed high reliability ($\alpha > .90$) measured in both groups during pre- and post-tests; the value of Cronbach's α is presented in Table 5.2.

Coach Autonomy-Supportive Behaviours. The 6 item version of the Health Care Climate Questionnaire (HCQ; Williams, Grow, Freedman, Ryan, & Deci, 1996) adapted to the sport context was used to assess how athletes perceive their coaches' autonomy supportive behaviours (e.g. "I feel that my coach provides me choices and options"). The response scale ranged from 1 (*Strongly Disagree*) to 7 (*Strongly Agree*). The internal reliability of this questionnaire has been previously demonstrated (e.g. Reinboth, Duda, & Ntoumanis, 2004). In the present study, the scale showed high reliability ($\alpha > .85$) measured in both groups during pre- and post-tests; the value of Cronbach's α is presented in Table 5.2.

Performance. To assess athletes' perception of their performance the Elite Athlete Self-Concept Overall Performance Subscale from the Elite Athlete Self-Description

Questionnaire (Marsh, Hey, Johnson, & Perry, 1997) was used. The scale contains 8 items (e.g. “I am consistently able to give my best overall performance in my best sport/event”) and the response scale ranged from 1 (*False*) to 7 (*True*). The internal reliability of the scale has been previously demonstrated (e.g. Marsh et al., 1997). In the present study, the scale showed high reliability ($\alpha > .85$) measured in both groups during pre- and post-tests; the value of Cronbach’s α is presented in Table 5.2.

5.4.2.2 Questionnaires completed by the coaches

The coaches completed the aforementioned questionnaires (DTLI, CART-Q, CARM-Q, CCBS, and Satisfaction Scale), as well as inventories assessing their subjective level of vitality and level of belonging to the team. All of the Cronbach’s α values are presented in Table 5.2.

Subjective Vitality. Subjective Vitality Scale Individual Difference Level Version (SVS; Ryan & Frederick, 1997; Bostic, Rubio, & Hood, 2000) was used to assess vitality which has been recognised as an important aspect of eudaimonic well-being (Ryan & Deci, 2000). Individual Difference Level Version refers to ongoing characteristics of a person. The original scale has seven items (e.g., “I look forward to each day”) and the response scale ranged from 1 (Not at all true) to 7 (Very true); however, a study by Bostic et al. (2000) showed that by deleting one of the items the scale shows better internal reliability and for that reason responses from only six items were considered in the analysis.

Perceived Belonging in Sport. Level of perceived belonging in one’s sport was measured with Perceived Belonging in Sport Scale (PBS; Allen, 2006). The scale contains 11 items (e.g. “I feel like a part of my team”) and the response scale ranged from 1 (*Strongly Disagree*) to 7 (*Strongly Agree*). The internal reliability of the scale has been previously assessed (e.g. Allen, 2006).

Table 5.2 Alpha Cronbach coefficients for the control and experimental groups of athletes, and the coaches.

	Control		Experimental		Coaches	
	Pre	Post	Pre	Post	Pre	Post
TL	.91	.86	.93	.93	.82	.72
IC	.53	.49	.74	.71	.84	.87
IM	.72	.71	.55	.88	.67	.68
IS	.72	.73	.79	.79	.64	.61

HPE	.48	.56	.86	.76	.79	.71
CR	.74	.67	.76	.89	.80	.75
FAGG	.44	.60	.89	.77	.86	.66
RM	.75	.70	.94	.91	.63	.41
CAR	.93	.85	.87	.91	.89	.60
CLO	.84	.63	.73	.79	.91	.83
COM	.82	.68	.73	.76	.50	.58
COMP	.89	.85	.64	.84	.87	.83
MCAR	.91	.87	.89	.94	.95	.75
MCLO	.75	.57	.81	.86	.97	.62
MCOM	.83	.84	.79	.80	.75	.54
MCOMP	.89	.62	.79	.87	.88	.87
CARMS	.97	.92	.92	.91	.92	.87
OB	.96	.95	.93	.95	.79	.73
AB	.92	.89	.88	.93	x	x
SATISF	.91	.87	.91	.94	.87	.90
PERF	.94	.95	.89	.89	x	x
VIT	x	x	x	x	.60	.82
BELONG	x	x	x	x	.96	.94

5.4.3 Intervention Description

Coaches took part in four sessions, the sequence of which followed the order described by the transformational-relational coaching environment model presented in the Chapter 3. Each session was dedicated to a different topic; however, all the topics were interconnected and the participants had a chance to enhance the connection between the sessions by reflecting on the topics and relate them to their own coaching philosophies; a process which they started to explore during the first meeting. The workshops followed a format of a training session: starting with a warm up to get participants into a learning mood, followed by a training part where they learnt new skills and were presented with new knowledge, to finish off with a stretching section design to augment the effect of each workshop. The participants were given booklets which contained all of the activities conducted during the workshops and reflection cards. Moreover, at the end of each session coaches were presented with reading materials aiming to complement the new knowledge.

5.4.3.1 Session 1: Coaching philosophy

In gaining interpersonal knowledge and skills, it is crucial to reflect on a new skill, to have an opportunity to discuss ambiguity, and to share concerns with others because “meaningful learning connects knowledge with implementation in practice through reflection” (Stodter, 2014; p.ii). In the present study participants focused also on developing a coaching philosophy as well as undergoing the process of self-reflecting on their own practice. The first workshop was dedicated to getting to know each other, integrating the group, and establishing coaching philosophies (understood as a collective of values, beliefs, assumptions, attitudes, principles and priorities; Kidman & Hanrahan, 2011; Nash et al., 2008). Coaches explored their needs, motives and goals to understand better what drives them and what they expect when working with athletes. Learning about one’s coaching philosophy has been pointed out to be a constructive activity for coaches as it helps in handling difficult choices they are often faced with, make quicker decisions, and stay true to one’s beliefs (Burton & Raedeke, 2008). Moreover, coaches had a chance to broaden their self-awareness during this phase of the programme. Self-awareness is associated with ability to be in charge of oneself, deal effectively with the distractions, and it can also lead to improvement in sport performance (Giges, Petitpas, & Vernacchia, 2004). Also Smith and Smoll (2007) noted that self-awareness is a necessary condition for behavioural change. To further improve the habit of reflecting on one’s own practice, coaches were given reflection cards: large cards to the booklet and created based on Gibbs’ Reflective Cycle (1988) and Essential Study Skills (Burns & Sinfield, 2012), and small reflection cards (see: Appendix III (D)) containing the most pertinent information about a situation to reflect on later. Coaches were asked to fill in the small reflection cards whenever they encountered a situation during a training session that either triggered positive or negative feelings and then to reflect on at least one of those situation in a week by filling in the large reflection card. Moreover, in order not to limit the coaches and to allow them to find their own preferred style of reflection, reflective writing was encouraged on blank pages. The instruction was as follows: “Reflective writing is about a personal reaction to an experience. It is therefore written in the first person (I learnt... I discovered... etc.) and is less formal than academic writing. Is there anything else you would like to reflect on? This page is provided to give you an opportunity to further reflect on your practice.”

Table 5.3 Structure of the first session.

Time in minutes	Activity	Part of a session
7	Integration game.	Warm up
2	Presentation of the programme overview.	Warm up
5	Presentation of the Coaching Effectiveness Model (Coté & Gilbert, 2009).	Warm up
2	Presentation of the expected benefits from the participation in the course.	Warm up
8	Individual reflective activity: Why did you want to be a coach? What is your biggest motivation as a coach?	Training
5	Discussion with the group.	Training
8	Presentation detailing coaching philosophy and providing an example of a coaching philosophy – John Wooden’s “Pyramid of Success” (Wooden & Jamison, 2010).	Training
7	Group activity: What are the qualities of an excellent coach?	Training
7	Individual reflective activity: Decide about up to 8 skills that you consider representative for an excellent coach and then consider what is your coaching philosophy?	Training
7	Group activity: What is the most important lesson for you from today’s session? What do you think you need to work on? How do you want to do that?	Stretching
2	Explanation of the usage of reflection cards.	Stretching
1	Distribution of the reading materials: “The value of a coaching philosophy” (Smelley, 2013).	Stretching
Total time: 61 minutes		

5.4.3.2 Session 2: Transformational leadership

This workshop focused on transformational leadership behaviours and communication. Transformational leadership has been proven to be an effective coaching style in sporting environments (e.g. Callow et al., 2009; Vella et al., 2013b; Price & Weiss, 2013). During the second session participants had a chance to discuss qualities of a good leader and examples of coaches perceived as excellent leaders in their sports. Transformational leadership framework was presented along with research findings and the possible obstacles of this leadership style were discussed. Also, the topic of

communication in the context of leadership was explored. Coaches were not only presented with guidelines regarding delivering feedback and how to create an effective message, and also took part in practical activities where they could experience how different communication style can affect a message receiver. Afterwards, participants discussed what they can do in their individual practices to implement new knowledge and be more transformational. Lastly, the coaches were educated on goal setting technique and were asked to set a goal for themselves based on transformational leadership principles.

Table 5.4 Structure of the second session.

Time in minutes	Activity	Part of a session
5	Group activity: Any thoughts from last session? Reflection cards – what was your experience with them?	Warm up
3	Group activity - discussion: Give an example of a good leader. Why did you choose him/her? What is a role of a leader?	Warm up
5	Group activity: What makes a good leader? What qualities build a good leader?	Warm up
24	Presentation about transformational leadership detailing all transformational leadership behaviours.	Training
2	Group activity: an example of inspirational communication – a quote from the book “Leading with the Heart” (Krzyszewski & Phillips, 2004; pp. 80-81).	Training
5	Group discussion on transformational leadership behaviours.	Training
3	Presentation on the effects of transformational leadership in sport and other domains.	Training
7	Individual reflective activity: What can you do to be more transformational? What can you do in your coaching practice? How is it connected with your coaching philosophy?	Training
3	Group discussion: What difficulties you might experience and how to overcome them?	Training

7	Communication game – building a structure from blocks and leading another person to build the same one.	Training
2	Group activity – watching a scene of a film “Any Given Sunday”.	Training
5	Presentation about communication – six elements of effective communication (Crookes, 1991).	Training
5	Presentation about feedback and the “sandwich approach” (Burton & Raedeke, 2008).	Training
4	Group activity: providing correct feedback.	Training
5	Presentation about setting SMARTER goals (Macleod, 2012).	Stretching
3	Group discussion: What was the most important for you from today’s session?	Stretching
	Individual reflective activity: What do you think you need to work on? How do you want to do that?	Stretching
3	Individual activity: setting goals for the next week.	Stretching
1	Distribution of the reading materials: “Communication with players during a match” (Sports Coach UK, 2014).	Stretching
Total time: 95 minutes		

5.4.3.3 Session 3: Coach-athlete relationship and communication

During third meeting coaches received an educational presentation on the topics of building effective coach-athlete relationship and communication strategies which have been proven to help sustain an effective coach-athlete relationship (Rhind & Jowett, 2012). The seven communication strategies identified by the COMPASS Model (conflict management, openness, motivation, preventative, assurance, support and social networks) were discussed with the participants. To enhance the effects of the workshop, coaches discussed what they can do in their individual practices to incorporate the new knowledge, they also set a new goal focused on the development of coach-athlete relationship.

Table 5.5 Structure of the third session.

Time in minutes	Activity	Part of session
5	Group activity: Any thoughts from last session? Any new reflections from your coaching practice?	Warm up
10	Group discussion: Think about the coach who had the biggest impact on you. Why did you choose him/her? What qualities did you value the most?	Warm up
3	Discussion of famous coach-athlete partnerships: Bob Bowman and Michael Phelps; Toni Minichiello and Jessica Ennis-Hill.	Warm up
12	Presentation about 3+1C's Coach-Athlete Relationship Model (Jowett, 2009) and Coach-Athlete Relationship Model (Jowett & Poczwardowski, 2007).	Training
8	Individual activity: describing coaches' perception of their own relationship with a chosen athlete.	Training
15	Presentation about the COMPASS Model and explanation of each of the strategies enhancing coach-athlete partnership.	Training
10	Individual activity: what do you do within each of the COMPASS strategies?	Training
5	Group discussion: sharing examples how coaches maintain positive relationships with their athletes.	Training
3	Group discussion: What was the most important for you from today's session?	Stretching
3	Individual reflective activity: What do you think you need to work on? How do you want to do that?	Stretching
3	Individual activity: setting goals for the next week.	Stretching
1	Distribution of the reading materials: "Duke Men's Basketball Coach Mike Krzyzewski on Coaching." (http://www.championshipcoachesnetwork.com/public/249.cfm).	Stretching

Total time: 78 minutes

5.4.3.4 Session 4: Needs satisfaction

The final session started with a discussion of coaches' expectations of their athletes and the creation of a profile of an excellent sportsman/sportswoman. Built upon that notion, the next part of the workshop was dedicated to a presentation about how a social environment can enhance positive athletes' outcomes as proposed in the principles of Self-Determination Theory (Deci & Ryan, 2000). Further, the coaches were asked to individually come up with ideas how in their own practices they can satisfy athletes' needs for autonomy, competence, and relatedness, and afterwards they discussed the ideas with other participants. The coaches discussed their concerns regarding implementing new ways of satisfying athletes' basic psychological needs, and each of them set a goal based on the knowledge gained from this session. Finally, the coaches were asked to reflect upon the whole programme and were reminded to fill in their reflective journals for another week.

Table 5.6 Structure of the fourth session.

Time in minutes	Activity	Part of session
5	Group activity: Any thoughts from last session? What did you focus on in your reflections? Have you changed something thanks to reflecting on your coaching practice?	Warm up
5	Group activity: What qualities does a perfect athlete have?	Warm up
5	Individual activity: Decide about up to 8 skills that you consider representative for an excellent athlete and specify at what level they should be according to you.	Warm up
12	Presentation about Self-Determination Theory (Dec & Ryan, 2000) and Basic Psychological Skills Sub-Theory.	Training
9	Individual reflective activity: How do you as a coach satisfy athletes' needs for autonomy, relatedness, and competence?	Training
7	Discussion on the examples how coaches can support the three basic psychological needs.	Training
3	Group discussion: What was the most important for you from today's session?	Stretching
3	Individual reflective activity: What do you think you need to work on? How do you want to do that?	Stretching
3	Individual activity: setting goals for the next week.	Stretching

6	Group discussion: What was the most important for you from all of the sessions? Are you going to change your coaching practice somehow?	Stretching
1	Distribution of the reading materials: “Psychological need thwarting in the sport context: assessing the darker side of athletic experience” (Bartholomew et al., 2011).	Stretching

Total time: 59 minutes

5.5 Results

5.5.1 Athletes

Transformational leadership behaviours. A 2 (Group) x 2 (Time) fully randomized MANOVA conducted on the leadership behaviours indicated that there was a significant main effect for Group $F(1, 46) = 4.00, p = .05, \text{partial } n^2 = 0.08$, and a significant Group by Time interaction $F(1, 46) = 4.67, p < .05, \text{partial } n^2 = 0.09$. The main effect of Time was non-significant. The main effects are superseded by significant interactions, therefore only the significant interactions (or the interaction at the level of statistical tendency) are presented: individual consideration, $F(1, 46) = 7.50, p < .01, \text{partial } n^2 = 0.14$; inspirational motivation, $F(1, 46) = 3.16, p = .08, \text{partial } n^2 = 0.06$; intellectual stimulation, $F(1, 46) = 4.80, p < .05, \text{partial } n^2 = 0.09$; and contingent reward, $F(1, 46) = 5.78, p < .05, \text{partial } n^2 = 0.11$. The means, standard deviations, and F-values for all the leadership behaviours are displayed in Table 5.7.

Additional analysis was conducted on the significant interactions using Bonferroni corrected independent samples t-tests. The results suggested that the interaction for individual consideration, inspirational motivation, intellectual stimulation, and contingent reward was due to the experimental group significantly increasing from pre-test to post-test, while the control group did significantly decrease from pre-test to post-test. Moreover, Bonferroni corrected independent samples t-tests were also conducted to examine the direction of change for the non-significant interactions. The results demonstrated that in the case of high performance expectations, the control group remained stable whereas experimental group increased; in the case of fostering acceptance of group goals the experimental group increased from pre-test to post-test,

while the control group decreased; and finally in the case of role modelling both groups increase from pre to post tests.

Coach-athlete relationship. A 2 (Group) x 2 (Time) fully randomized MANOVA on the coach-athlete relationship quality (direct perspective) and on the coach-athlete relationship maintenance strategies indicated that there were non-significant main effects for Group and Time, as well as a non-significant interaction effect. A 2 (Group) x 2 (Time) fully randomized MANOVA on the meta perception of coach-athlete relationship quality has shown a significant main effect for Time $F(1, 46) = 4.25, p < .05$, and main effect for Group $F(1, 46) = 4.05, p = .05$; however, the interaction was not significant. The means, standard deviations, and F-values for all CAR variables are presented in Table 5.7.

Satisfaction and performance. A 2 (Group) x 2 (Time) fully randomized MANOVA on athletes' satisfaction indicated that there were non-significant main effects for Time and Group, and a significant Group by Time interaction $F(1, 46) = 3.62, p = .06$, partial $\eta^2 = 0.07$. The significant interaction was followed up using Bonferroni corrected independent samples t-test which showed the significant interaction for athletes' satisfaction was due to the experimental group significantly increasing from pre-test to post-test, while the control group significantly decreased from pre-test to post-test. A 2 (Group) x 2 (Time) fully randomized MANOVA on athletes' performance indicated that there was a significant main effect for Time, and the Bonferroni corrected independent samples t-test showed a significant increase in the experimental group from pre-test to post-test ($F(1, 46) = .19, p < .05, \eta^2 = .09$). The main effect of Group and the interaction were non-significant. The means, standard deviations, and F-values for athletes' satisfaction and performance are displayed in Table 5.7.

Table 5.7 Means (M) and Standard Deviations (SD) of all of the variables pre- and post-intervention in athletes' experimental and control groups.

	Experimental		Control		Group	Time	Interaction	
	Pre M(SD)	Post M(SD)	Pre M(SD)	Post M(SD)			F-value	F-value
MANOVA (1,46)								
DTLI	5.72(.74)	5.98(.55)	5.49(.62)	5.50(.53)	4.00*	1.58	4.67**	.09
IC	5.62(.86)	6.13(.61)	5.57(.74)	5.52(.68)	3.19*	4.84**	7.50***	.14
IM	5.82(.63)	6.09(.63)	5.70(.74)	5.64(.62)	2.97	1.28	3.16*	.06
IS	5.37(.98)	5.73(.85)	5.37(.79)	5.24(.83)	1.15	1.10	4.80*	.09
HPE	6.07(.76)	6.23(.68)	5.69(.68)	5.69(.65)	6.28**	1.14	1.14	.024
CR	5.63(.76)	6.10(.59)	5.69(.79)	5.58(.64)	1.99	2.25	5.78*	.11
FAGG	5.74(1.15)	5.96(.89)	5.60(.89)	5.44(.83)	1.79	.055	1.98	.041
RM	5.37(1.09)	5.62(.99)	5.37(.97)	5.39(.86)	.197	1.16	.792	.017
CAR	5.77(.67)	5.94(.64)	5.54(.97)	5.78(.54)	1.82	.513	0.07	.002
MCAR	5.52(.72)	5.71(.75)	5.05(.83)	5.40(.66)	4.05*	4.25**	0.55	.012
CAR maintenance strategies	4.98(.93)	5.19(.76)	4.56(1.16)	4.79(.97)	2.98	1.18	0.014	.00
Controlling behaviours	2.87(1.04)	3.42(1.29)	3.49(1.32)	3.63(1.21)	1.32	2.66	1.35	.028
Autonomy supportive behaviours	5.45(.88)	5.68(.63)	4.58(1.01)	4.86(.84)	16.80***	2.29	0.15	.003
Satisfaction	5.15(1.14)	5.54(.99)	4.84(1.16)	4.89(1.13)	1.95	.83	3.62*	.07
Performance	4.97(.99)	5.34(.84)	4.85(1.12)	4.99(1.16)	.62	3.28*	1.36	.029

Notes: * $p < .09$; ** $p < .05$; *** $p < .01$

Coach behaviours. A 2 (Group) x 2 (Time) fully randomized MANOVA on coach controlling behaviours indicated that there were non-significant main effects for Group and Time, as well as a non-significant interaction effect. A 2 (Group) x 2 (Time) fully randomized MANOVA on coach autonomy supportive behaviours has shown only a significant main effect of Group, $F(1, 46) = 16.80, P < .001, \eta^2 = .27$. The means, standard deviations, and F-values for the coach behaviours are displayed in Table 5.7.

5.5.2 Coaches

5.5.2.1 Individual analysis

Interviews. A week before the first workshop and five weeks after the intervention, coaches underwent semi-structured interviews. Post-intervention interviews contributed to social validation which aimed to explore the process of intervention delivery and its effects. The interviews conducted prior to the workshops were dedicated to acquainting the educator and participants with each other, starting to build rapport, and learning about participants' ways of coaching (e.g. how their usual training session looks like; what is their preferred communication style, etc.). The interviews also touched upon coaches' perceptions of the following topics: their transformational leadership behaviours (e.g. transferring own vision onto athletes), their ability to maintain effective relationships with athletes (e.g. ways of showing athletes trust), and satisfaction of athletes' needs for autonomy, competence, and relatedness (e.g. how are different decisions made in teams or groups). The interviews conducted post-training programme followed the same schedule, as well as explored coaches' perception of the usefulness of the training programme. Coaches were asked to reflect on the ways they incorporated new knowledge and skills into practice and give examples, as well as share their perceptions on whether the content of the course has changed anything in their coaching practice.

Initially the interviewer transcribed the interviews verbatim, before comparing the transcripts against the recordings to ensure a match between the audio and the transcribed text. Subsequently, the transcripts were read several times for the researcher to become acquainted with the data. A content analysis of the interviews was conducted in two ways: (a) each of the participants was considered individually and their lone change was investigated, and (b) all of the participants as a group were studied to

discover common themes in the post-intervention interviews to understand the usefulness of the training programme for the coaches.

In the first analysis, there were fourteen points of focus based on transformational leadership in sport model (Callow et al., 2009), coach-athlete relationship model (Jowett, 2009), Basic Needs Satisfaction Sub-Theory (Deci & Ryan, 2000), and the Coaching Behaviour Assessment System (CBAS; Smith & Smoll, 1984): usual training session format, coaching philosophy, reaction to mistakes, feedback, encouragement, reaction to misbehaviour, non-sport communication, showing commitment, showing trust and respect, developing relationships, motivating athletes, giving a technical instruction, transferring vision, and group decision making processes. In the second analysis, apart from the above mentioned focal points, each of the workshop sessions was evaluated with regard to its usefulness and application to each coaches' contexts, as well as perceptions of: the group they worked in (size, dynamics, and other coaches' characteristics), goal setting activities, reflection cards activities, and reading materials they were provided with after each session.

Coach A

Table 5.8 Analysis of Coach A's interviews' data.

Point of focus:	Change:	Post-intervention interview quote:
Usual training session format	The beginning and major parts of the session were described in the same way; however, the end part of a training session has changed. The coach started to have a quick debrief at the end of each session in which he uses open questions to check athletes' understanding of the work they did in a particular training session.	"At the end [of a session], I have a little debrief, to check their understanding, using some sort of questions. (...) I use questioning to check their understanding. I do try not to just use superficial questions. I do try to go a bit deeper."
Coaching philosophy	Previously, his coaching philosophy was vague and based mostly on his own experience.	"I'm trying to think about players' needs and wants. I try to really make sure it's

Reaction to mistakes	<p>The post-workshops description revealed that his coaching philosophy is underpinned by the view of sport as a social process and a focus on athletes' needs.</p> <p>Only subtle changes in the description of reactions to mistakes were noticed. The main difference was linked to the more extensive usage of questioning and giving ideas to play with whilst discussing the mistakes. In pre- and post-workshop interviews the aspect of including athletes in the discussion was present.</p>	<p>good for them. The whole experience, I want them to come back, I want them to bring other people. (...) They need to, first of all, be engaged and interact with one another, but it's not just me."</p> <p>"Recently with relationships, I've thought a bit extra about how I approach them. How I respond. I try to think about them. I try to think about the bit in the future as well, when I'm trying to engage in the situation. (...) trying to get them through questioning, get to an answer, ideally."</p>
Feedback	<p>Making feedback factual and more positive, as well as linking it with previous experience of good performance and using different forms of feedback (verbal, video) constitute the major changes. The coach continues to include athletes in the feedback process by asking them questions.</p>	<p>"I've tried making it so it's not waffling, so it's like not background noise. Let's say: "that was fantastic", but they don't know what was fantastic, so trying to tag on to something. (...) I just try to link in to something they've done previously or something that they could do well."</p>
Reaction to misbehaviour	<p>Previously dealt with athletes' misbehaviour by turning misbehaviour into jokes, whereas</p>	<p>"I'll get the whole team in. I hope they have enough respect for me to listen. If I</p>

	after the workshops, the coach started to connect athletes' misbehaviour with the effect it has on him and the whole team.	show them how it's impacting me and then impacting teammates who aren't messing around, it would then make them feel: "Alright, we've got to stop that now"."
Non-sport communication	The main difference relates to being aware of the need to engage more into non-sport communication and its value. Also, the coach started defining his role as going beyond a role of a sport coach (e.g. helping in dealing with personal problems).	"I'd certainly ask how are things going at the beginning of a session but it's a bit too superficial. It's not really engaging in their personal life. They don't really come to me to talk about that. (...) Again, I should probably be more pro-active in that, to build that bond, but I hopefully try to do that in other ways."
Developing relationships	In the second interview, building and caring for the relationships with athletes were achieved through showing effort (e.g. going an extra step like preparing slides with additional information for athletes) and respect.	"I'd like to think that through, this kind of an effort, I try to get things going. That creates the respect element and that the, sort of, emotional connection would start. I'm not the most open or interactive socially. I wouldn't approach it through doing lots of jokes. I'm not really like that. It's kind of a subtle approach."
Transferring vision	It was mentioned that the coach did not transfer his vision in the	"If you keep coming to the training I promise, I'll make

first interview. In the second interview, the vision focused on performance and enjoyment rather than on a result. Moreover, the coach underlined that he is willing to help players improve.

you a better player and you will enjoy it more". That's what I set out to achieve whether we lose, I don't care, I'd rather lose and play having a good time. No one likes failures that much and if you keep missing tackles, you don't like that, and I can help you with tackles. So that's why I feel, where I can take it forward."

Decision making process The notion of inviting athletes into the decision making process was present in both interviews; however, in the post-workshops interview, providing a framework (also more information) for the issue they are discussing was mentioned.

"I might provide a framework for certain things, certain moves that I give them a template but they can either adapt it, they can keep it. (...) So there is lots of options, so sometimes it comes solely from me but they still have a choice whether they want it or not."

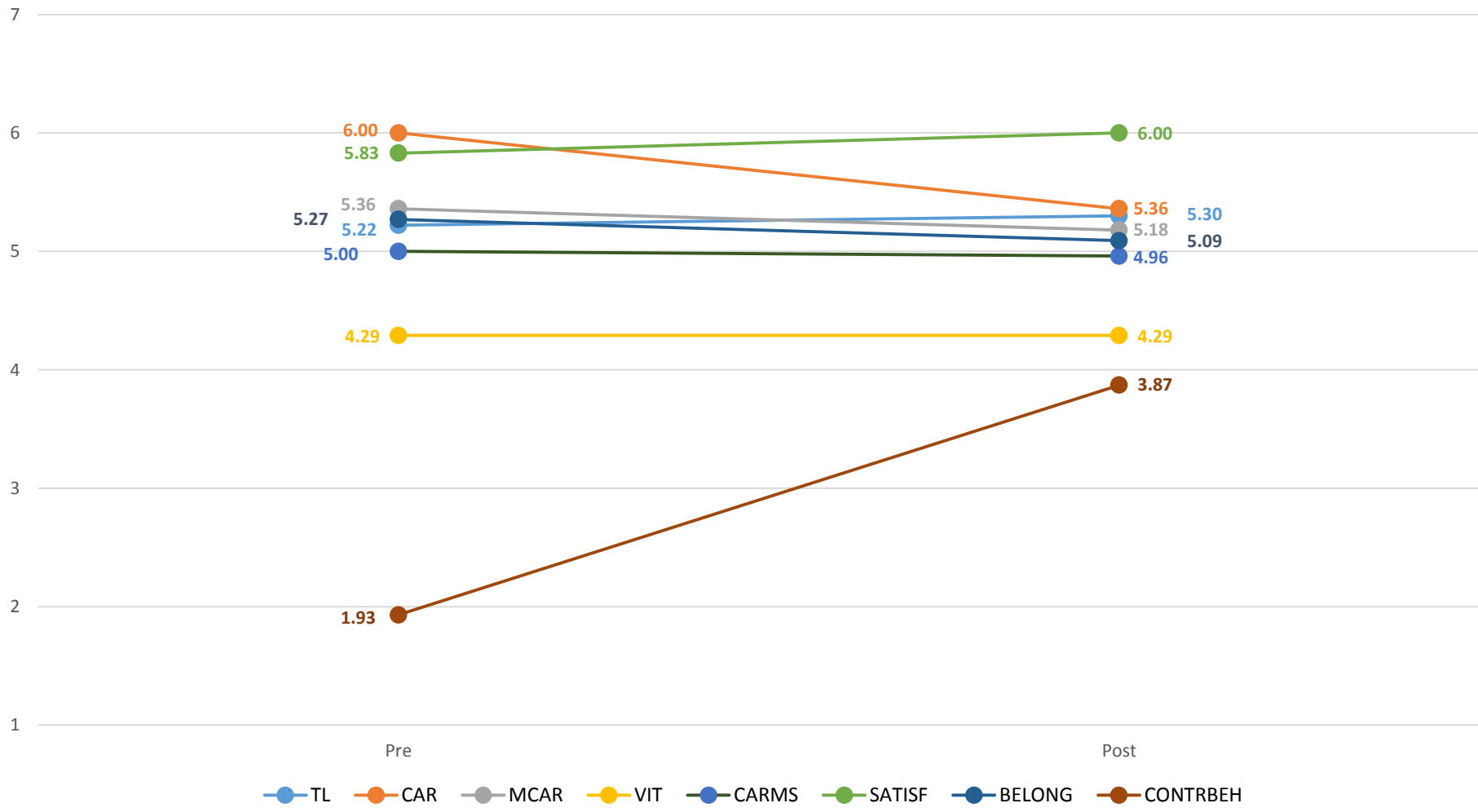


Figure 5.1 Results of the questionnaire data analysis in the pre- and post-workshops conditions for Coach A.

The post-intervention interview revealed changes in the nine points of focus in regards to the coaching practise of Coach A. The coach acknowledged being more aware of what he can do better several times including the need to relate with athletes on a non-sport specific level and to extend the usage of open questions to check athletes' understanding of various training elements.

Furthermore, the coach clarified his coaching philosophy which focuses strongly on the social aspect of sport participation and athletes' needs, and some of his behaviours have changed accordingly. The way he reacts to misbehaviour changed from laughing off the situation into connecting it with the effect it has on the whole group, and when making a decision, the coach started to provide athletes with more information to base their decisions on, which can not only improve their knowledge of the sport, but also increase their sense of competence. Finally, the coach attempted to convey his vision to the athletes which put a spotlight on enjoyment and progress, and his willingness to devote time and effort to help his players become improve.

The analysis of the questionnaire data revealed that the levels of transformational leadership (Δ -Index = 0.18) and the usage of controlling behaviours (Δ -Index = 3.73) has increased, vitality remained the same (Δ -Index = 0), and five variables have decreased: coach-athlete relationship direct perspective (Δ -Index = 0.94), coach-athlete relationship meta perspective (Δ index = 0.24), usage of coach-athlete maintenance strategies (Δ -Index = 0.06), belonging (Δ -Index = 0.24), and satisfaction (Δ -Index = 0.24).

Coach B

Table 5.9 Analysis of Coach B's interviews' data.

Point of focus:	Change:	Post-intervention interview quote:
Coaching philosophy	Prior to the intervention, the coach did not feel she had developed a coaching philosophy, whereas afterwards, she described her coaching philosophy as focused on inspiring people to progress and to have more	"I see it as inspiring people to want to continue more, want to learn more from other people. And in fitness it's about them having the confidence to be able to go and do it themselves, and be confident enough they can do their own session, they don't

	confidence in their skills.	need someone there.”
Encouragement	The change in showing encouragement was noticed by the coach in the amount of it. She increased the amount of encouragement she conveyed, especially after a positive performance.	“A lot of the time: “Yes, you can do it. Just get one more through. Two more, only 5 seconds left.” Things like that. “Come on, come on, come on, you can do it”.”
Non-sport communication	The coach increased the number of occasions when she speaks with her athletes about non-sport matters. In the first interview, she only mentioned post-training conversations, whereas in the second interview it is visible that she seeks other opportunities as well.	“We chat about anything. Like, for example: weather, shoes, just general conversations. (...) Before the session, in the break in between, afterwards. Depends if I’m working with a partner, I’d speak with them throughout as well.”
Developing relationships	In the first interview, the coach did not know how to answer the question regarding building and maintain relationships with her athletes. In the second interview, the coach mentioned different strategies, for example: communicating more, applauding good performance, and showing interest in athletes’ important events.	“In a long term, like, referring to things they did in a past, or said they would do three months before and then it happened. I remember that I had this conversation with some of them.”

Coach B worked in a fitness environment and perceived that some parts of the workshops' content were not fully applicable to her present role as a fitness instructor; however, she identified them as useful for the future role of a hockey coach (beginning next academic year). The content of the post-intervention interview exposed differences in four areas. First of all, the coach developed her coaching philosophy; she distinguished, as her main motivator, helping people to build their fitness confidence and by that be inspired to reach challenging goals. Further, the coach started paying attention to convey more encouragement throughout the fitness sessions, as well as focus on relating more to the participants by communicating about non-sport matters. Moreover, it was visible that the coach reflected on her relationships with the fitness participants as she identified strategies she uses to sustain effective relationships. The analysis of the quantitative data disclosed an increase in the level of four variables: coach-athlete relationship meta perspective (Δ -Index = 0.12), coach-athlete relationship maintenance strategies (Δ -Index = 0.57), belonging (Δ -Index = 0.12), and controlling behaviours (Δ -Index = 1.29), as well as a decrease in four variables: transformational leadership (Δ -Index = 0.42), coach-athlete relationship direct perspective (Δ -Index = 0.66), vitality (Δ -Index = 1.10), and satisfaction (Δ -Index = 0.93).

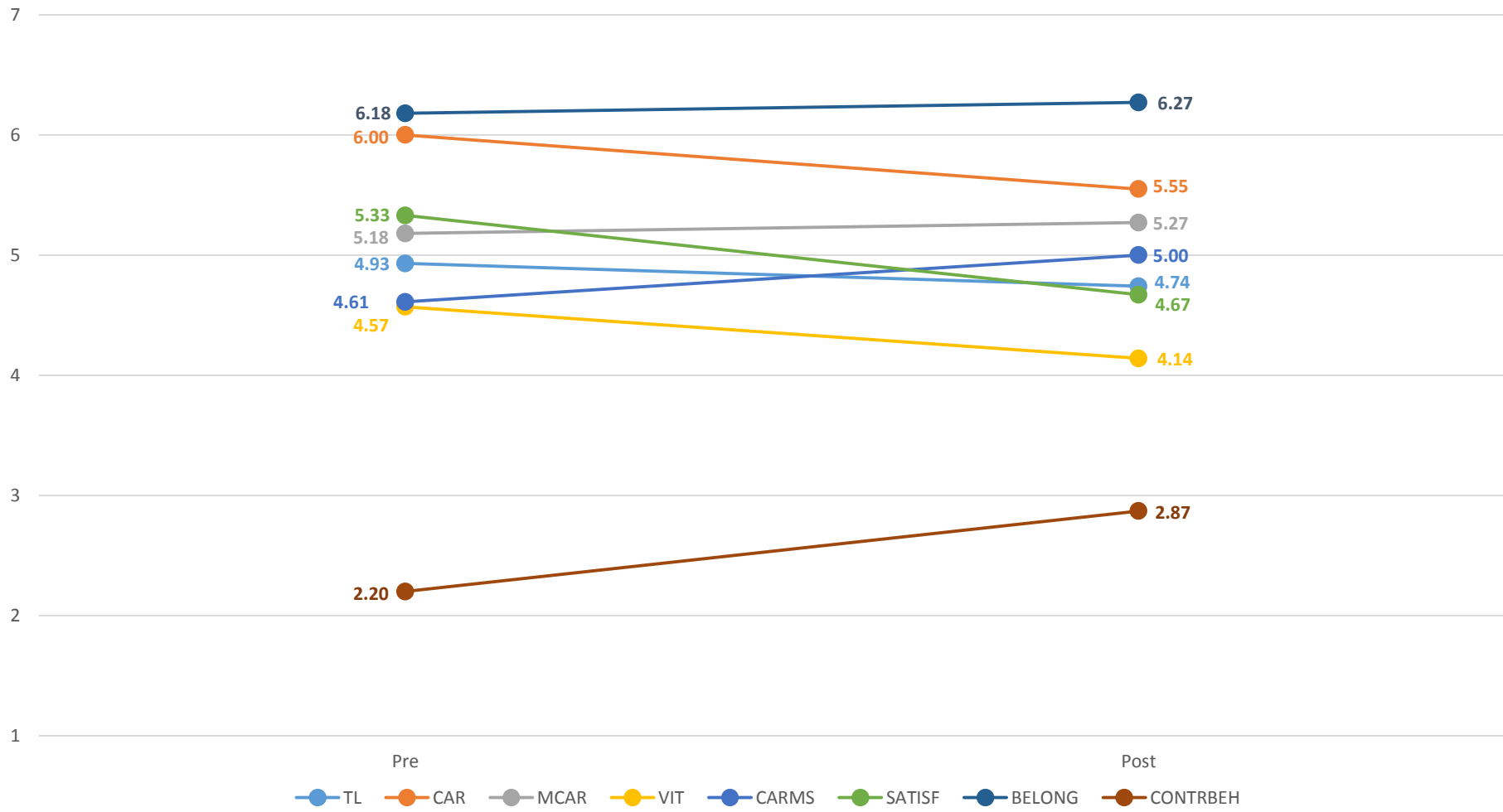


Figure 5.2 Results of the questionnaire data analysis in the pre- and post-workshops conditions for Coach B.

*Coach C**Table 5.10 Analysis of Coach C's interviews' data.*

Point of focus:	Change:	Post-intervention interview quote:
Usual training session format	The major change was seen in the addition of a detailed explanation of each part of the session, as well as allowing athletes more autonomy by leaving them to proceed with a task and monitoring their progress.	"I'd usually go through the session on a board, I'd written it up, lay down any specific aims or objectives for the session, and then detailed out what exactly it entails. And then more or less will introduce and leave them to do it and just wonder around, monitor things, give feedback when appropriate and try for it not to be hugely coach led when I'm comfortable they know what they're doing, adequately competent to get on with it. Like a supervisor."
Coaching philosophy	Even though the coach is still working on his coaching philosophy, the shift has been noticed in the focus point: from an individual perspective (being successful) to the focus on athletes (facilitating a learning environment).	"Improvements on different scale, long term progression. (...) Coaching has become more about facilitating an environment in which they can learn, progress, and improve."
Reaction to mistakes	The process of reacting to mistakes has not changed greatly; however, the coach perceived that his confidence to react has increased, as well as he	"I would probably look at, capture it on an iPad or something like that and then be able to show them "Can you see what they're doing?" Just so they have more ability to evaluate themselves, basically. How it looks

	started showing athletes like as well how they feel it's their mistakes by using happening." different means (e.g. on an iPad).
Feedback	<p>The coach started using a "sandwich approach" and his feedback refers to wider range of athletes' behaviour.</p> <p>"I try to use the sandwich now. So if it's more of a wide ranging kinda debrief when I started to incorporating it. It might be a general overview of one specific thing or two things that went well within certain session, something that they need to be aware of as possibly having a negative influence on them. (...) a bit directional, and then a general overview."</p>
Encouragement	<p>Previously, the coach struggled to find many opportunities to encourage his athletes. In the post-intervention interview it was noticed that not only he joins feedback with encouragement, but also tries to use different methods to show improvement.</p> <p>"That could be on a video, showing them what they looked like 5 minutes ago, what they look like now. Or whether it's being able to show them on paper, you know: "You were doing this many repetitions with this exercise few weeks ago. Look at it now! It's clearly increased". So things like that. I think I was always on "Oh well, you did really well" side of things and now it's more "Look at the progression you've made" so they can see for themselves kinda a proof of what they've been able to accomplish."</p>

Non-sport communication	The coach has made a conscious effort to get to know his players better, from the non-sport side. He started perceiving getting to know each other as beneficial. Also, the coach has noticed that: “It was a lot easier than I would have probably thought”.	“This is something I’ve tried to develop a bit more in last few weeks. I tried to just build it in to a warm up as a sort of informal part. (...) It was not necessarily as much about getting that information ‘cause it isn’t necessarily an influence on what I do but it might influence how I talk in the future and just showing kinda interest and some commitment to them”.
Showing commitment	In the second interview, the coach underlined his conscious effort to show athletes his commitment by not only being there during other sessions, but also by linking his session (strength and conditioning) to other parts of the athletes’ training, showing more individualised content, and paying attention to athletes’ non-sport matters.	“I’d try to make a conscious effort, just being around in, in the other sessions. Not even necessarily getting particularly involved, but just kinda being there. Be open to chat about things, just even if it is organisational or anything like that. And again, I think it started to show a bit more of commitment in terms what I’m doing with them is linked to what other coaches do and, yeah, ultimately we all just try to help them develop as athletes and players.”
Showing trust and respect	The coach put a conscious effort to show that he trusts and respects his athletes by the way he communicates with them. Also, he underlined that this led to more	“Just trust and respect of both ways was great, communicating a bit more. I think it’s been evident as well in their work ethics a little bit more. (...) I think there is just a bit more kinda productivity and kind of intent to improve, recognition of why

	productivity and had a general positive effect on athletes.	I'm there, why they're there, what we can kinda get out of the sessions. Yeah, I think that's good".
Motivating athletes	During the first interview, the coach was unsure of the ways he uses to motivate his athletes. He pointed to only letting athletes understand the importance of why they execute certain drills. In the second interview, the coach also mentioned showing progress, relating to one's goals, and using relationships as a motivator.	"Trying to show them the progress they've made and kinda relate that to a point at the end of a season or whatever. And trying to have, trying to work with them towards specific goals. And yeah, sort of relating back to them."
Transferring vision	The coach attempted to convey his vision in the post-intervention condition.	"An example when I have done this is, again, during one of the 5 minutes debrief sessions that I had where we were at the end of a specific phase of training, (...), had to concentrate on one or two areas before progressing onto the next block so I was giving feedback in terms what they've done well and what haven't done well, and I started to kinda convey this vision towards the end of it in terms of giving an overview what I thought the rest of the season would look like, where I would like them to be at."

Decision making process	The coach started to notice a need for differentiation in regard to different sports (e.g. team vs. individual sports) and different athletes.	“So I guess you would have to kind of combine all those thoughts with your own and then with the head coach’s and come up with what works best for the majority and then try some individualisation where you can.”
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Coach C was a strength and conditioning coach working in more professional environment than other participants with an athletics club, and also with a youth cricket squad. The analysis of the second interview highlighted differences in regards to twelve focal points. The coach started to build his own coaching philosophy, and even though the process has not finished yet for him, his main focus refers to creating a learning environment for the athletes and players he works with. Learning more about himself through reflection process, especially about his leadership qualities, allowed this coach to feel more confident when dealing with athletes’ mistakes, as well as adapt more easily to various situations (e.g. changing from his preferred communication style to the requirements of a situation). The coach has changed the way he leads his training session by finding opportunities to allow athletes more autonomy, as well as by providing athletes with detailed explanation of the drills. The coach started to use the “sandwich approach” to communicating feedback and connected it with more encouragement as well as usage of various methods (e.g. providing examples of improvement on paper or in a video).

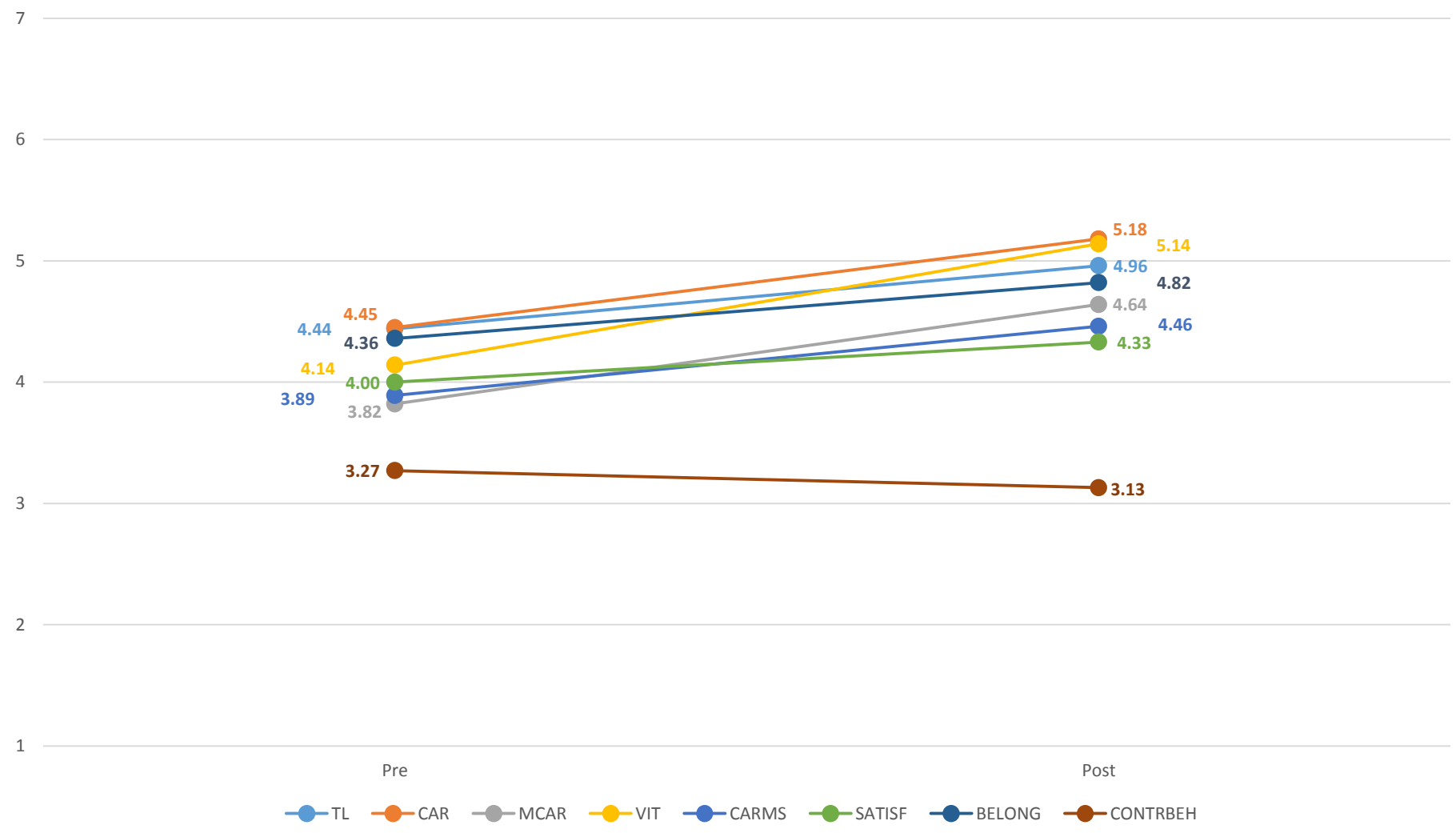


Figure 5.3 Results of the questionnaire data analysis in the pre- and post-workshops conditions for Coach C..

The coach acknowledged that he started to consciously put in effort to improve his relationships with his athletes by improving commitment, trust, and respect (e.g. the coach set a goal to learn about non-sport related information of three of his athletes). Moreover, he commented that he believes this effort has already brought him benefits in terms of athletes' productivity and their approach towards him. Showing athletes the progress made and building their confidence have become coach's ways of motivating athletes, and it is coherent with the vision he attempted to convey to his athletes (previously, he did not even try to transfer his vision). Finally, the reflecting process influenced the way he approaches decision making process in different sports he collaborates with; the coach started using a more differentiated approach and tries to find opportunities to invite athletes to make decisions alongside him.

The questionnaire data analysis reflects the results of the interview analysis, even though none of the differences are statistically significant. All of the variables: transformational leadership (Δ -Index = 1.16), coach-athlete relationship direct perspective (Δ -Index = 1.07) coach-athlete relationship meta perspective (Δ -Index = 1.09), usage of coach- athlete maintenance strategies (Δ -Index = 0.84), vitality (Δ -Index = 2.56), belonging (Δ -Index = 0.61), and satisfaction (Δ -Index = 0.47) have increased, apart from the level of controlling behaviours which dropped from 3.27 to 3.13 (Δ -Index = 0.27).

Coach D

Table 5.11 Analysis of Coach D's interviews' data.

Point of focus:	Change:	Post-intervention interview quote:
Coaching philosophy	Previously, the coach underlined teamwork and self-efficacy as outcomes he wants to develop in his athletes. In the second interview, the focus has shifted to satisfying athletes' autonomy, competence and relatedness needs, as well as engaging them in thinking about the game, and	"I'm a coach who very much focuses on the three basic needs. I like my players to have autonomy. I don't do everything myself. (...) I ask for their opinions. Sort of engage them in thinking about the game themselves rather than me spoon-feeding

	supporting social aspect and enjoyment of the sport.	them information as well. (...) I like them to feel like they're worth the place in the team; I like to reassure them they're good players. (...) It just gives us a bit of social time as a team, it's not just football. It is more than that. And that helps the relatedness aspect."
Feedback	The change in providing feedback was slight; it was visible in praising not only good task execution, but also intentions and adaptation to the coach's instructions.	"And in terms of, sort of after a drill in training, I just reflect on it. Whether I think it went well or not. If it went well, I'll give them praise for adapting pretty well, working hard, listening, which is always good."
Encouragement	The difference in the ways of providing encouragement in the first and second interviews lies in encouraging players not only after mistakes, but also after a good performance.	"I like to praise intentions, so if they try the right thing and it doesn't come off, I'd say: "Well done. Good idea. Try again next time", things like that. That's probably my main form of encouragement. I look into intentions rather than just execution."
Technical instruction	Communicating a technical instruction was different in the second interview comparing to the first interview in regard to using other players to model a behaviour, instead of only coach	"I'd probably ask one of my players to show them rather than me doing it again".

	showing how to execute certain drill.	
Non-sport communication	The coach has always put an effort to be social with his players but since participating in the intervention, he is more active in seeking opportunities to get to know his players from non-sport perspective.	“I’m very socially active with my players. I try to speak. Obviously I can’t always manage it but I try to speak with as many as possible. And throughout the week I text and ask about their availability, and things like that.”
Showing trust and respect	The description of showing trust and respect to the athletes has changed in that the elements of transformational leadership (individual consideration and leading by example) are clearly visible.	“I want to speak with players one to one, I think it’s difficult to gain trust if you just speak to a team. Individual conversations with players, it makes them feel better, more important, I think. So I like to do that quite a lot. In terms of respect, I like to lead by example.”
Decision making process	Even though the coach allowed players certain degree of autonomy and sought their opinions, he started also delegating certain parts of the training session (e.g. warm-up) to other players.	“I like my players to have a say. (...) If there are more experienced players on a bench with me, or players I perceive to have a decent knowledge of football and more experienced perspective, then I’d come and consult them.”

Coach D was a football coach working at a grass-roots level. The qualitative investigation revealed changes in the seven focal points. The coaching philosophy of this coach shifted to the satisfaction of athletes' basic psychological needs of autonomy, competence, and relatedness, and the description of his coaching practice mirrors this approach. The coach started to pay attention to create an enjoyable environment in which he praises not only the task execution, but most of all intentions. The coach began incorporating encouragement after a positive play as well as after a negative, to either help deal with a mistake or reinforce a good performance. In regards to giving a technical instruction, the coach started to use other athletes to demonstrate correct behaviour, which may have a positive effect on their confidence. Moreover, elements of the transformational leadership, such as individual consideration, were mentioned in the description of conveying trust and respect to the athletes. Finally, it was noticeable that the coach changed his approach towards decision making process and he started delegating tasks or even whole parts of the training session (e.g. a warm-up) to some of the athletes.

The quantitative data showed an increase in three variables: vitality (Δ -Index = 1.08), belonging (Δ -Index = 0.12) and usage of controlling behaviours (Δ -Index = 0.38); a decrease in transformational leadership (Δ -Index = 0.42) and satisfaction (Δ -Index = 2.11) and no change in both perspectives of the coach-athlete relationship (Δ -Index = 0).

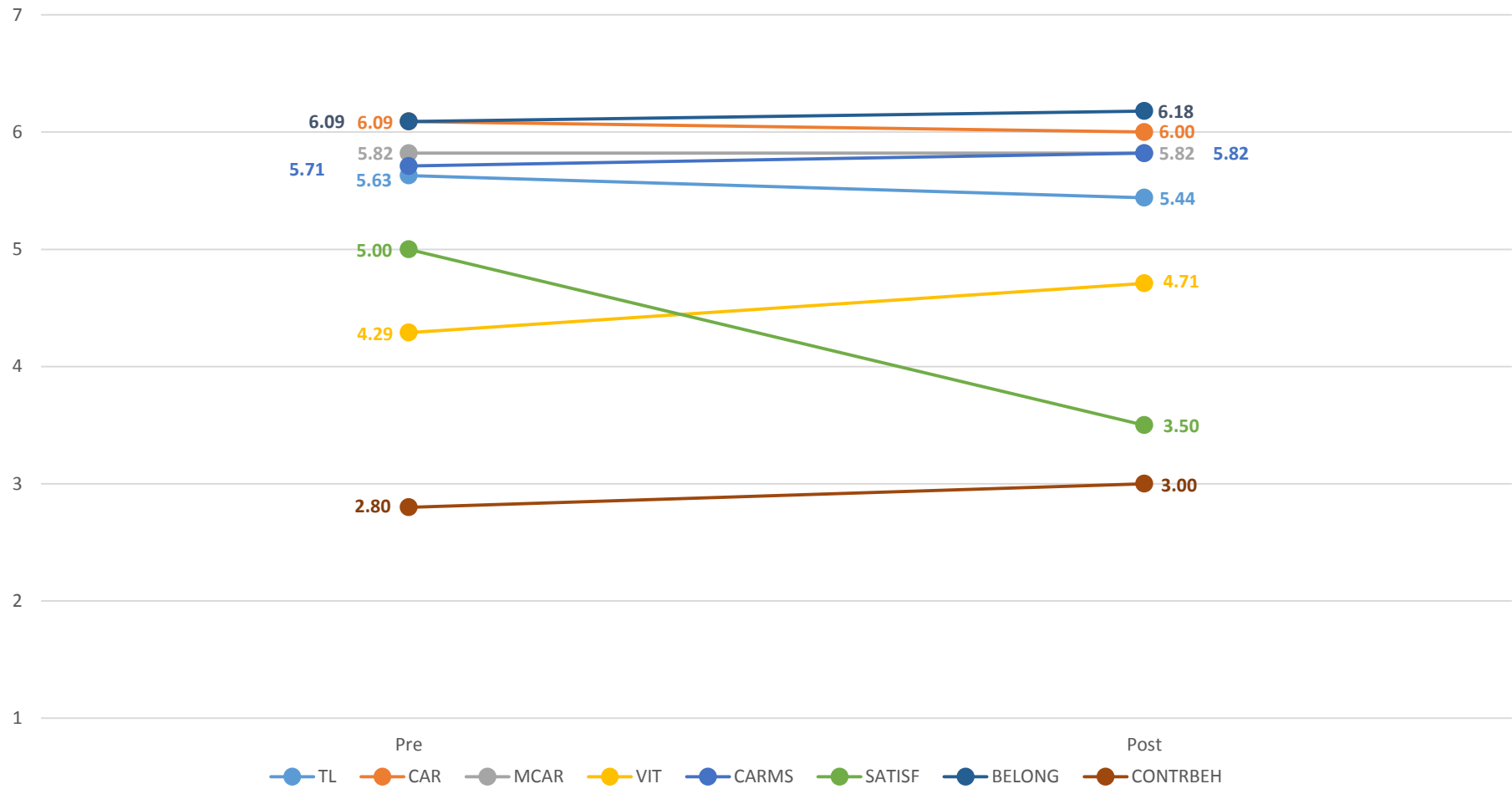


Figure 5.4 Results of the questionnaire data analysis in the pre- and post-workshops conditions for Coach D.

*Coach E**Table 5.12 Analysis of Coach E's interviews' data.*

Point of focus:	Change:	Post-intervention interview quote:
Coaching philosophy	The coach was not sure of her coaching philosophy, the description of it was vague; however, she underlined the role of enjoyment and progress. After the workshops, the philosophy is more concise and it focuses on athletes' development especially their decision making abilities, being independent, as well as providing athletes with enjoyable sessions. The view of herself as a coach has expanded, as she sees her role going beyond sport and being a kind of a mentor.	"Even though I'm a coach, my role could go beyond that. (...) you're kind of like a mentor, a role model, things like that. You're not just there to coach sport. You can give them so much more than that."
Reaction to mistakes	The coach started to approach mistakes by asking athletes how they perceive the situation, and then if needed, to demonstrate the technique.	"I'd probably take them aside and ask why did you end up in this situation? What could you do better? So then they're thinking for themselves and I think they take more ownership of it then."
Feedback	Change in the way feedback is provided is seen in involving athletes the process by asking for opinions and discussing performance from their perspective.	"When we give then feedback we try to involve them in it. So we'll give what we think and then we would say: "What do you think?" So basically it's more open."

Non-sport communication	Even though there were not many opportunities to talk about non-sport matters, the coach come up with few examples of non-sport communication and sharing personal information.	“I was with one of the girls who was a substitute and we just got chatting about what she does at college and she said she wanted to be a coach. I have a cousin who’s done Camp America and he got a coaching job with New York Red Bulls through that. So I said: “Maybe look at doing something like that. Have you ever thought about maybe going to university?”
Showing commitment	The second interview revealed that she started showing more dedication and she tries to go an extra step to help the team.	“They know I’m there cause I want to be there. Like, they had an away match down south, they asked me if I wanted to go and I did. It was a full day thing and I didn’t have to go but I still did. It’s this a little bit extra, isn’t it?”
Showing trust	A change was noticed in the way trust is conveyed: not only by leading some parts of the session, but by allowing players to experience more autonomy.	“I think trust is important, like, when we do like feedback and reflections on our games and things like that. Opening up to the players it allows them to have a voice, and then I think by giving them a voice they trust you more. They trust your opinion more ‘cause it’s not just you dictating them all the time.”

Motivating athletes	In the pre-intervention interview the coach did not recognise how she motivates her athletes. In the post-intervention interview, the coach mentioned adapting to athletes' needs by for example giving them a different option.	“But then, in training or anything like that, especially with strength and conditioning things, some of them do struggle with it but you can kinda push them along with it. (...) I give them an alternative technique.”
Decision making process	The coach started including athletes in the drills and in the decision making process, which makes them learn and improve various skills.	“I guess when I get to do my own drills, that's all mine. I like the players to make their own decisions. I like them to learn something. (...) I don't want to be dictating things to them. I'd say to them: “This is the drill we're doing. It focuses on this, what are the key things we should look at?””

Coach E put a lot of effort to reflect upon her coaching philosophy as it was also part of her coursework assignment. In the second interview, the coaching philosophy was focused on athletes' development, not only sport specific, but the development of athletes' decision making abilities and becoming more independent thinkers. The coaching philosophy was clearly stated during the interview and its principles were visible in the description of various coaching aspects. When dealing with mistakes, the coach started to ask athletes about their perception of the mistake. By that, she is trying to encourage her players to take ownership of their progress and understand more about their sport. Including athletes was also mentioned in the feedback and decision making processes, which is coherent with her philosophy of coaching. At the beginning of the interview, the coach presented an opinion that there are not many opportunities to talk about non-sport matters; however, as the interview went forward and as she was revealing other aspects of coaching, she was coming up with many examples of non-sport

communication. Also, the coach admitted that she is more comfortable sharing some personal information and her experience which helps strengthen trust between her and the players (e.g. she shared her past experience with one of the drills to help an athlete develop certain skill). Finally, her approach to motivation changed as she not only recognises that different athletes have various reasons to play, but she also tries to adapt to athletes' needs to help them make an improvement.

The quantitative data showed an increase in transformational leadership (Δ -Index = 0.42), vitality (Δ -Index = 0.38) and satisfaction (Δ -Index = 0.24), and a decrease in both perspectives of the coach-athlete relationship (Δ -Index = 0.94 for direct and Δ -Index = 0.36 0. for meta), strategies used to maintain an effective relationships between a coach and athletes (Δ -Index = 0.10), sense of belonging to the team (Δ -Index = 0.60), and usage of controlling behaviours (Δ -Index = 0.13). The decline in the perceived level of coach-athlete relationship was unexpected and in contrast to the information shared during the second interview. A possible explanation refers to the fact that during the course of the workshops, the coach learnt about new ways of enhancing the relationships with athletes and understood that she only uses a limited number of them. The coach mentioned: "The different levels of experience were good 'cause I'm a fairly new coach whereas you've got Coach D who's been doing this for quite a long time and is in the same sport so it was really helpful. I quite liked it to be honest."

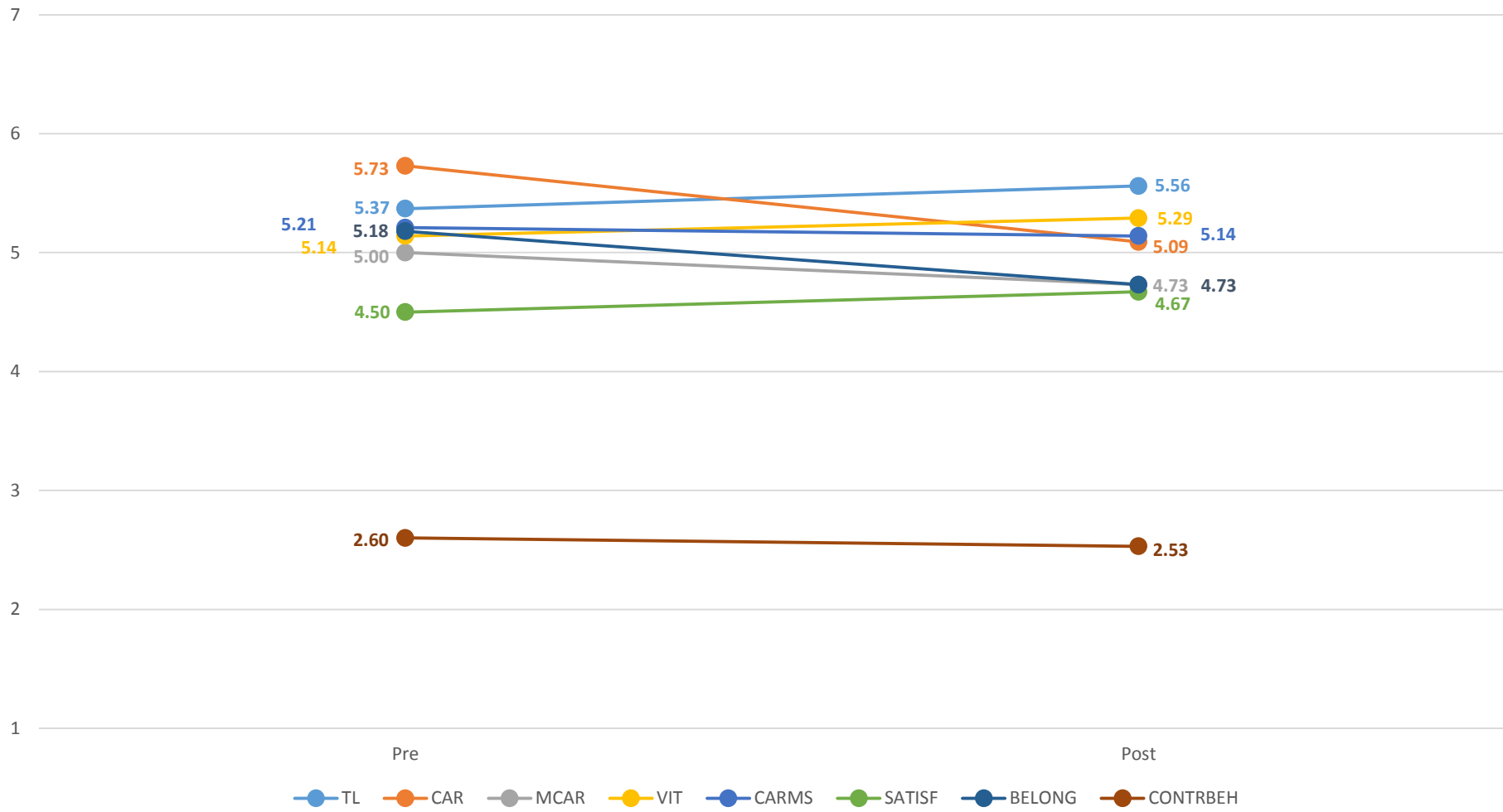


Figure 5.5 Results of the questionnaire data analysis in the pre- and post-workshops conditions for Coach E.

5.5.2.2 Quantitative analysis of all of the coaches

In the multiple-baseline design of single-case research the data is collected from several individuals. The efficacy of the employed techniques and the validity of an intervention is judged based on occurrence of similar changes across participants (Barker et al., 2011). In the present study, there were three variables which increased for four out of five participants: usage of coach-athlete relationships maintenance strategies, vitality, and controlling behaviours, and three variables which increased for three out of five coaches: transformational leadership, satisfaction, and belonging. Surprisingly, the questionnaire data did not show an increase in the perceived level of coach-athlete relationship (both direct and meta perspectives). Table 5.12 shows means (M) and standard deviations (SD) for all the variables measure pre- and post- intervention.

Table 5.13 Means (M) and standard deviations (SD) for all the variables measure pre- and post- intervention.

	Pre		Post	
	M	SD	M	SD
Transformational Leadership	5.12	.45	5.20	.34
Intellectual Stimulation	4.75	.83	4.95	.84
Individual Consideration	5.75	1.01	5.65	.60
Inspirational Motivation	5.40	.22	5.40	.63
High Performance Expectations	4.55	.89	4.65	1.00
Contingent Reward	5.40	.63	5.40	.38
Fostering Acceptance of Group Goals	5.00	1.27	4.87	.84
Role Model	4.95	.72	5.40	.38
Coach-athlete relationship (direct)	5.65	.68	5.44	.36
Closeness	5.80	.72	5.40	.60
Commitment	5.27	.59	4.93	.64
Complementarity	5.80	.89	5.85	.42
Coach-athlete relationship (meta)	5.04	.75	5.13	.47
Meta Closeness	5.30	.99	5.20	.54
Meta Commitment	4.60	.59	4.67	.53
Meta Complementarity	5.10	.78	5.40	.69
Vitality	4.49	.39	4.71	.51

Controlling Interpersonal Style	2.56	.52	3.00	.49
Controlling Use of Rewards	3.1	.94	4.05	.27
Negative Conditional Regard	3.3	1.06	3.90	.63
Intimidation	2.05	.33	2.00	.59
Excessive Personal Control	1.60	.55	2.13	1.50
Coach-Athlete Maintaining Strategies	4.89	.68	5.08	.49
Satisfaction	4.93	.72	4.63	.90
Belonging	5.41	.75	5.41	.75

5.6 Discussion

The present study expands the understanding of transformational leadership in sport and coach-athlete relationships by using a quasi-experimental design to test an intervention aiming to increase coaches' usage of TL behaviours and quality of CAR, as well as the positive outcomes of satisfaction and performance. The effects of the intervention were considered to be positive either when the desirable outcomes increased from pre-test to post-test in the experimental group while they continued the same or decreased in the control group; or when the desirable outcomes decreased in the control group whilst they remained the same in the experimental group. The results of the analysis have shown significant interaction effects for six variables: the transformational leadership general score, individual consideration, inspirational motivation, intellectual stimulation, contingent reward, and satisfaction. Moreover, high performance expectations and fostering acceptance of group goals increased in the experimental group and decreased or remained stable in the control group.

The results indicated that even though transformational leadership can be seen as one global construct, it is also important to pay attention to each of the dimensions separately as only some of TL dimensions have significantly changed. It is coherent with Arthur and Tomsett's (2015) view that "transformational leadership is a very large domain that encompasses a wide array of different behaviours, characteristics, and situations" (p. 193) and therefore when considering a practical usage, the TL's dimensions should be differentiated and related accordingly to various coaching environments. In the present study an increase was not noticed in all of the transformational leadership qualities. The data analysis did not show a positive change in

appropriate role modelling subscale. The possible explanation can be based on the coaches' and athletes' characteristics. All of the coaches were young and at the beginning of their coaching journey, and they mostly worked with athletes at university and club levels. Being a role model is perhaps more difficult for novice coaches to adopt due to their lack of experience and due to the requirements of the levels they played in.

The results showed that there was not a significant interaction effect in athletes' perception of the coach-athlete relationship quality (direct or meta perspectives). The questionnaire data from the coaches whose athletes took part in the study (all of the coaches except for Coach E) showed that majority of the coaches perceived an increased usage of the COMPASS strategies (Rhind & Jowett, 2012). Since COMPASS strategies were distinguished to help understand and enhance the quality of a partnership between a coach and an athlete, increasing their usage should result in an increased perceived quality of relationships. A possible explanation of this result is derived from the time perspective. Perhaps the interval between first and second data collection was insufficient for athletes to perceive a meaningful difference in the quality of a relationship with a coach understood by the means of closeness, commitment, and complementarity. Also, the initial level of coach-athlete relationship was high ($M_1 = 5.77$ for the direct and $M_1 = 5.57$ for the meta perspective) and such a score is considered to be in the 'desired zone'. Even though there was an increase in a perception of the CAR quality ($M_2 = 5.94$ for the direct and $M_2 = 5.88$ for the meta perspective), it was not big enough to be considered significant.

Furthermore, the lack of significant change in athletes' perception of the coach-athlete relationship quality could be caused by inaccuracy of measurement. On one hand, the results of the study by Horne and Carron (1985) revealed a discrepancy between coaches' perceptions of their leadership behaviours when compared to athletes' perceptions (coaches perceived greater levels than athletes did). Similarly, based on several field studies, Smith and Smoll (2007) noted that "it thus appears that coaches were, for the most part, blissfully unaware of how they behaved and athletes were more accurate perceivers of actual coach behaviours" (p. 79). In the present study, we can hypothesise that even though coaches tried to use more relationship maintenance strategies, the athletes' impression and understanding were different. On the other hand, measuring coach-athlete relationship from a coach perspective can be problematic, especially in team sports. CAR is a dyadic phenomenon and it requires coaches to assess

their attitude towards a particular athlete. Otherwise, coaches' evaluation of an average relationship with a team's member can be problematic and difficult to interpret.

An increase in athletes' level of perceived satisfaction of team and individual performance is congruent with transformational leadership literature. As Bass and Riggio (2006) stated, transformational leaders tend to have followers showing higher levels of satisfaction than non-transformational leaders and this view was supported by two meta-analyses in an organisational domain (Dumdum, Lowe, & Avolio, 2002; DeGroot, Kiker, & Cross, 2000). Athlete's satisfaction is also one of the main outcomes of effective leadership in Chelladurai's multidimensional model of leadership (MML; Riemer, 2007). Transformational leadership was added to the MML as an element potentially affecting the congruency between a leader's preferred, actual, and required behaviours. The study by Chelladurai, Imamura, Yamaguchi, Oinuma, and Miyauchi (1988) showed that training and instruction, democratic behaviours, social support, and positive feedback were all positively related to athletes' satisfaction. Moreover, it has been shown that transformational leaders have a capacity to inspire athletes' extra effort (Arthur et al., 2011; Rowold, 2001) and it can be hypothesised that athletes who experience higher levels of individual and team satisfaction, are more likely to present extra effort.

Interestingly, athletes perceived an increased in autonomy-supportive behaviours presented by their coaches (although the interaction effect was non-significant); however, the quantitative data from the majority of the coaches also indicated an increase in the controlling interpersonal style. The coexistence of autonomy-supportive and controlling behaviours of the coaches is in line with the results of the study conducted by Pelletier, Fortier, Vallerand and Brière (2001). The analysis has shown a significant yet moderately negative association between the two styles and the authors also observed that "perceptions of autonomy support and control are both positively associated with introjected regulation, which suggest that coaches sometimes could use components of both types of interpersonal behaviors" (p. 300). The association between the two interpersonal styles of coaches and various types of motivation was not a focus of the present study; however, future research should take into consideration the effect of the transformational-relational training programme on different types of motivation on the continuum of self-determination. Moreover, the increase of the coach controlling behaviours was not in accordance with the content of the training programme which focused on supporting the three basic psychological needs, including the need for autonomy. A possible explanation refers to the time of the season when the second

measurement took place. Follow-up data collection was pursued at the end of a sporting season when usually the pressure on results is higher and young coaches may prefer to use controlling interpersonal style to help them cope with stress because as Bartholomew, Ntoumanis, and Thøgersen-Ntoumani (2009) noticed: “these controlling strategies can sometimes appear to be adaptive in that they evoke desired behaviours and performance outcomes in the short term” (p. 229). An athletics club of Coach C was the only exception as the athletes were in the middle of a sporting season, and Coach C was the only coach who perceived a decrease in the usage of the controlling behaviours. Moreover, a possible mechanism responsible for this result might have been the buffering context of high quality coach-athlete relationships. Perhaps, in the environment where trust, appreciation, and helpful reciprocal behaviours are present, the controlling behaviours of a coach are perceived differently than in a situation where a coach-created climate is based on mistrust, lack of respect, and lack of support. Results of a study conducted by Cowan and Taylor (2012) showed that by using humour in his interactions with athletes, one of the coaches was fostering a positive, emotionally-involved relationship despite the fact that he presented the controlling behaviours. Therefore, a sense of humour could be seen as a buffer affecting potentially negative effects of a controlling coaching style. In the present study, high quality coach-athlete relationships may have played a similar role and augmented the negative effects ascribed to coach controlling behaviours.

Coaches’ data constituted a core of the analysis in the second part of the study. The single-case analysis of the mixed-methods data revealed several differences. The biggest change was noticed in case of Coach C who, among the coaches who took part in the study, worked at the highest level. On the other hand, the coach who worked in a fitness environment (Coach B) described the smallest number of differences between pre- and post-intervention coaching practice. This distinction is somehow aligned with the transformational leadership literature. The results of the study conducted by Beauchamp, Welch, and Hulley (2007) showed that efficacy beliefs related to exercise (scheduling, overcoming barriers, and within-class capabilities) were not linked to transformational leadership behaviours of the exercise instructors. Moreover, the authors noticed that: “It is possible that the limited contact time between leader and follower that exists within exercise classes does not provide sufficient opportunity for transformational behaviors to play out and influence follower cognition” (p. 87). This result also indicates that some

aspects of the transformational leadership are differently applicable to a certain degree in particular coaching contexts.

Even though Coach B did not apply some of the TL behaviours, the coach focused on intrapersonal development. When discussing the usefulness of the first session which concentrated on developing coaching philosophy and on an introduction to reflection process, the coach admitted: “I do think that, as a coach, I have changed since that session. I’m more aware what I do in the sessions and even if I’m not in a mood for it, I make sure I change so that I’m in a mood.” The opinions regarding reflection card activities were divided. Some of the coaches viewed reflection cards as useful, for example Coach C said “It made you evaluate both yourself and your athletes whilst deciding if you could have done something better”; on the other hand, some coaches pointed out that they did not always remember to fill in the reflection cards and that that a weekly reminder would have been helpful. However, all of the coaches admitted to experiencing various benefits connected with undergoing a self-reflection process and linked their reflections to behavioural changes. For example, Coach E said: “I purposefully started to use open questions. I saw how well it worked both for me, evaluating how well they were doing, and also for them, for their learning process, their decision making capabilities.” and Coach A disclosed that: “I’ve been engaging and interactive with them, I have been thinking about it more than previously. So just simple little things, how I phrase a sentence or how I’m emphasising certain things (...).”

Coaches varied in terms of the preferred format used for reflecting upon their coaching practice. All of them started with the prepared reflection card (Appendix III (D)) and then some of them elaborated on a new format, for example a blank sheet of paper that allowed them to freely express their thoughts. In the study by Knowles et al. (2006), the researchers also noticed that regardless of obtaining the same training, the participants showed different methods and nature of reflection. However, individualisation was underlined during the course of the present study and finding one’s own preferred way of reflection was seen as positive and beneficial for the coaches. The group quantitative data analysis has shown no significant difference in coaches’ perception of their transformational leadership behaviours, ability to build and maintain effective coach-athlete relationship, controlling behaviours, satisfaction or level of belonging.

Social validation. The analysis of all of the interviews has demonstrated that the intervention format was positively evaluated by all participants. The format (workshops

and reflection cards) was chosen based on some of the recommendations provided by Nelson et al. (2013): being thought provoking, being relevant to coaches' personal situations (treating coaches as individuals), linking theory and practice, providing active learning (e.g. multi-sport learning), and providing opportunities to share experience. The interview data showed that the coaches enjoyed all of the activities including presentations, discussions, brainstorming and goal-setting tasks. Participants agreed that having an opportunity to discuss ideas and concerns with other coaches who had similar levels of experience, yet different backgrounds (e.g. working with athletes in various sports), was very helpful. This impression agrees with Gilbert, Gallimore, and Trudel's (2009) view that "coaches place great value on learning through experience, and this type of learning is very much a social activity that can be used to stimulate coach reflection" (p. 8), as well as can help coaches refine their practical understanding (Nelson et al., 2013).

5.6.1 Limitations

There are several limitations in the present study worth acknowledging. Firstly, due to the combination of various techniques (e.g. reflection cards, elements of lectures during workshops, group activities), it is difficult to infer a causal relationship and identify precisely which aspects of the content affected which target variables. Secondly, measurement of the coaches' and athletes' outcome variables was conducted only twice (at baseline and follow-up), and the primary disadvantage of an A-B design is the possibility that observed changes can be caused by maturation. Thirdly, due to the exploratory nature of the study, only five coaches and sixty athletes (total in both groups) took part in the research. The number of participants influenced the choice of statistical tests used to analyse the data and a larger number would allow for more refined statistical procedures. Lastly, mostly self-report measurement techniques were employed in the present study and obtaining data from various sources (e.g. interviews with athletes regarding their coaches' style) and using more methods (e.g. observing training sessions in each of the weeks when coaches participated in the training programme to monitor how they transferred new knowledge into practice) could add important information to the understanding of the results and the process underlying the coaches' development.

5.6.2 Conclusions

The transformational-relational training programme for coaches was partially successful as the experimental group was significantly different from the control group whose coaches did not take part in the training programme in regards to athletes' perceived TL characteristics of a coach and athletes' perception of satisfaction with individual and team performance. The fact that not all of the expected variables increased significantly suggests that in order for them to increase, particularly the CAR quality, other methods should be employed. Perhaps by focusing on, for example, developing attitudes and implementing an intervention for both coaches and athletes, the results would show a positive change of coach-athlete relationship. Furthermore, a design incorporating a higher number of measurement points could provide additional information and confirm or disconfirm the effectiveness of the employed techniques. The analysis of the qualitative data gathered from the coaches showed that various aspects of the programme were applied to practice in varying ways dependent on the context in which the coaches worked. As Jones and Wallace (2005) underlined, most of the coaching models cannot be fully applicable as they omit crucial factors such as the tensions and relational dilemmas that are inevitable in coaching practice. One of the main conclusions of the present study is the importance of developing coaches' self-knowledge that has a capacity to enhance their coaching practice. To conclude, the present study constitutes a first step in creating a theoretically sound transformational-relational training programme that can help coaches increase their interpersonal and intrapersonal levels of knowledge, and future research is needed to find an optimal method to improve the implementation of such a programme.

CHAPTER 6: General Discussion

6.1 Introduction

Summary and discussion of the findings arising from all three studies conducted within this doctoral thesis are provided in this chapter in six main sections. The first section provides a summary of all the studies and outlines the main findings. The second section focuses on the implications of the results for theory and research development. The third section provides the limitations of the studies described in this thesis. Section four discusses areas and directions for future research development. The fifth section proposes recommendations and implications for people engaged in sport activity, for example coaches, sport psychologists, and athletes who aim to create and facilitate a transformational-relational coaching environment. The final section contains concluding remarks.

6.2 Summary of Studies

The purpose of this thesis was to investigate the interplay between coach transformational leadership and coach-athlete relationship, and how it affects athletes' positive psychological outcomes. Through three separate yet interconnected studies this thesis was developed to explore how coaches' leadership style and ability to build and maintain effective relationships, as perceived by the athletes, influence wellbeing- and performance outcomes, and whether it is possible to develop those interpersonal skills of coaches. A summary of those three studies are presented below and in the Table 6.1.

Study one: Athletes' wellbeing in a transformational-relational coaching environment: The mediating role of basic needs satisfaction. Study one (see chapter three) focused on exploring whether athletes' satisfaction of basic psychological needs for autonomy, competence, and relatedness acts as a mediator for the association between athletes' perceptions of the coach transformational leadership and coach-athlete relationship quality, and the indicators of their wellbeing (engagement in sport and passion for sport). Three hundred and twenty-six athletes representing a variety of team sports (e.g. volleyball, rugby, and basketball) were recruited as participants in this study.

Transformational leadership was measured with the usage of Differentiated Transformational Leadership Inventory (DTLI; Callow et al., 2009; Hardy et al., 2010) which has recently been adapted to sport and has shown acceptable level of validity in this context. Basic Need Satisfaction at Work Scale (Baard, Deci, & Ryan, 2004; Deci et al., 2001) was employed for the purpose of this study and it was modified to represent athletes' environment (e.g. the item "Most days I feel a sense of accomplishment from working" was changed to "Most days I feel a sense of accomplishment from training and competitions"). Relationship quality, harmonious passion and engagement in sport were measured with the questionnaires that had been previously validated within the sport environment.

The results have shown that the environment created by transformational coaches, who build close relationships with their athletes, has the capacity to influence athletes' needs satisfaction as well as their engagement in sport (i.e. dedication, confidence, vigour and enthusiasm) and harmonious passion for sport (i.e. love for participating in one's chosen sport). The mediation analysis revealed that there was a partial mediation of needs satisfaction explaining the association between TL and wellbeing factors. Therefore, the results suggest that there are other possible mechanisms explaining the influence of transformational leadership on harmonious passion and engagement. Even though the literature on transformational leadership underlines the important role of followers' needs satisfaction (Bass & Riggio, 2006), perhaps in a sport context, transformational leadership is more likely to directly associate with passion and engagement, in comparison to the effect of meta-perception of CAR. The link between MCAR and wellbeing was fully mediated by the basic psychological needs satisfaction and it can be implied that coaching relationships are more likely to satisfy athletes' needs and by that affect wellbeing indicators. Different mediational paths for transformational leadership and coach-athlete relationship, as well as what the recent studies have highlighted, may suggest that it might prove useful to study leadership and relationship variables together rather than in isolation because a combination of the two concepts provides a much more informed picture of their effects (e.g., Chaundy & Jowett, 2004; Vella et al., 2013b).

Study two: The temporal perspective on the interplay between coach transformational leadership and coach-athlete relationship and its effect on performance-orientated outcomes. Study two (see chapter four) builds on study one by investigating closer the interplay between transformational leadership and coach-athlete relationship. Chapter four incorporated four research aims: (a) to explore differences in

perceptions of coaches TL style and CAR according to athletes' gender and coaching domains; (b) to separately investigate the temporal patterns of transformational leadership and coach-athlete relationship fluctuation during one whole sporting season; (c) to explore whether athletes' perceptions of TL and CAR at the end of the season can be predicted by the assessment of those constructs at the beginning and in the middle of the season; and (d) to investigate the effect of an interplay between transformational leadership and coach-athlete relationship in three distinct parts of the sporting season on athletes' positive psychological outcomes measured at the end of the season.

The results revealed that perceived transformational leadership behaviours tended to decrease at the end of the sporting season relative to the beginning of the sporting season. Specifically, with the passage of time inspirational motivation, fostering acceptance of group goals, and role modelling were seen to be used less often, whereas individual consideration, intellectual stimulation, high performance expectations, and contingent reward were not used differently depending on the time of the sporting season. Previous coaching science research has also demonstrated that at the end of the sporting season, coaches tend to experience higher levels of stress (Kelley, 1990), burnout, and coaching issues (Kelley, 1994). Therefore, a lower frequency of TL behaviours towards the end of the season may be due to increased levels of pressure, workload, and exhaustion. Moreover, a lower level of intellectual stimulation across the whole season may suggest that more resources, such as energy or motivation, are needed, and with time and an increase in fatigue and the level of perceived stressors, being stimulating becomes more and more challenging and overwhelming.

In the case of perceived level of coach-athlete relationship, the findings also demonstrated a decrease in coach-athlete relationships quality (direct perspective). The results showed a decreasing tendency for two out of three CAR dimensions; only the level of complementarity was stable across the sporting season, whereas the levels of closeness and commitment decreased significantly towards the end of the season. Similarly to a perceived decrease in TL level, a decrease in closeness and commitment may be caused by increased pressure, affecting coaches' relationships with athletes the end of a sporting season, in turn causing the coaches to become more distant. Moreover, the decrease in perceived CAR quality may be due to the fact that the initial assessment was based on low information quality, as at the beginning of the sporting season athletes do not have enough information to adequately assess their relationship with coaches.

Investigating the temporal patterns of TL and CAR proceeded based on the results of the hierarchical regression analysis. The underlying gradual process of influence was found for the following subscales: individual consideration, inspirational motivation, intellectual stimulation, high performance expectations, commitment, complementarity, meta-closeness, and meta-commitment; therefore, the way coaches behave and the relationship quality in mid-season transfer the effect from the beginning to the end part of the sporting season. In the case of two TL and two CAR dimensions: contingent reward, fostering acceptance of group goals, closeness, and meta-complementarity, the perceptions of the initial levels were still affecting the outcome variables. It can be hypothesised that the four dimensions which did not show a full indirect effect, contribute to building athletes' attitudes towards their sense of individual and group efficacy, and towards the quality of the relationship. Such attitudes may be of special importance at the end of the season, during the most important games, when the pressures and stakes are the highest. A belief that an athlete is efficacious, his or her team is able to perform well and support individual's contribution to team's effort, and that there is a coach who is supportive and caring, may turn out to be an additional source of strength helping athletes fulfil their sporting dreams.

The final aim of the study two was to test whether TL and CAR quality from different phases of the season affect athletes' performance-orientated outcomes measured at the end of the sporting season; also the interaction between the transformational leadership and coach-athlete relationship was tested. The results demonstrated that high scores of CAR at the beginning and at the end of the sporting season increased the probability of presenting high levels of intrinsic motivation and collective efficacy at the end of the season. Moreover, this study highlights that there were different patterns of influence for the university and club athletes. In the case of the university athletes, perception of high TL and high CAR at the beginning of the sporting season significantly predicted a low level of collective efficacy and an average level of intrinsic motivation at the end of a season; however, perception of high CAR quality at the end of a season decreased the probability of experiencing average level of collective efficacy and low level of intrinsic motivation. In the group of club athletes, athletes' perception of high levels of both transformational leadership and coach-athlete relationship at the beginning of the sporting season predicted experiencing high levels of intrinsic motivation and collective efficacy.

The results highlight the need to take time into consideration when investigating coaches' leadership influences, quality of coach-athlete relationship, as well as their interactions because the time of the season affects athletes' perceptions of those processes. Moreover, it needs to be noted that in a team environment coach-athlete interactions from the first month of the season are still of high importance at the end of the season, and therefore the passage of time does not just remove the impressions athletes' had from the beginning of season. As suggested at the end of chapter two, the transformational leadership and coach-athlete relationship may serve different functions in promoting athletes' psychological growth but also there might be different processes affecting the perceptions of the two constructs with the passage of time. Transformational leadership is understood as a set of certain behaviours and perhaps, especially at the beginning of a season, it is easier to notice and judge certain behaviours which are easily observable. It can be hypothesised that if the coach presents himself as inspiring and motivating from the beginning of the season, athletes build an opinion about the coaches' style and later during the season they tend to look for information confirming their view rather than to contradict it. Whereas building a cognitive or emotional attitude towards a coach, for example, liking or wanting to commit to this coach for the next season, requires more time and is based on different processes, perhaps similar to the processes underlying the psychological attachment.

Study three: Developing coaches' transformational-relational effectiveness – a pilot study. Study three (see chapter five) builds upon the previous two studies by exploring a training programme for young coaches, guided by the principles of transformational-relational coaching environment model, being delivered in the final stage of the sporting season when levels of TL and CAR are perceived as the lowest. According to Cotê and Gilbert (2009), coaching effectiveness includes applying integrated professional, interpersonal, and intrapersonal knowledge into practice, and the third study focused on increasing coaching effectiveness through developing coaches' interpersonal (transformational-relational) and intrapersonal (self-reflection) knowledge. The group of five young and inexperienced coaches took part in four workshops covering following topics: (1) exploring coaching philosophy and introduction to the self-reflection process, (2) transformational leadership behaviours, (3) coach-athlete relationship and communication, and (4) athletes' needs satisfaction. Athletes' levels of satisfaction and performance were investigated as indicators of coaching effectiveness because coaching can be seen as effective if it results in high performance outcomes or in

athletes' positive psychological response (Horn, 2008). Moreover, the same data was collected from a control group which did not receive any treatment, to explore whether changes occurred in both groups or just the one that received a treatment, and the nature of the changes which occurred.

The key findings highlighted that in the post-intervention condition, levels of perceived transformational leadership (along with all but one of the subscales) and satisfaction increased in the experimental group and decreased in the control group. Also, there were no changes in regards to coach-athlete relationship (both direct and meta perspectives), coach-athlete relationship maintenance strategies, coach autonomy supportive behaviours, coach controlling behaviours, and performance levels (as perceived by the athletes). Therefore it can be concluded that the intervention turned out to be partially successful, and that in order to change relationship quality, to increase the frequency of relationship maintenance communication strategies usage at the end of the season is not sufficient. As suggested by the results of study two and confirmed by the results of study three, enhancing coach-athlete relationship involves more complex processes and therefore an intervention aimed to change it, should be conducted prior to or in the first month of sport collaboration, and it should aim to affect also the emotional and cognitive attachment of the athletes towards the coach.

The analysis of the questionnaire and interview data collected from the coaches showed that they attempted to include content from the workshops into their practice in accordance to presented guidelines and in agreement with their coaching philosophy. During the interviews, the coaches discussed a perceived increase in self-awareness and the benefits connected with practising self-reflection process that according to the coaches was clearly linked to their behavioural changes. However, the analysis of the questionnaire data did not show an increase in all of the coaches' variables suggesting that some of the intervention content was applicable to various extents dependent on the context in which the coaches worked. In addition, the questionnaire data from the athletes suggested that in the case of transformational leadership it is worth to investigate the dimensions separately because they seem to be applicable to a certain degree depending on the social-cultural contexts. Therefore, the third study contains an indication that transformational leadership is applicable to only certain degree, depending on a coach's personality and coaching philosophy, as well as performance level – the biggest change was noticed in a coach working with professional athletes (the highest level among the participants).

Table 6.1 Summary of all three studies

Study	Sample	Measures	Purposes	Results	Conclusions
Study 1 Chapter 3	Three hundred and twenty-six athletes representing a variety of team sports.	<ul style="list-style-type: none"> ▪ Differentiated Transformational Leadership Inventory (DTLI; Callow et al., 2009; Hardy et al., 2010); ▪ The Coach–Athlete Relationship Questionnaire (CART-Q; Jowett & Ntoumanis, 2004; MCART-Q Jowett, 2009); ▪ The modified version of Basic Need Satisfaction at Work Scale (Baard, Deci, & Ryan, 2004; Deci et al., 2001); ▪ The Passion Scale (Vallerand et al., 2003); ▪ The Athlete Engagement Questionnaire (Lonsdale et al., 2007). 	<ul style="list-style-type: none"> ▪ To explore whether satisfaction of athletes’ basic psychological needs for autonomy, competence, and relatedness acts as a mediator for the association between athletes’ perceptions of the coach transformational leadership and coach-athlete relationship quality (meta-perception), and the indicators of their wellbeing (engagement in sport and passion for sport). 	Results supported the hypothesis that the effects of both TL and CAR quality were transferred onto athletes’ perceptions of engagement in and harmonious passion for sport through the satisfaction of their needs for autonomy, competence, and relatedness. The basic needs satisfaction partially explained the association between transformational leadership and wellbeing indicators, whereas the association between meta-perception of coach-athlete relationship and wellbeing was fully explained by the satisfaction of the three psychological needs.	The findings may suggest that the notions of transformational leadership and coach-athlete relationship may serve different functions though they complement one another to promote athletes’ psychological growth.
Study 2 Chapter 4	One hundred and two athletes representing variety of team sports.	<ul style="list-style-type: none"> ▪ Differentiated Transformational Leadership Inventory (DTLI; Callow et al., 2009; Hardy et al., 2010); ▪ The Coach–Athlete Relationship 	<ul style="list-style-type: none"> ▪ To explore differences in perceptions of coaches TL style and CAR according to athletes’ gender and performance context. ▪ To separately investigate 	The results revealed that male athletes perceived their coaches to present more behaviours of IC, IM, IS, and CR than the female athletes did but only in the beginning of the season. In the middle of the season female	The present study expands understanding of the transformational-relational environment by

		<p>Questionnaire (CART-Q; Jowett & Ntoumanis, 2004; MCART-Q Jowett, 2009);</p> <ul style="list-style-type: none"> ▪ The Intrinsic Motivation Inventory Interest/ Enjoyment subscale (IMI; McAuley et al., 1987); ▪ The Collective Efficacy Questionnaire for Sports (CEQ; Short et al., 2005). 	<p>the temporal patterns of transformational leadership and coach-athlete relationship fluctuation during one whole sporting season.</p> <ul style="list-style-type: none"> ▪ To explore whether athletes' perceptions of TL and CAR at the end of the season can be predicted by the assessment of those constructs at the beginning and in the middle of the season. ▪ To investigate the effect of an interplay between transformational leadership and coach-athlete relationship in three distinct parts of the sporting season on athletes' positive psychological outcomes measured at the end of the season. 	<p>athletes perceived their coaches to use more CR behaviours. Moreover, club athletes perceived their coaches to show more TL behaviours and perceived better CARs from both the direct and meta perspectives. Participants perceived a significant decrease in frequency of TL behaviours and CAR quality presented by their coaches at the end of the sporting season relative to the beginning of the sporting season. The underlying gradual process of influence was revealed for the following subscales: IC, IM, IS, HPE, Com, Compl, MClo, and MCom. For the remaining subscales, there was still a direct effect of the athletes' perceptions from beginning of the season on those variables at the end of the sporting season. Finally, in a university environment perception of the high CAR quality at the beginning and end of the sporting season was influencing the link between transformational leadership and low or average levels of collective</p>	<p>exploring the temporal patterns of an influence on performance related outcomes. The findings of this study also supply new insights about the interplay between transformational leadership and coach-athlete relationship in various phases of the sporting season, as well as the development of both of those constructs individually over time.</p>
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				<p>efficacy and intrinsic motivation at the end of the season. On the other hand in the club context, with an increase in athletes' perception of TL and CAR at the beginning of the season, there was a decrease in probability of experiencing low level of intrinsic motivation and average level of collective efficacy.</p>	
<p>Study 3 Chapter 5</p>	<p>Five British students-coaches; Sixty athletes</p>	<ul style="list-style-type: none"> ▪ Differentiated Transformational Leadership Inventory (DTLI; Callow et al., 2009; Hardy et al., 2010) ▪ The Coach–Athlete Relationship Questionnaire (CART-Q; Jowett & Ntoumanis, 2004; MCART-Q Jowett, 2009) ▪ Coach-Athlete Relationship Maintenance Strategies Questionnaire (CARM-Q; Rhind & Jowett, 2012) ▪ Athlete Satisfaction Questionnaire (Riemer & Chelladurai, 1998) ▪ Controlling Coach Behaviour Scale (CCBS; 	<ul style="list-style-type: none"> ▪ To explore a training programme for young (inexperienced) coaches guided by the principles of transformational leadership, coach-athlete relationship, and Basic Needs Satisfaction Sub-Theory. ▪ To enhance coaches' intrapersonal knowledge by developing their self-reflective skills. ▪ To enhance coaches' intrapersonal knowledge by implementing coach-athlete relationship maintenance strategies and transformational leadership behaviours into their coaching 	<p>Among the variables which increased in the post-intervention condition and which were statistically different from the control group, there were: the transformational leadership general score, three of the TL behaviours (individual consideration, intellectual stimulation, and contingent reward); moreover, inspirational motivation, high performance expectations, fostering acceptance of group goals, and satisfaction increased in the experimental group and decreased in the control group</p>	<p>The transformational-relational training programme for coaches was partially successful as the experimental group was significantly different from the control group whose coaches did not take part in the training programme in regards to athletes' perceived TL characteristics of a coach and athletes' perception of satisfaction with</p>

		<p>Bartholomew, Ntoumanis, & Thøgersen-Ntoumani, 2010)</p> <ul style="list-style-type: none"> ▪ Health Care Climate Questionnaire (HCQ; Williams, Grow, Freedman, Ryan, & Deci, 1996) ▪ Elite Athlete Self-Concept Overall Performance Subscale from Elite Athlete Self-Description Questionnaire (Marsh, Hey, Johnson, & Perry, 1997) ▪ Vitality Scale Individual Difference Level Version (SVS; Ryan & Frederick, 1997; Bostic, Rubio, & Hood, 2000) ▪ Perceived Belonging in Sport Scale (PBS; Allen, 2006) 	<p>practice.</p> <ul style="list-style-type: none"> ▪ To improve coaching effectiveness understood as athletes' perceptions of their satisfaction and performance. 		<p>individual and team performance. Moreover, the findings underline the importance of developing coaches' self-knowledge in order to enhance their coaching practice. The biggest change was noticed in case of Coach C who, among the coaches who took part in the study, worked at the highest level, and the results of the present study further suggest that TL is best exhibited in elite sport.</p>
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6.3 Implications for Theory and Research

The aim of this section is to describe the theoretical and research implications stemming from the three studies conducted within this doctoral thesis. The implications relate to the interplay between transformational leadership and coach-athlete relationship, the season-long temporal patterns of TL and CAR, the buffering context of coach-athlete relationship, different levels of transformational leadership applicability, and changing CAR quality.

6.3.1 The Interplay between Transformational Leadership and Coach-Athlete Relationship.

The fundamental implication emerging from all of the studies presented within this thesis is the notion that transformational leadership interacts with coach-athlete relationship in order to create a flourishing environment. Inspirational, motivating, stimulating coaches who foster teamwork, also contribute to, and benefit from, building and maintaining close relationships with each of the athletes. The transformational-relational coaching environment not only has a capacity to positively affect athletes' wellbeing, but it also affects performance outcomes on individual and collective levels.

The term "transformational-relational environment" indicates that both of those constructs are equally important, yet they are distinct constructs. High levels of correlations between TL and CAR, as well as between their sub-dimensions, obtained in all three studies support the hypothesis that those constructs are positively connected. To date, research in the sport domain has failed to demonstrate the process of coach-athlete relationship development, as well as the development of the influence of transformational leadership (e.g. how much time is needed for athletes to be fully engaged in a relationship with a coach or how often athletes need to experience intellectual stimulation for it to be effective?). The main assumption guiding the studies presented in this thesis was that TL and CAR interact simultaneously to create an environment characterised by, among other things, trust, cooperation, inspiration, and motivation. The interactional processes of TL and CAR, which were investigated in study two, also revealed that both transformational leadership and coach-athlete relationship have the capacity to moderate the influence of each other onto athletes' psychological outcomes.

Processes such as leadership influence or relationship development can be seen as aspects of a social environment created by a transformational leader. Ames (1992a, 1992b) suggested a term “motivational climate” to capture aspects of a social situation created by a significant other towards goal orientation, for example by a coach. Moreover, Ames suggested that a motivational climate is a multidimensional phenomenon, and as noted by Duda and Balaguer (2007): “in terms of motivational-related aspects of the social situation surrounding athletes, the focus here has been on athletes’ views of the social-psychological environment rather than on the objective features of the environment” (p. 120). Analogously, the “transformational-relational coaching environment” refers to a social situation which aims to inspire athletes to show extra effort, develop sporting potential, and work collaboratively towards a common goal, as well as ensure wellbeing, healthy emotional development, and teach athletes effective social functioning. Therefore, TL and CAR are believed to interact with one another to create the environment which also supports the reciprocal influence between transformational leadership and coach-athlete relationship.

The research to date has not demonstrated the causal link between coach-athlete relationship and transformational leadership in the early stages of the collaboration between coaches and athletes. If we assume that transformational leadership is a process of influence and the development of coach-athlete relationship is a process which begins with a first encounter between a coach and an athlete, then investigation of whether at the beginning of coach-athlete/team collaboration, transformational leadership builds coach-athlete relationship or whether coach-athlete relationship allows a coach to exhibit transformational leadership behaviours would prove worthwhile. It is also worth distinguishing that a transformational leader is viewed as an entity with certain characteristics (e.g. caring) and personality traits (e.g. charismatic), an entity that acts in a certain way and has the capacity to build meaningful relationships. According to some theorists, transformational leadership should result in good quality relationships. For example, Podsakoff and colleagues (1990) suggested that in a work place, trust in a leader, a fundamental characteristic of strong relationships, is the primary mechanism by which transformational leaders are effective. On the other hand, the practical evidence may suggest an opposite direction.

According to the basketball coach Mike Krzyzewski (Krzyzewski & Phillips, 2000; p. 6) it is important to get to know players and start building relationships as soon as possible, preferably during the time of recruitment:

Even though our first formal practice is still six weeks away, I'm already comfortable with the kids on the team. I've spent a good deal of time recruiting them from all over the country. At Duke, we search for good kids with strong character-not necessarily kids with great talent who can play, but great individuals who are willing to be part of a team and who are coachable I've worked hard to get to know all of them. And even if I don't yet understand every aspect of their personalities, at least I know the fabric of who they are. I like them as players and as people.

The quote illustrates that getting to know players, and getting players to know their coach, is a fundamental process necessary for achieving a common understanding for practices and competitions. Therefore, before coach Krzyzewski even has a chance to illustrate his leadership behaviours such as transferring his inspirational vision or challenging players' assumptions, he already is in the process of cultivating or maintaining relationships. Having in mind numerous successes of Coach K with the Duke University Basketball Team (e.g. five NCAA National Championships) and USA National Basketball Team (e.g. three consecutive Olympic gold medals), we could argue that thanks to building relationships, and therefore building trust, mutual understanding, and appreciation, the manager was able to show his transformational leadership qualities. The relationships can be seen in this case as a foundation on which a transformational leader may begin the process of transformational leadership.

In order to answer the question about causal link between TL and CAR it might prove fruitful to conduct an experiment in which (scenario A) in one group a coach would meet with the new athletes and start by developing relationships and after some time (e.g. 2-4 weeks) commence to show TL behaviours, and in the second group (scenario B) coach would meet with the new athletes and start by manifesting transformational leadership and after some time the relationships would be built thanks to TL. The performance achievements, wellbeing, and satisfaction with training could constitute potential indicators of the experiment's success and the difference between scenario A and B could show whether it is more effective to first develop transformational leadership or coach-athlete relationship.

6.3.2 Season-Long Temporal Patterns of TL and CAR.

In recent years transformational leadership construct has gained interest in the field of sport psychology (e.g. Arthur & Tomsett, 2015) due to its beneficial effect on various outcomes. Coach-athlete relationship has also been extensively studied and described (e.g. Jowett and Cockerill, 2003; Rhind & Jowett, 2010; Jowett & Nezlek; 2011), and the research contributed to discovering different antecedents, consequences, moderators and mediators connected with this kind of relationship. Leadership researchers have claimed that “because relationships between followers and leaders occur over time, it is difficult, if not impossible, to consider leadership without time playing a role... Yet, our review of the literature suggests that the formal use of temporal variables in leadership research has been scarce and scattered” (Bluedorn & Jaussi, 2008; p. 657); also the importance of incorporating time perspective in TL in sport and CAR research has been somehow omitted. The second study expands understanding of the coach transformational leadership and coach-athlete relationship by supplying new insights about the way those constructs fluctuate in various phases of the sporting season and by providing information regarding the process of self-influence with the passage of time for specific dimensions. As presented within the results of study two, coach transformational leadership and coach-athlete relationship are perceived differently in various parts of the season, and the temporal pattern showed a decrease for both of those constructs.

Moreover, the results have shown that not all of the TL and CAR dimensions follow a gradual process of influence, the effect of: contingent reward, fostering acceptance of group goals, closeness, and meta-complementarity on themselves from the beginning to the end of the season was only partially affected by their perception in mid-season. We hypothesise that experiencing these four dimensions from the beginning of a season help athletes build stable attitudes towards the leadership style of a coach and relationship quality. It is expected of a leader to facilitate an atmosphere characterised by trust and understanding during the forming stage of the team development (Corey, 2012). Therefore in the case of the four aforementioned dimensions of transformational coach-athlete interactions, the way the attitudes are formed during first few weeks directly influences the athletes’ perceptions in the final stages when the pressure is the highest and athletes may need more support than in other phases of the season. It is therefore suggested that coach-athlete relationship and transformational leadership are time-dependent; meaning that not only the length of relationship, but also the time of the

season, affects those constructs and should be considered when interpreting future findings in this domain.

6.3.3 The Buffering Effect of Coach-Athlete Relationship.

One of the prevailing themes noted in the first and the third studies was the buffering effect of high quality coach-athlete relationship. Evident by the number of studies (e.g. Jowett & Cockerill, 2003; Philippe et al., 2011; Felton & Jowett, 2012), effective CAR is connected with a plethora of positive factors enhancing athletes' sport functioning, for example wellbeing, performance success and personal growth. On the other hand, destructive relationships with coaches may hinder athletes' development in many ways (Gearity & Murray, 2010). The transformational-relational coaching model and the intervention study based on it showed that meaningful coach-athlete relationship can buffer the influence of negative context and support athletes' prolonged wellbeing.

The beneficial effect of CAR on needs satisfaction and wellbeing (Felton & Jowett, 2013; 2015), and a negative link with burnout (Isoard-Gauthier et al., 2016) may suggest that a genuine coach-athlete relationship is needed to maintain athletes' functioning in a longer perspective, as poor coaching can have a prolonged negative effect (Gearity & Murray, 2010). However, it can also be suggested that even in an environment composed of theoretically negative coaching, for example controlling behaviours, lack of autonomy support, public evaluation, or normative comparison, if the quality of the interpersonal relationship between coaches and athletes is high, then the environment will not have such a negative prolonged effect on athletes. In a study by Cowan and Taylor (2011) it was noticed that using humour by coaches was a way of developing an emotionally-involved relationship and that "sense of humor may be a potent weapon in a coach's repertoire that may satisfy participants' need for relatedness, and buffer the potentially damaging effects of a controlling coaching style" (p. 18). Also, the result of the third study presented within this thesis showed the coexistence of autonomy-supportive and controlling behaviours of the coaches, as well as the fact that even though in the second measurement coaches perceived to present more controlling behaviours than before the intervention, their athletes still experienced high levels of satisfaction and performance, along with a high level of CAR. Therefore, the high quality coach-athlete relationships may play a role of a buffer, augmenting the negative effects ascribed to coach controlling behaviours.

6.3.4 Different Degrees of Transformational Leadership Applicability.

As discovered in study two (see chapter four), various dimensions of transformational leadership develop differently with time and it has been suggested in the transformational leadership literature that TL encompasses many separate behaviours and characteristics (Arthur & Tomsett, 2015), and that distinct TL dimensions do not have exactly the same effect on the outcomes (e.g. Podsakoff et al., 1990). Due to methodological limitations (e.g. not big enough data to test TL dimensions as separate predictors) it is not always possible to take a differentiated approach to transformational leadership; however, applied studies benefit from such an approach, as it enables testing of the effects and applicability of specific TL behaviours to certain contexts. In the case of the third study, the key findings showed that an increase was not noticed in the appropriate role modelling subscale, and the interview data revealed that coaches did not feel fully comfortable using all of the TL behaviours. Lack of change in coach role modelling could be explained by the fact that the participants were young, inexperienced, and collaborated with athletes who were either at a similar age, or only few years younger, and in two examples there were also athletes who were older than the coaches. Therefore we can suggest that the behaviours of being a role model might be more difficult to be manifested when the age difference is small or athletes are older than coaches, and the knowledge of the sport and training methods may not be sufficient enough to be perceived as leading from the front.

As noted in a study by Beauchamp and colleagues (2007), the possibility of showing transformational leadership in an exercise setting is limited, and this notion was also confirmed in the present thesis (see study three). The coach working as a fitness instructor described the fewest differences between pre- and post-intervention coaching practice and disclosed that in such environment, it is difficult to be inspirational or to transfer a vision due to the fact that participants do not always attend all of the sessions, they do not constitute a cohesive group, and the goals are very individualised. Other coaches attempted to incorporate TL principles into their practice and most of them accomplished this; however, not all were successful, as the visible increase in TL behaviours was only seen in the case of Coach C who, among the participants, worked at the highest level (Δ -Index = 1.16). Therefore, even though some of transformational leadership behaviours are applicable to various contexts and levels, we hypothesise that truly transformational leadership can be observed within coaches working at higher or elite levels. The recently conceptualised vision, support, and challenge model (VSC

Model) proposed by Arthur, Hardy and Woodman (2012), focuses on the role of transformational coaches and the inspirational effects on athletes achieved by transferring an enthusiastic vision of the future, providing support, and acquiring an appropriate level of challenge for that vision. As noted by the authors: “the vision provides meaning and direction for athletes’ effort. That is, the vision serves as the beacon towards which all the sweat, pain and sacrifice is directed on the path to Olympic success.” (p. 400). This new perspective on TL posits a transformational coach at the centre of a process directed towards achieving Olympic greatness. Therefore, we conclude that even though coaches working at various levels can exhibit TL behaviours, the truly inspirational, motivational, and visionary transformational coaches flourish in an environment described by a high level of challenge which can potentially lead to the highest achievements.

6.4 Limitations of the Research

Some limitations have already been detailed within each chapter; however, there is a number of potential weaknesses that require further discussion. The first limitation worth highlighting relates to the level of analysis in all three studies; all analyses were conducted at an individual level. Transformational leadership is a phenomenon observed in groups and even though an effect of TL on a single performer and its contribution to team’s effectiveness is important, the presented studies did not explore the effect of a transformational leader on a team as a whole. Taking into account group dynamics, such as collective efficacy or engagement, measured on a group level, and testing the process through which transformational leadership of a single coach affects a whole team could shed new light on possible practical implications for the coaches. Even though multilevel analyses are complex and require large sample sizes, which according to Hox (2010) should be at least 30 groups with 30 participants in each group, which is almost always problematic in a sport setting, this kind of analysis should be employed more often in leadership research. Similarly in the case of coach-athlete relationship, there was a lack of dyadic data as the data was collected only from the athletes. Researchers in the domain of sport (e.g. Poczwadowski et al., 2006; Lorimer & Jowett, 2009) suggest the need to shift the focus of relationship studies from an individual unit to treating coaches and athletes as dyads. The addition of coaches’ views of relationship quality with each player could

reveal significant differences and help understand better the role of CAR in a team environment.

However, as mentioned in the discussion section of study three, the assessment of a coach-athlete relationship in team sports from a coach perspective can be problematic. Coach-athlete relationship is a dyadic phenomenon therefore, by definition, it influences two people; however, in a team setting a coach interacts with a group of people and to fully understand his or her relationships with the athletes, one would have to explore each of the dyadic relationships. Time is one of the main obstacles for research in such situations, as in the case of an American football team, a coach would have to complete even up to 45 questionnaires. On the other hand, it is also questionable what actually do team sports coaches who assess their relationship quality refer to? Is it an average feeling of being close to all of the athletes or a mean value of the cooperative behaviours, and in such a situation, can we still refer to CAR quality? The integrated research model of coach-athlete relationship presented by Jowett and Poczwardowski (2007) contains three layers: antecedents, quality indicators, and consequences of CAR. The antecedents' layer includes, among other things, coaches' and athletes' individual difference characteristics, such as personality or experience; with this information in mind, the team sports coaches assessing their coach-athlete relationship as an average score of perception of all of the athletes, does not encompass the real picture of the quality of interpersonal relationships in their team. Perhaps, future research should consider a development of a coach-team relationship model and measurement, which takes into account variations in relationships as well as the fact that the relationship between one athlete and a coach can affect the relationship of another athlete and the same coach, to better understand the interpersonal environment of team sports.

The second limitation refers to the lack of data investigating the overall length of coach-athlete relationships, which is especially important for the second study. Apart from the demands of various phases of the season and stages of team development which have been pointed out as important factors influencing TL and CAR, the data showing how long coaches and athlete have known each other, could act as a possible moderator; previous results have shown that the duration of the coach-athlete relationship can have a moderating effect on the association between the quality of the coach-athlete relationship and athletes' perceptions (Jowett, 2008; Jowett & Nezelek, 2011). Even though the inventories which athletes were asked to fill in contained a question regarding the length of CAR – “How long have you been working with your coach (months)”, the post-data

collection feedback revealed that it was a problematic item for the athletes to answer. Some athletes did not know whether the question aimed to discover how long they have been working with a coach in this particular season, which might have been caused by the fact that the participants were informed that data would be collected three times representing various stages of the sporting season. Other athletes thought that the question referred to the overall length of relationship; however, some of the participants had a problem estimating the length in months, and some did not know whether they should state for how long they have known their coach, or just the months they worked with this particular coach (e.g. if, in the case of the university student-athletes, should the summer months be included as well or not?). Unfortunately, this issue was revealed after the data was collected and it was not possible to go back to every single participant and clarify the question. Future studies should be aware of such obstacles and the question regarding the length of coach-athlete relationship should be phrased less ambiguously and more closely aligned to the research questions.

The third fundamental limitation of this thesis relates to over-reliance on self-report measures. Questionnaires were used in all of the studies, and in the third study interviews with the coaches were also employed. There are several problems with using questionnaires, for example, participants' desirability, misunderstanding of the questions, and also the recency effect (e.g. Asch, 1946), i.e. the tendency to recall the most recent events and base a judgement on them rather on a wider array of, for example, leadership behaviours. In essence, self-report measures may not provide enough information to find nuances that would allow for deeper understanding of the coach-athlete relationship and transformational leadership phenomena. That said, it has to be also noted that according to some researchers (e.g. Ravitz et al., 2010) the choice of data collection methods is determined by the research questions.

Leadership, similarly to coaching, can be seen as a complex process that results from the interactions between coaches and athletes in a specific context (Cushion, 2010). Furthermore, when coaches' behaviours are misunderstood or delivered incorrectly, such situations can lead to negative performances or lower levels of psychological outcomes (Amorose, 2007; Cushion, 2010). Therefore, using questionnaires to assess coach leadership style contains the risk of obtaining poorly interpreted assessments of coaching behaviours. On the other hand, it is not always possible to obtain observational data as it requires specialised training and it is a highly time consuming process, especially when there is a large cohort of athletes to be investigated. It is acknowledged that the usage of

observational data in the third study could have provided different answers to the research questions regarding coaches' usage of newly acquired skills or efficiency in translating new knowledge into practice, or the usage of longitudinal interviewing in the second study could have provided more specific information regarding the development processes of CAR or a development of TL style in a single season.

Lack of data investigating transactional leadership constitutes a final limitation. The aim of the thesis was to explore the interplay between coach-athlete relationship and transformational leadership, not testing the transactional behaviours of the coaches might have limited the results of all three studies. Connection between transformational and transactional forms of leadership has been suggested by the augmentation hypothesis (Judge & Piccolo, 2004) and supported by research – in the sport domain both contingent reward (Callow et al., 2009), and management by exception (Krukowska et al., 2015) are present. Moreover, they are not only present but also important in the development of skills as, for example, active management by exception can help athletes notice and correct mistakes. Aside from the augmentation hypothesis, the evidence supporting the buffering effect of coach-athlete relationship could be applied to help understand how basic coaches' behaviours, as described by the transactional leadership model, are perceived by athletes and whether CAR moderates this effect. The Differentiated Transformational Leadership Questionnaire (DTLI; Callow et al., 2009; Hardy et al., 2010) contains the contingent reward subscale and, in all three studies of this thesis, the contingent reward behaviours have been found to be significantly related to coach-athlete relationship and positive psychological outcomes. Therefore, we hypothesise that similar connections could have been found with active and passive management by exception, and the effect of transactional behaviours in the transformational-relational coaching environment could further support or contradict the hypothesis of the buffering effect of coach-athlete relationship.

6.5 Future Research Directions

Even though coach-athlete relationship is defined as a situation (Jowett & Poczwardowski, 2007), this view or the usage of such semantics might be problematic when taking a temporal perspective on relationships. If a CAR is a situation, then we could say that an athlete and a coach who just met and had one or two training sessions

together have a relationship, but is it truly the case? The effective connection between a coach and an athlete requires observing behaviours, interacting in various situations, resolving conflict situations, building positive emotional attitudes towards the other member of the dyad, making an informal judgement whether this person is the best match of personality or goals, and therefore, it is wise to consider that such processes require time. Shamir (2011; p. 310) also noted that:

A relational perspective to leadership suggests that models of the development of interpersonal relationships may be relevant to the study of leadership phenomena. Such models (e.g. Levinger 1983) view interpersonal relationships as dynamic systems that change continuously during their existence. For instance, in the beginning, at the acquaintance stage, both sides engage primarily in impression management. As time passes, there is repeated exposure of the two sides to each other and often more frequent interaction between them. This gradually leads to greater accessibility and the removing of barriers of communication. With time, and with repeated interaction and communication, the two sides may discover value congruence between them, develop mutual respect and trust, and increase their level of openness and honesty, subsequently leading to greater mutual reciprocal influence between them.

As demonstrated by the results of the second study described in this thesis, the components of the coach-athlete relationship construct developed in different manners and therefore it can be hypothesised that building an attitude towards a coach or athlete requires time. This could be especially true for closeness (Does an athlete like his coach? Does a coach trust her players?) and commitment (Does an athlete think that it is worth sticking around with this coach or should she start looking for a new one?), because those two constructs are based on information coming from numerous experiences. The dimension of complementarity may differ slightly as it relates to behaviours and it is easier to observe them than to build an emotional connection. According to Brynin and Ermish (2009; p. 4):

Relationship is created out of a series of 'interactions', by which we mean such incidents as one individual showing some behaviour X to another individual, who responds with behaviour Y. An essential character of a relationship is that 'each interaction is influenced by another interactions in this relationship' (Hinde, 1997; p. 38).

Therefore, if relationships are “created out of a series of interactions”, then the time plays a crucial role in forming relationships. Athletes need to experience a certain number of behaviours, and encounter certain emotional reactions to start cognitively being attached to their coach and consider having a relationship with him or her. Therefore, considering time in the research of interpersonal relationships is significant and should constitute one of the main objectives in future studies. Future research in the domain of coach-athlete relationship could benefit from investigating the process of relationship development. The model described by Poczwardowski and colleagues (2002) contains three phases: pre-relationship phase, the relationship phase, and the post-relationship phase, but it does not provide specific dynamics underlying each of these phases and stages.

A second future research direction refers to extending the knowledge about temporal patterns underlining the process of transformational leadership influence and coach-athlete relationship development. The results of study two have shown that both TL and CAR fluctuate across a sporting season and this finding along with the results demonstrating that the interplay between TL and CAR from various stages of the season can affect athletes’ psychological outcomes at the end of the season, require future development. Leadership, which can be seen as a process, is highly influenced by the time; as mentioned previously, the leadership researchers have pointed out that different leadership input takes various amount of time to be effective, and that leadership input varies in duration (e.g. Shamir, 2011). Exploring the time needed to observe an effect of transformational leadership dimensions could bring new valuable information, especially in the context of practical application of TL, for example, future interventions aiming to teach coaches how to effectively exhibit transformational leadership behaviours. Also the relationship between a coach and an athlete develops at different rates for each individual athlete. Therefore future studies should focus on investigating how, for example, the individual characteristics of athletes and coaches’ affect the process of CAR development, as well as what are the stages of such development. Even though some researchers (Poczwardowski et al., 2002; Philippe et al., 2011) proposed models including stages or dimensions of coach-athlete relationship development, the models do not provide enough concrete details and have not been tested in different settings to generalise those results on to the wider population.

Another beneficial line of inquiry would be to explore whether a transformational-relational coaching environment has the capacity to prevent negative processes, such as early dropout or burnout. The studies which constitute the body of the present thesis have

shown that a coaching environment composed of TL and CAR has a capacity to influence positive psychological outcomes such as engagement, harmonious passion, intrinsic motivation, collective efficacy, and satisfaction. In the transformational leadership in sport literature, this TL has been explored mostly in the context of positive constructs with just few exceptions; for example, researchers explored TL in association with athletes' aggression levels (Tucker et al., 2010) or narcissism (Arthur et al., 2011). Similarly, the research focusing on coach-athlete relationship has been predominantly conducted with beneficial outcomes as research aims (e.g. needs satisfaction, performance, satisfaction), although, there are few studies which show CAR's influence in harmful processes, such as eating disorders (Shanmugam et al., 2012) or needs thwarting (Felton & Jowett, 2015). Moreover, as mentioned earlier, CAR has the capacity to act as a buffer protecting athletes' from possible negative consequences of coaches' behaviours. Therefore, exploring research embracing the transformational-relational coaching environment in the context of maladaptive processes could shed new light on both those constructs.

Even though the benefits of physical activity are well established (e.g. Fox, Boutcher, Faulkner, & Biddle, 2000), according to Weiss and Amorose (2008) about one-third of the youth athletes drop out from sport every year. Among the reasons why athletes decide to discontinue sport participation are those connected with the coach, for example: lack of autonomy-supportive coaching (Pelletier, Fortier, Vallerand, & Brière, 2001) or being less task-involving and less task-oriented (Le Bars, Gernigon, & Ninot, 2009). Burnout is defined as a multidimensional exhaustion (physical, emotional, and mental) caused by prolonged devotion to challenging goals (Freudenberger, 1980), and as some researchers point out, burnout results as a consequence of unmet needs and unfulfilled expectations (e.g. Gold & Roth, 1993). The concept of needs satisfaction has been studied in the context of transformational leadership (e.g. Stenling & Tafvelin, 2013) and coach-athlete relationship (e.g. Felton & Jowett, 2013), and in both cases it was shown that needs satisfaction transfers the positive effect of TL and CAR onto athletes' psychological variables. Moreover, the study conducted by Isoard-Gautheur and colleagues (2016) has shown a negative association between the quality of CAR and athletes' burnout. Therefore, it would be interesting to investigate whether a transformational-relational coaching environment may provide such nutrients which would prevent burnout and early dropout to occur.

Future research may also seek to explore the impact transformational leadership has on the coaches who employ such leadership style. The results of the second study showed that with time, coaches demonstrated less behaviours of the inspirational motivation, fostering acceptance of group goals, and role modelling dimensions, as well as that coaches showed less intellectual stimulation across the season than any other TL behaviour. Being inspirational, supportive, and challenging may, in the longer term, cause potential negative effects such as emotional exhaustion or possible conflicts in personal life (e.g. due to a huge time investment in the sporting career). Transformational leadership researchers have noted that TL style may have a negative impact on the followers (e.g. Yukl, 1999); however, there is a lack of research investigating the effects of being a transformational coach for many years. Such findings could benefit coaches to help them sustain psychological wellbeing and motivation.

Finally, the development of a transformational-relational training programme for coaches constitutes another direction for future research. The third study aimed to improve not only the usage of transformational leadership behaviours, but also the coach-athlete relationship quality; however, the results showed no change in the CAR quality perceived by the athletes. The interventions focusing on altering aspects of the coaching environment usually concerned coaches' behaviours (e.g. Smith et al., 1979; Conroy & Coatsworth, 2004; Smoll et al., 2007); however, training coaches to help them build effective relationships still remains uncharted territory.

In sport, the COMPASS Model proposed by Rhind and Jowett (2012) encompasses communication strategies used to maintain CAR quality: conflict management, openness, motivation, positivity, advice, support, and social networks. Those strategies aim to help the dyad's members to keep the relationship in a desirable condition and to affect the nature of the interpersonal relationship (Canary and Stafford, 1994). Therefore, the assumption that the intervention focusing on developing coaches' skills to use those strategies more frequently, as well as educating about elements of CAR, seemed promising; however, the results of study three did not show a significant increase in athletes' perceptions of relationship quality. Among the arguments presented in chapter five explaining a lack of change, one requires further exploration: the methods used in study three were not fully suitable to alter CAR and thus, the arising question concerns the optimal methods required to truly change the quality of a relationship. Coach-athlete relationship is a dyadic phenomenon and therefore education about communication strategies and constituents of this kind of relationship should be provided

to both the athletes and coaches. Looking ahead, the CAR intervention studies could also benefit from being adequately timed; even though the results of study two showed that the lowest level of coach-athlete relationship was perceived at the end of the sporting season, perhaps it would be more effective to implement such training in the preseason or in the first stage of the sporting season in order to build an atmosphere of open communication, and to enhance forming positive attitudes between coaches and athletes.

Due to the lack of previous intervention studies aiming to change CAR quality and only one known study which was designed to increase usage of TL behaviours by coaches, perhaps it would be wise to separate the two constructs in the next step of future research. Discovering the process of TL and CAR development is crucial as such knowledge could point the researchers in the direction of the methods necessary to be employed to learn how to effectively change both constructs,

Moreover, transformational leadership intervention could benefit from research based on a closer collaboration with the coaching science as coaches' behaviours and coaching effectiveness are common for both domains. As noted by Cushion (2010) "the traditional or common sense view of coaching has tended to focus solely on the observable behavioural elements, and has paid much less attention to the "what" and "why" of the behaviour" (p. 43); the view of transformational leadership in sport is similar to the one in sports coaching as majority of the studies has focused on the athletes' perceptions of the leadership behaviours and their effects on the psychological outcomes or performance. However, the research of TL in sport needs to be extended by the knowledge of the "why" and "how"— why do transformational coaches do what they do and how is coaches' TL style developed? Even though, the poor ability of coaches' to describe their own behaviours or low levels of self-awareness have been pointed out in the sport psychology and sports coaching literature (e.g. Smoll & Smith, 2006; Cushion, 2010), this aspect is rarely added to the intervention studies. For example, none of the studies described by Langan and colleagues (2013) in their systematic review on coach education interventions contained an element of self-reflection. Raising the level of coaches' self-awareness seems crucial in the light of Cushion's (2010) view that:

Butler (2005) identifies an 'epistemological gap' or 'cognitive dissonance' (Light, 2008) where there is a difference between an embodied and unarticulated belief that informs behaviour and practice and an alternative set of assumptions, resulting in coaches struggling to adopt an alternative behaviour. Coaches can develop

better conceptual understanding by reflecting on why they coach as they do and what assumptions underpin this (p. 51).

Therefore, future transformational leadership research studies should focus on exploring how TL is developed and what kind of assumptions underline this leadership style. Such knowledge may constitute a basis for designing a comprehensive intervention which could have a prolonged beneficial effect on coaches and athletes.

6.6 Practical Implications

The research investigating the topics of transformational leadership and coach-athlete relationship may have a great benefit in terms of practical applications. It is important that the generated theory, models, and results are linked to practice (Poczwadowski, Sherman, & Henschen, 1998), especially in practical environments, such as sports coaching. The present section aims to highlight some of the possible practical applications based on the findings from the three studies presented within this thesis. It is important to note that the presented studies are considered preliminary, as the interplay between transformational leadership and coach-athlete relationship has not gained much research attention in the past, especially not in the context of temporal patterns and it has not been examined in the intervention studies. Therefore, the practical suggestions outlined below require further research in order to constitute guidelines.

Firstly, the generated findings may help to design developmental programmes for coaches and to inform sports coaching. Transformational coaches should be educated about the importance of building and maintaining effective relationships with athletes because they have capacity to positively influence needs satisfaction and in turn athletes' engagement and harmonious passion, as well as performance-orientated outcomes. Such processes are also important in long term collaboration, as the buffering effect of CAR may prevent early dropout or burnout. Moreover, it is crucial for coaches to be aware that with the passage of time throughout the season and with increasing demands, athletes' tend to perceive a decrease in coach-athlete relationship quality, as well as in the usage of transformational leadership behaviours. Such knowledge can enable coaches to take actions early in the season to prevent rapid decrease along the way and in order to schedule time dedicated for themselves, to recover mentally and physically.

Furthermore, the findings of studies one and three suggest another practical implication – coaches should make sure to exhibit behaviours that unambiguously demonstrate their approach towards the athletes, such as: respect, commitment or responsiveness to athletes' efforts. Moreover, coaches should try to get to know their athletes, not only in a sporting context, to be able to provide them with the best quality of coaching because the individual differences play a huge role in athletes' responsiveness to coaches' behaviours, and adopting a single approach to all of the athletes may not be fully effective (Amorose, 2007). As noted by Cushion (2010) "truly athlete-centred coaches would be continuously receptive to learning how their athletes learn effectively. ... Receptivity, flexibility, and differentiated responses in coaches are likely to maximise learning (Cain, 1989)" (p. 53). In the university sport environment, the coaches who are at a similar age as players or have a dual role of a player-coach should also be aware of possible issue of overfamiliarity and overreliance. As the results of study two have shown, high quality coach-athlete relationship may moderate negatively the effect of transformational leadership on athletes' performance-oriented outcomes. In such situations, clearly stating the boundaries of coaches' roles may be inevitable in order to maximise the beneficial effect of coach transformational leadership.

Finally, study three provides another practical implication for future educational programmes aiming to enhance either coach-athlete relationship or transformational leadership style – the importance of coaches' self-reflective practice. As mentioned previously, the sports coaching researchers (e.g. Cushion et al., 2003; Cushion, 2010; Knowles et al., 2014) underlined the prominence of coaches critically reflecting on their coaching style, and the findings of study three also confirmed the need to be reflective in order to develop as a transformational coach. The majority of participants viewed the reflection activities as useful and as a mean of learning new things about themselves (e.g. underlying assumptions about coaching practice); however, the coaches varied in terms of activity preference. Therefore, when applying and teaching coaches about ways of self-reflecting, coach educators should present coaches with various options and enable them to find the ones that suit them most. Self-reflection is a private process and therefore it should be as suitable to a particular coach as possible, and to boost the effect, the coach should be simultaneously provided with opportunities to discuss their reflections in a non-threatening environment, for example with other coaches who share similar yet different experiences.

6.7 Concluding Remarks

The present thesis was dedicated to develop the understanding of the interplay between coach transformational leadership and coach-athlete relationship. Both of those constructs separately have gained attention in the sport psychology literature due to their beneficial effect on athletes' psychological outcomes. However, the interplay between the two constructs have not been fully explored, and the findings of the present thesis showed also that the interplay may be effective yet it is different to separate effects, depending on the time of the sporting seasons and tested mechanisms. The findings of this thesis constitute a step in the development of a view on the transformational leadership as a complex process which has a reciprocal effect on coach-athlete relationship. Furthermore, the findings highlight the importance of taking time effects into account when investigating TL and CAR separately and together. A transformational-relational environment has the capacity to constitute a great safety net for the athletes where their needs are met, they feel connected to their coaches, and they are inspired to attain challenging goals. The transformational-relational environment can be seen as built through sophisticated, multidimensional processes, and coaches who wish to enhance their interactions with athletes in order to build such an environment should commit to a path of continuous self-development.

Whilst the findings of all three studies present a potentially beneficial avenue of research, the described line of inquiry will evolve with the development of knowledge, especially by testing the transformational-relational coaching environment in various contexts (e.g. elite sport). The presented research has raised many questions which could lead to a substantial theory and practical developments, and may stimulate further examination by interested researchers.

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APPENDICES

APPENDIX I

Study one materials

Appendix I (A) Coach Letter

Appendix I (B) Athlete Questionnaire

Appendix I (C) Consent Form

Appendix I (A)

School of Sport, Exercise, and Health Sciences
Loughborough University, Leicestershire, UK, LE11 3TU

Dear Coach,

My name is Aleksandra Krukowska, I am a PhD research student conducting research under the supervision of Dr Sophia Jowett at Loughborough University. Our research revolves around understanding coaching environments that are effective and successful. Currently I am collecting data from athletes who participate in team sports. The aim is to tease out the potential associations between athletes' perceptions of their coaches' leadership/communication and their own performance, motivation and satisfaction. Essentially, we wish to understand how athletes in team sports work with one another and what the role of a coach is in that process.

I would be grateful if you would allow me to come before or after your training session (or any other convenient time) to ask your athletes to complete a short questionnaire (it takes about 10-15 minutes to fill it in). In return, I would be more than happy to prepare a report with a summary of the generated results.

Look forward to hearing from you.

Kind regards,

Aleksandra

Appendix I (B)

Understanding Coaching Environment Questionnaire

The questionnaire was developed to understand the coaching environment in which athletes in team sports train and compete. **Please respond to the questions as honestly as possible and relevant to how you actually feel.**

Please note that the information you provide here will be treated as strictly confidential and will not be made available to any third party or attributed to you in person.

Details:

Age: _____ years

Date of birth: / / / (DD/MM/YY)

Place of birth: _____

Gender: M F

Sport: _____

At what level of sport do you generally play?

- University Club Regional
 National International Other: _____

What part of your sporting season are you currently in?

- Preseason Regular season
 Play-offs Off-season

How long have you been playing this sport? _____ years

How long have you been working with your coach? _____ months

What is the gender of your coach? M F

How long have you been working with your current team? _____ months

Appendix I (B)

Please judge how frequently each statement fits into your principal coach's normal behaviour:

	Not at all		Sometimes			All of the time	
1. Tries to help us to work out how to solve problems.	1	2	3	4	5	6	7
2. Treats each team member as an individual.	1	2	3	4	5	6	7
3. Talks optimistically about the future.	1	2	3	4	5	6	7
4. Helps team members to develop their strengths.	1	2	3	4	5	6	7
5. Talks in a way that makes me believe I can succeed.	1	2	3	4	5	6	7
6. Gives me special recognition when I do very good work.	1	2	3	4	5	6	7
7. Talks enthusiastically about what needs to be accomplished.	1	2	3	4	5	6	7
8. Gives us praise when we do good work.	1	2	3	4	5	6	7
9. Gets me to re-think the way I do things.	1	2	3	4	5	6	7
10. Praises athletes when they show improvement.	1	2	3	4	5	6	7
11. Shows performers how to look at difficulties from a new angle.	1	2	3	4	5	6	7
12. Considers that I have different strengths and abilities from others.	1	2	3	4	5	6	7
13. Encourages athletes to be team players.	1	2	3	4	5	6	7
14. Expects a lot from us.	1	2	3	4	5	6	7
15. Develops a strong team attitude and spirit among team members.	1	2	3	4	5	6	7
16. Recognises that different athletes have different needs.	1	2	3	4	5	6	7
17. Leads by example.	1	2	3	4	5	6	7
18. Expects us to achieve high standards.	1	2	3	4	5	6	7
19. Expresses confidence that goals will be achieved.	1	2	3	4	5	6	7
20. Provides training that helps me to improve my performance.	1	2	3	4	5	6	7
21. Leads from the front whenever he/she can.	1	2	3	4	5	6	7

Appendix I (B)

22. Challenges me to think about problems in new ways.	1	2	3	4	5	6	7
23. Will not settle for second best.	1	2	3	4	5	6	7
24. Gets the team to work together for the same goal.	1	2	3	4	5	6	7
25. Leads by “doing” rather than simply “telling”.	1	2	3	4	5	6	7
26. Is a good role model for me to follow.	1	2	3	4	5	6	7
27. Always recognizes our achievements.	1	2	3	4	5	6	7
28. Coaches team members to help them improve their performance.	1	2	3	4	5	6	7
29. Always expect us to do our best.	1	2	3	4	5	6	7
30. Cares about my needs.	1	2	3	4	5	6	7
31. Understands that I have different needs than others.	1	2	3	4	5	6	7
32. Talks optimistically about the team prospects.	1	2	3	4	5	6	7
33. Expresses confidence in me.	1	2	3	4	5	6	7
34. Inspires me to do the best I can.	1	2	3	4	5	6	7
35. Expresses to me that I make a valuable contribution to the team.	1	2	3	4	5	6	7

Please indicate how you personally feel about your relationship with your principal coach:

	Strongly Disagree		Moderately			Strongly Agree	
36. I am close to my coach.	1	2	3	4	5	6	7
37. I am committed to my coach.	1	2	3	4	5	6	7
38. I like my coach.	1	2	3	4	5	6	7
39. When I am coached by my coach, I am at ease.	1	2	3	4	5	6	7
40. I trust my coach.	1	2	3	4	5	6	7
41. I think that my sporting career with my coach is promising.	1	2	3	4	5	6	7

Appendix I (B)

42. When I am coached by my coach, I am responsive to his/her efforts.	1	2	3	4	5	6	7
43. I respect my coach.	1	2	3	4	5	6	7
44. I appreciate my coach's sacrifices in order to improve performance.	1	2	3	4	5	6	7
45. When I am coached by my coach, I am ready to do my best.	1	2	3	4	5	6	7
46. When I am coached by my coach, I adopt a friendly stance.	1	2	3	4	5	6	7

Please indicate how you personally think your principal coach feels about you:

	Strongly Disagree		Moderately			Strongly Agree	
47. My coach is close to me.	1	2	3	4	5	6	7
48. My coach is committed to me.	1	2	3	4	5	6	7
49. My coach likes me.	1	2	3	4	5	6	7
50. My coach is at ease when he/she coaches me.	1	2	3	4	5	6	7
51. My coach trusts me.	1	2	3	4	5	6	7
52. My coach feels that his/her career is promising with me.	1	2	3	4	5	6	7
53. My coach is responsive to my efforts when he/she coaches me.	1	2	3	4	5	6	7
54. My coach respects me.	1	2	3	4	5	6	7
55. My coach appreciates the sacrifices I make in order to improve performance.	1	2	3	4	5	6	7
56. My coach is ready to do his/her best when he/she coaches me.	1	2	3	4	5	6	7
57. My coach adopts a friendly stance when he/she coaches me.	1	2	3	4	5	6	7

The following questions concern your feelings and experiences about training with this team. Please indicate how true each of the following statements is for you given your experiences with this team.

	Not at all true		Somewhat true			Very true	
58. In training sessions I feel like I have opportunities to make decisions.	1	2	3	4	5	6	7

Appendix I (B)

59. I really like the people I train with.	1	2	3	4	5	6	7
60. I do not feel very competent when I am training.	1	2	3	4	5	6	7
61. People I train with tell me I am good at what I do.	1	2	3	4	5	6	7
62. I feel pressured at training sessions.	1	2	3	4	5	6	7
63. I get along with people I train with.	1	2	3	4	5	6	7
64. I pretty much keep to myself when I am at training sessions.	1	2	3	4	5	6	7
65. I am free to express my ideas and opinions on the training sessions.	1	2	3	4	5	6	7
66. I consider the people I train with to be my friends.	1	2	3	4	5	6	7
67. I have been able to learn interesting new skills during training sessions.	1	2	3	4	5	6	7
68. When I am at training sessions, I have to do what I am told.	1	2	3	4	5	6	7
69. Most days I feel a sense of accomplishment from training sessions.	1	2	3	4	5	6	7
70. My feelings are taken into consideration at training sessions.	1	2	3	4	5	6	7
71. During training sessions I do not get much of a chance to show how capable I am.	1	2	3	4	5	6	7
72. People at training sessions care about me.	1	2	3	4	5	6	7
73. There are not many people at training sessions that I am close to.	1	2	3	4	5	6	7
74. I feel like I can pretty much be myself at training sessions.	1	2	3	4	5	6	7
75. The people I train with do not seem to like me much.	1	2	3	4	5	6	7
76. When I am training I often do not feel very capable.	1	2	3	4	5	6	7
77. There is not much opportunity for me to decide for myself how to go about my training sessions.	1	2	3	4	5	6	7
78. People at training sessions are pretty friendly towards me.	1	2	3	4	5	6	7

Appendix I (B)

While thinking of your sport and using the scale below, please indicate your level of agreement with each item:

	Not Agree At All		Moderately Agree			Very Strongly Agree	
79. My sport is in harmony with the other activities in my life.	1	2	3	4	5	6	7
80. I have difficulties controlling my urge to do my sport.	1	2	3	4	5	6	7
81. The new things that I discover with my sport allow me to appreciate it even more.	1	2	3	4	5	6	7
82. I have almost an obsessive feeling for my sport.	1	2	3	4	5	6	7
83. My sport reflects the qualities I like about myself.	1	2	3	4	5	6	7
84. My sport allows me to live a variety of experiences.	1	2	3	4	5	6	7
85. My sport is the only thing that really turns me on.	1	2	3	4	5	6	7
86. My sport is well integrated in my life.	1	2	3	4	5	6	7
87. If I could, I would only practice my sport.	1	2	3	4	5	6	7
88. My sport is in harmony with other things that are part of me.	1	2	3	4	5	6	7
89. My sport is so exciting that I sometimes lose control over it.	1	2	3	4	5	6	7
90. I have the impression that my sport controls me.	1	2	3	4	5	6	7

Please indicate how often you felt this way about your sport in the past four weeks:

	Almost never		Sometimes			Almost always	
91. I believe I am capable of accomplishing my goals in sport.	1	2	3	4	5	6	7
92. I feel capable of success in my sport.	1	2	3	4	5	6	7
93. I believe I have the skills/technique to be successful in my sport.	1	2	3	4	5	6	7
94. I am confident in my abilities.	1	2	3	4	5	6	7
95. I am dedicated to achieving my goals in sport.	1	2	3	4	5	6	7
96. I am determined to achieve my goals in sport.	1	2	3	4	5	6	7
97. I am devoted to my sport.	1	2	3	4	5	6	7
98. I want to work hard to achieve my goals in sport.	1	2	3	4	5	6	7

Appendix I (B)

99. I feel energized when I participate in my sport.	1	2	3	4	5	6	7
100. I feel energetic when I participate in my sport.	1	2	3	4	5	6	7
101. I really feel alive when I participate in my sport.	1	2	3	4	5	6	7
102. I feel mentally alert when I participate in my sport.	1	2	3	4	5	6	7
103. I feel excited about my sport.	1	2	3	4	5	6	7
104. I am enthusiastic about my sport.	1	2	3	4	5	6	7
105. I enjoy my sport.	1	2	3	4	5	6	7
106. I have fun in my sport.	1	2	3	4	5	6	7

Thank you for completing the questionnaire.

Second and third study:

The purpose of this research is to investigate how coaches' behaviours and leadership style affect athletes throughout the course of a single season and we would like to ask you to fill in the questionnaires two more times during different parts of your sporting season.

If you agree to participate in second and third study (both include filling in questionnaires and it takes around 10-15 minutes to complete them), please leave your e-mail address so we can contact you:

Appendix I (C)**Informed consent**

I have read the foregoing information, or it has been read to me. I have had the opportunity to ask questions about it and any questions that I have asked have been answered to my satisfaction. I understand I can withdraw from the study at any time and I will not be asked to explain my reasons for withdrawing.

I consent voluntarily to participate as a participant in the research "Understanding Coaching Environment".

Print Name of Participant _____

Signature of Participant _____

Date _____

APPENDIX II

Study two materials

Appendix II (A) Coach Letter

Appendix II (B) Athlete Questionnaire

Appendix II (A): Letter for coaches

School of Sport, Exercise, and Health Sciences
Loughborough University, Leicestershire, UK, LE11 3TU

Dear Coach,

My name is Aleksandra Krukowska, I am a PhD research student conducting research under the supervision of Dr Sophia Jowett at Loughborough University. Our research revolves around understanding coaching environments that are effective and successful. Currently I am collecting data from athletes in 3 distinct times during a sporting season and I would like to ask your permission to approach your athletes to fill in the questionnaires. The aim of the research is to investigate how athletes' perception of the coaching environment changes according to the demands of different parts of the season.

It takes on average 15 minutes to fill in a questionnaire for each data collection point. If that's more convenient, the questionnaires could be distributed via e-mail (I've enclosed a copy), and there is also an online version as well <https://www.survey.lboro.ac.uk/coachingenvironment>

Should you have any questions, please do not hesitate to contact me.

Kind regards,

Alex

Appendix II (B): Athlete Questionnaire

Understanding Coaching Environment Questionnaire

The questionnaire was developed to understand the coaching environment in which athletes in team sports train and compete. **Please respond to the questions as honestly as possible and relevant to how you actually feel.**

Please note that the information you provide here will be treated as strictly confidential and will not be made available to any third party or attributed to you in person.

Details:

Age: _____ years

Date of birth: / / / (DD/MM/YY)

Place of birth: _____

Gender: M F

Sport: _____

At what level of sport do you generally play?

- University Club Regional
 National International Other: _____

What part of your sporting season are you currently in?

- Preseason Regular season
 Play-offs Off-season

How long have you been playing this sport? _____ years

How long have you been working with your coach? _____ months

What is the gender of your coach? M F

How long have you been working with your current team? _____ months

Appendix II (B): Athlete Questionnaire

Please judge how frequently each statement fits into your principal coach's normal behaviour:

	Not at all		Sometimes			All of the time	
1. Tries to help us to work out how to solve problems.	1	2	3	4	5	6	7
2. Treats each team member as an individual.	1	2	3	4	5	6	7
3. Talks optimistically about the future.	1	2	3	4	5	6	7
4. Helps team members to develop their strengths.	1	2	3	4	5	6	7
5. Talks in a way that makes me believe I can succeed.	1	2	3	4	5	6	7
6. Gives me special recognition when I do very good work.	1	2	3	4	5	6	7
7. Talks enthusiastically about what needs to be accomplished.	1	2	3	4	5	6	7
8. Gives us praise when we do good work.	1	2	3	4	5	6	7
9. Gets me to re-think the way I do things.	1	2	3	4	5	6	7
10. Praises athletes when they show improvement.	1	2	3	4	5	6	7
11. Shows performers how to look at difficulties from a new angle.	1	2	3	4	5	6	7
12. Considers that I have different strengths and abilities from others.	1	2	3	4	5	6	7
13. Encourages athletes to be team players.	1	2	3	4	5	6	7
14. Expects a lot from us.	1	2	3	4	5	6	7
15. Develops a strong team attitude and spirit among team members.	1	2	3	4	5	6	7
16. Recognises that different athletes have different needs.	1	2	3	4	5	6	7
17. Leads by example.	1	2	3	4	5	6	7
18. Expects us to achieve high standards.	1	2	3	4	5	6	7
19. Expresses confidence that goals will be achieved.	1	2	3	4	5	6	7
20. Provides training that helps me to improve my performance.	1	2	3	4	5	6	7
21. Leads from the front whenever he/she can.	1	2	3	4	5	6	7

Appendix II (B): Athlete Questionnaire

22. Challenges me to think about problems in new ways.	1	2	3	4	5	6	7
23. Will not settle for second best.	1	2	3	4	5	6	7
24. Gets the team to work together for the same goal.	1	2	3	4	5	6	7
25. Leads by “doing” rather than simply “telling”.	1	2	3	4	5	6	7
26. Is a good role model for me to follow.	1	2	3	4	5	6	7
27. Always recognizes our achievements.	1	2	3	4	5	6	7
28. Coaches team members to help them improve their performance.	1	2	3	4	5	6	7
29. Always expect us to do our best.	1	2	3	4	5	6	7
30. Cares about my needs.	1	2	3	4	5	6	7
31. Understands that I have different needs than others.	1	2	3	4	5	6	7
32. Talks optimistically about the team prospects.	1	2	3	4	5	6	7
33. Expresses confidence in me.	1	2	3	4	5	6	7
34. Inspires me to do the best I can.	1	2	3	4	5	6	7
35. Expresses to me that I make a valuable contribution to the team.	1	2	3	4	5	6	7

Please indicate how you personally feel about your relationship with your principal coach:

	Strongly Disagree			Moderately			Strongly Agree
36. I am close to my coach.	1	2	3	4	5	6	7
37. I am committed to my coach.	1	2	3	4	5	6	7
38. I like my coach.	1	2	3	4	5	6	7
39. When I am coached by my coach, I am at ease.	1	2	3	4	5	6	7
40. I trust my coach.	1	2	3	4	5	6	7
41. I think that my sporting career with my coach is promising.	1	2	3	4	5	6	7

Appendix II (B): Athlete Questionnaire

42. When I am coached by my coach, I am responsive to his/her efforts.	1	2	3	4	5	6	7
43. I respect my coach.	1	2	3	4	5	6	7
44. I appreciate my coach's sacrifices in order to improve performance.	1	2	3	4	5	6	7
45. When I am coached by my coach, I am ready to do my best.	1	2	3	4	5	6	7
46. When I am coached by my coach, I adopt a friendly stance.	1	2	3	4	5	6	7

Please indicate how you personally think your principal coach feels about you:

	Strongly Disagree			Moderately			Strongly Agree
47. My coach is close to me.	1	2	3	4	5	6	7
48. My coach is committed to me.	1	2	3	4	5	6	7
49. My coach likes me.	1	2	3	4	5	6	7
50. My coach is at ease when he/she coaches me.	1	2	3	4	5	6	7
51. My coach trusts me.	1	2	3	4	5	6	7
52. My coach feels that his/her career is promising with me.	1	2	3	4	5	6	7
53. My coach is responsive to my efforts when he/she coaches me.	1	2	3	4	5	6	7
54. My coach respects me.	1	2	3	4	5	6	7
55. My coach appreciates the sacrifices I make in order to improve performance.	1	2	3	4	5	6	7
56. My coach is ready to do his/her best when he/she coaches me.	1	2	3	4	5	6	7
57. My coach adopts a friendly stance when he/she coaches me.	1	2	3	4	5	6	7

APPENDIX III

Study three materials

Appendix III (A) Workshops' advert.

Appendix III (B) Coach Questionnaire.

Appendix III (C) Interview II questions.

Appendix III (D) Small reflection card.

Appendix III (E) Workshops booklet.

Appendix III (F) Workshops' slides.

Appendix III (G) Athlete Questionnaire.

Appendix III (A)

How to develop and maintain a positive coaching environment – developmental programme for coaches

Date: **6th, 7th, 13th, 14th and 20th of March** (each session 90 minutes long)

Venue: Loughborough University

Are you a young coach currently working with athletes? Do you want to extend your knowledge and improve your coaching practice? Do you feel that you have a potential to become a better leader?

Developed as a part of a research project, the course integrates recent findings from the domain of sport psychology regarding: leadership, motivation and building and maintaining effective relationships, as well as skills necessary to create a flourishing coaching environment.

Please be aware that the course is part of a research project investigating the interactions between coaches and athletes. Your insight and engagement will be anticipated: you will be asked to take part in the interview and keep a journal to reflect on your practice and even further improve your coaching style.

Learning outcomes:

- Through the use of practical examples you will learn about ways of enhancing athletes' motivation and engagement;
- You will improve your leadership skills;
- You will understand your own coaching philosophy better;
- You will learn how to relate more effectively with your athletes which will help you sustain a positive training environment;
- You will learn communication skills which will allow you to manage people more effectively;

Participants will gain new knowledge and skills, improve their coaching practise and obtain a certificate of attendance signed by the organiser and Dr Sophia Jowett. Also, participants will be provide with food and refreshments during the workshops.

To book a place(s) onto this course or if you have any questions, please send an email to Ola Krukowska: A.Krukowska@lboro.ac.uk

Appendix III (B)

Understanding Coaching Environment Questionnaire

The questionnaire was developed to understand the coaching environment in which athletes in team sports train and compete. **Please respond to the questions as honestly as possible and relevant to how you actually feel.**

Please note that the information you provide here will be treated as strictly confidential and will not be made available to any third party or attributed to you in person.

Details:

Age: _____ years

Date of birth: / / / (DD/MM/YY)

Place of birth: _____

Gender: M F

Sport: _____

At what level of sport do you generally coach?

- University Club Regional
 National International
 Other: _____

What part of your sporting season are you currently in?

- Preseason Regular season
 Play-offs Off-season

How long have you been coaching this sport? _____ years

How long have you been working with your team? _____ months

What is the gender of your players? M F

How long have you been working with your current team? _____ months

Appendix III (B)

Please judge how frequently each statements fits into your normal behaviour:

	Not at all		Sometimes			All of the time	
1. I try to help to work out how to solve problems.	1	2	3	4	5	6	7
2. I treat each team member as an individual.	1	2	3	4	5	6	7
3. I talk optimistically about the future.	1	2	3	4	5	6	7
4. I help team members to develop their strengths.	1	2	3	4	5	6	7
5. I talk in a way that makes my team believe we can succeed.	1	2	3	4	5	6	7
6. I give a special recognition when my players do very good work.	1	2	3	4	5	6	7
7. I talk enthusiastically about what needs to be accomplished.	1	2	3	4	5	6	7
8. I give praise when my players do good work.	1	2	3	4	5	6	7
9. I get my athletes to re-think the way they do things.	1	2	3	4	5	6	7
10. I praise athletes when they show improvement.	1	2	3	4	5	6	7
11. I show performers how to look at difficulties from a new angle.	1	2	3	4	5	6	7
12. I consider that each athlete has different strengths and abilities from others.	1	2	3	4	5	6	7
13. I encourage athletes to be team players.	1	2	3	4	5	6	7
14. I expect a lot from my athletes.	1	2	3	4	5	6	7
15. I develop a strong team attitude and spirit among team members.	1	2	3	4	5	6	7
16. I recognise that different athletes have different needs.	1	2	3	4	5	6	7
17. I lead by example.	1	2	3	4	5	6	7
18. I expect athletes to achieve high standards.	1	2	3	4	5	6	7

Appendix III (B)

19. I express confidence that goals will be achieved.	1	2	3	4	5	6	7
20. I provide training that helps athletes to improve their performance.	1	2	3	4	5	6	7
21. I lead from the front whenever I can.	1	2	3	4	5	6	7
22. I challenge athletes to think about problems in new ways.	1	2	3	4	5	6	7
23. I will not settle for second best.	1	2	3	4	5	6	7
24. I get the team to work together for the same goal.	1	2	3	4	5	6	7
25. I lead by “doing” rather than simply “telling”.	1	2	3	4	5	6	7
26. I’m a good role model to follow.	1	2	3	4	5	6	7
27. I always recognize team’s achievements.	1	2	3	4	5	6	7
28. I coach team members to help them improve their performance.	1	2	3	4	5	6	7
29. I always expect my team to do our best.	1	2	3	4	5	6	7
30. I care about athletes’ needs.	1	2	3	4	5	6	7
31. I understand that different athletes have different needs than others.	1	2	3	4	5	6	7
32. I talk optimistically about the team prospects.	1	2	3	4	5	6	7
33. I express confidence in each of the players.	1	2	3	4	5	6	7
34. I inspire athletes to do the best they can.	1	2	3	4	5	6	7
35. I express to my athletes that each of them make a valuable contribution to the team.	1	2	3	4	5	6	7

Appendix III (B)

Please read carefully the statements below and circle the answer that indicates whether you agree or disagree. There are no right or wrong answers. Please respond to the statements as honest as possible and relevant to how you personally feel about your team or squad.

	Strongly Disagree		Moderately			Strongly Agree	
36. I am close to (not distant from) my athletes	1	2	3	4	5	6	7
37. I am committed to my athletes	1	2	3	4	5	6	7
38. I like my athletes	1	2	3	4	5	6	7
39. When I coach my athletes, I am at ease	1	2	3	4	5	6	7
40. I trust my athletes	1	2	3	4	5	6	7
41. I feel that my coaching career is promising with my athletes	1	2	3	4	5	6	7
42. When I coach my athletes, I am responsive to their efforts	1	2	3	4	5	6	7
43. I respect my athletes	1	2	3	4	5	6	7
44. I appreciate my athletes' sacrifices in order to improve performance	1	2	3	4	5	6	7
45. When I coach my athlete, I am ready to do my best	1	2	3	4	5	6	7
46. When I coach my athletes, I adopt a friendly stance	1	2	3	4	5	6	7

Please read carefully the statements below and circle the answer that indicates whether you agree or disagree. There are no right or wrong answers. Please respond to the statements as honest as possible and relevant to how you personally think your team or squad feel about you.

	Strongly Disagree		Moderately			Strongly Agree	
47. My athletes are close to (not distant from) me	1	2	3	4	5	6	7
48. My athletes are committed to me	1	2	3	4	5	6	7
49. My athletes like me	1	2	3	4	5	6	7
50. My athlete are at ease when I coach them	1	2	3	4	5	6	7
51. My athletes trust me	1	2	3	4	5	6	7
52. My athletes feel that their sporting career is promising with me	1	2	3	4	5	6	7

Appendix III (B)

53. My athletes are responsive to my efforts when I train them	1	2	3	4	5	6	7
54. My athletes respect me	1	2	3	4	5	6	7
55. My athletes appreciate the sacrifices I make in order to improve performance	1	2	3	4	5	6	7
56. My athletes are ready to do their best when I train them	1	2	3	4	5	6	7
57. My athletes adopt a friendly stance when I train them	1	2	3	4	5	6	7

Please respond to each of the following statements by indicating the degree to which the statement is true for you in general in your life.

	Not at all true			Somewhat true			Very true
58. I feel alive and vital	1	2	3	4	5	6	7
59. I don't feel very energetic.	1	2	3	4	5	6	7
60. Sometimes I feel so alive I just want to burst	1	2	3	4	5	6	7
61. I have energy and spirit	1	2	3	4	5	6	7
62. I look forward to each new day	1	2	3	4	5	6	7
63. I nearly always feel alert and awake	1	2	3	4	5	6	7
64. I feel energized	1	2	3	4	5	6	7

Please indicate how you generally communicate and interact with your athletes in training:

	Strongly Disagree			Moderately			Strongly Agree
65. I try not to lose my temper during disagreements.	1	2	3	4	5	6	7
66. I am patient during disagreements.	1	2	3	4	5	6	7
67. I am understanding during disagreements.	1	2	3	4	5	6	7
68. I listen to my athlete during disagreements.	1	2	3	4	5	6	7
69. I co-operate with my athlete during disagreements.	1	2	3	4	5	6	7
70. I state my opinion when we are setting goals.	1	2	3	4	5	6	7

Appendix III (B)

71. I give my athlete a constructive feedback.	1	2	3	4	5	6	7
72. I give my athlete praise when appropriate.	1	2	3	4	5	6	7
73. I am open about my feelings.	1	2	3	4	5	6	7
74. I show that I am motivated to work hard with my athlete.	1	2	3	4	5	6	7
75. I show my ability as a coach.	1	2	3	4	5	6	7
76. I show that I am motivated to achieve.	1	2	3	4	5	6	7
77. I work hard to achieve our goals.	1	2	3	4	5	6	7
78. I show that I am passionate about our sport.	1	2	3	4	5	6	7
79. I tell my athlete what I expect from him/her.	1	2	3	4	5	6	7
80. I talk about where we stand.	1	2	3	4	5	6	7
81. I tell my athlete when he/she has/has not met my expectations.	1	2	3	4	5	6	7
82. I like to have regular talks about our relationship.	1	2	3	4	5	6	7
83. I show my athlete that he/she can rely on me even when things are not going well.	1	2	3	4	5	6	7
84. I show my athlete that he/she can count on me.	1	2	3	4	5	6	7
85. I show my athlete that he/she can talk to me about anything.	1	2	3	4	5	6	7
86. I give my athlete support when they are going through difficult times.	1	2	3	4	5	6	7
87. I am considerate of events in my athlete's personal life.	1	2	3	4	5	6	7
88. I give my athlete support when things are not going well.	1	2	3	4	5	6	7
89. I like to spend time with our mutual friends.	1	2	3	4	5	6	7
90. I socialize with my athlete.	1	2	3	4	5	6	7
91. I spend time outside of training with my athlete.	1	2	3	4	5	6	7
92. I talk about our mutual friends and affiliations.	1	2	3	4	5	6	7

Appendix III (B)**Please indicate how satisfied you are with:**

	Not At All						Fully
93. The degree of which you have reached your performance goals during the season.	1	2	3	4	5	6	7
94. The improvement in your performance over the previous season.	1	2	3	4	5	6	7
95. The improvement in your skill level thus far.	1	2	3	4	5	6	7
96. The team's win/loss record this season.	1	2	3	4	5	6	7
97. The team's overall performance this season.	1	2	3	4	5	6	7
98. The extent to which the team has met its goals for the season thus far.	1	2	3	4	5	6	7

Please indicate how you feel about being in your team.

	Not At All True				Extremely True		
99. I feel like a part of my team.	1	2	3	4	5	6	7
100. Players in my team take my opinions seriously.	1	2	3	4	5	6	7
101. I am included in lots of the team activities.	1	2	3	4	5	6	7
102. I can really be myself on this team.	1	2	3	4	5	6	7
103. Players like me the way I am.	1	2	3	4	5	6	7
104. Players in my team are friendly towards me.	1	2	3	4	5	6	7
105. Others on the team notice when I'm good at something.	1	2	3	4	5	6	7
106. I am treated with as much respect as others.	1	2	3	4	5	6	7
107. People know I can perform well.	1	2	3	4	5	6	7
108. I feel proud of belonging to this team.	1	2	3	4	5	6	7
109. Players on my team respect me.	1	2	3	4	5	6	7

Appendix III (B)

Please indicate how much you agree or disagree with each statement.

	Strongly Disagree		Moderately			Strongly Agree	
	1	2	3	4	5	6	7
110. I try to motivate athletes by promising to reward them if they do well	1	2	3	4	5	6	7
111. I only reward/praise my athletes to make them train harder	1	2	3	4	5	6	7
112. I only use rewards/praise so that they stay focused on tasks during training	1	2	3	4	5	6	7
113. I only use rewards/praise so that my athletes complete all the tasks they set in training	1	2	3	4	5	6	7
114. I am less friendly with athletes if they don't make the effort to see things my way	1	2	3	4	5	6	7
115. I am less supportive to my athletes when they are not training and competing well	1	2	3	4	5	6	7
116. I pay my athletes less attention if they have displeased me	1	2	3	4	5	6	7
117. I am less accepting of my athletes if they have disappointed me	1	2	3	4	5	6	7
118. I shout at my athletes in front of others to make them do certain things	1	2	3	4	5	6	7
119. I threaten to punish my athletes to keep them in line during training	1	2	3	4	5	6	7
120. I intimidate my athletes into doing the things that I want them to do	1	2	3	4	5	6	7
121. I embarrass my athletes in front of others if they do not do the things I want them to do	1	2	3	4	5	6	7
122. I expect my athletes' whole life to center on their sport participation	1	2	3	4	5	6	7
123. I try to control what my athletes do during their free time	1	2	3	4	5	6	7
124. I try to interfere in aspects of my athletes' lives outside of sport	1	2	3	4	5	6	7

Thank you for completing the questionnaire.

Appendix III (C)

1. What does your usual session look like? What do you start with? How do you proceed?
2. If you were to describe yourself as a coach, what would you say? What kind of a coach are you?
3. When your athlete makes a mistake, what do you do? How do you react when it relates to organisation and how when it relates to mistake whilst executing a training task?
4. How do you communicate your feedback? Please give me an example./ what do you focus on?
5. How do you communicate a technical instruction? Please give me an example.
6. How do you communicate encouragement? Please give me an example.
7. Do you reinforce your athletes after a good play or positive performance? How?
8. Do you communicate your vision to your athletes? How?
9. Do you prepare yourself somehow when you know you will have to speak with one of the athletes? If yes, how?
10. What do you do when your athletes misbehave?
11. Do you talk with your athletes about things not connected with sport? How?
12. What is coaching to you? How would you describe your coaching philosophy?

Now I would like to talk about your interactions with players.

13. Respect, Trust, Appreciation, Commitment – those are some of the aspects of athlete and coach interactions. Are they important to you? Why? How do you show that?
Are you committed to your players? How can they perceive that?
Do you trust your players? How do you show that?
14. How do you think coaching is affected if these aspects are not present in the ways you interact with players?
15. How do you build relationships with your athletes?
16. How do you motivate your players?
17. Do you address generally the team or each athlete individually? Why?
18. How you discuss with your athletes how they can approach different problems, for example technical ones?
19. How are important decisions made in your team?

Appendix III (C)

20. What do you know about the relationships within the team? Do you do something to improve the relationships between players, as well as between players and you?
21. What do you do to create a coaching environment that helps you achieve your goals or support the team to achieve the goals that are set?

Last month you took part in a coaching course and I would like to discuss it in relation to your coaching practice.

22. In regards to the course you attended, what did you find interesting and useful?
Why?
23. What wasn't practical or useful?
24. How did you implement new knowledge and skills into your own practice?
Was it easy for you? Did you meet any obstacles, if yes – what were they?
25. How did you find an activity with reflecting cards? Was there anything you didn't like about that activity?
Did you meet any obstacles?
26. How do you feel about reflecting on your coaching style daily? Do you think you will continue doing so? If not, why?
27. What did you learn about your coaching philosophy?
28. Did you find reading materials useful?
29. What did you learn about your leadership qualities?
30. What did you learn about communication?
31. During workshops you set few goals for yourself- did you achieve them? How did you find this activity and the fact that you were asked to share your goals with the group?
32. What about relationships – did you learn something new about them? Did you start doing anything differently?
33. During last workshop you learnt about the importance of supporting the needs for autonomy, competence and relatedness. Was this knowledge useful for you?
How?
34. If you were to attend it again, what do you think would have to be done differently?

Appendix III (E)

Date/Time:	
Event:	
Focus for reflection:	
Leadership behaviour	Communication
Relationship component	Decision

How to develop and maintain a positive
coaching environment – developmental course
for coaches



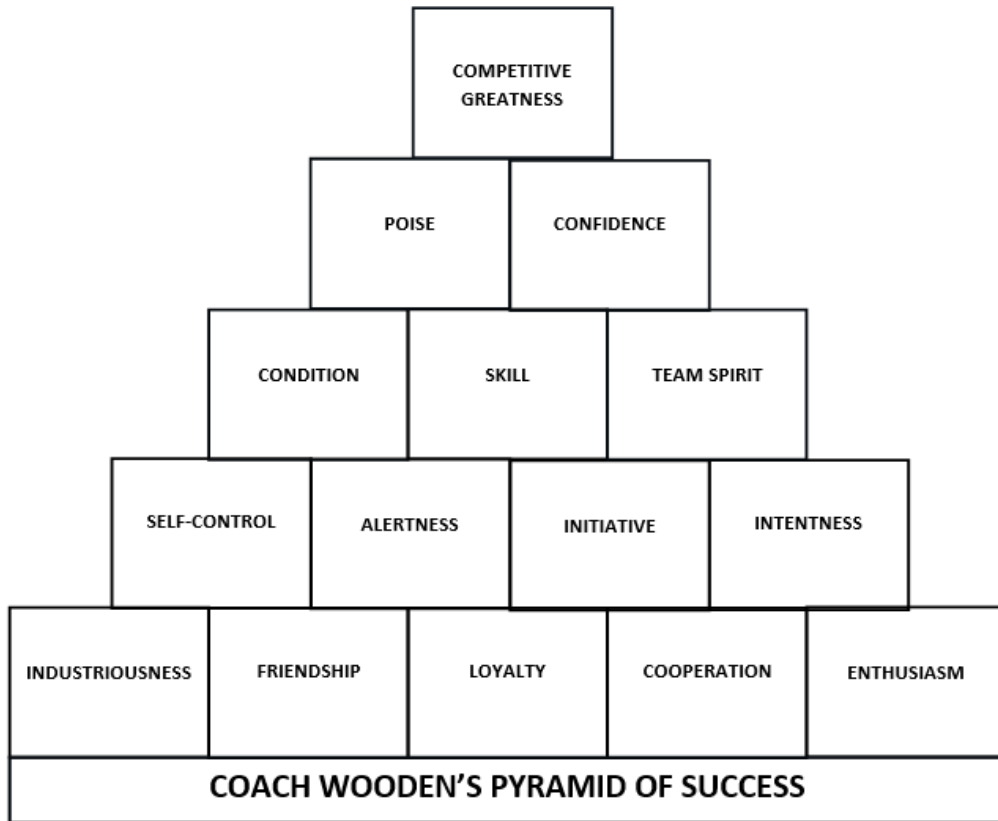
Aleksandra Krukowska

A.Krukowska@lboro.ac.uk

Dr Sophia Jowett

S.Jowett@lboro.ac.uk

Appendix III (E)



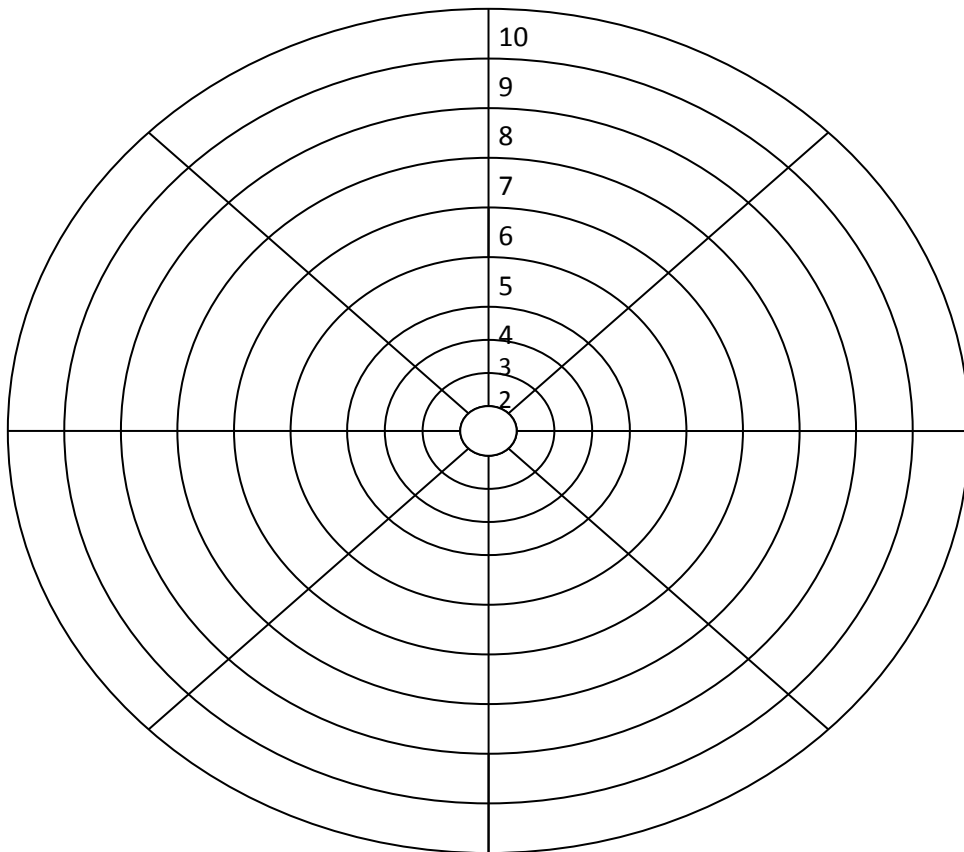
What is your coaching philosophy?

Appendix III (E)

What are the qualities of an excellent coach?

In the following performance profile you can rate yourself on the before determined skills.

Decide about up to 8 skills that you consider representative for an excellent coach.



Appendix III (E)

Reflective cards – instruction:

Reflective cards were created to help you focus your reflections on specific content of your coaching practice. During a training session, write down on a small r-card the event and focus for reflection. After the training session open your booklet on a page with “REFLECTION CARD” and answer the questions displayed on the card. There are additional pages to further reflect on your practice, use this space freely to express your thoughts.

Keys to good reflective writing:

- 1) Reflect early – write your thought soon after the activity;
- 2) Be specific, not general – try to give as many examples as possible, these examples should show your personal reaction or experience;
- 3) Show the value of reflection – by reflection, you should emphasise the link between what you learnt and its usefulness in your practice. Explain with examples how it will help you in your work and in understanding ideas.

Appendix III (E)

REFLECTION CARD	
Date:	Name:
Competency: <input type="checkbox"/> Leadership behaviour <input type="checkbox"/> Relationship component <input type="checkbox"/> Communication <input type="checkbox"/> Decision	
Event/Action:	Focus for reflection:
Why did you choose this action? Did it help you see something in a new light? Did it help you understand something deeper? 	
Explore why you behaved in that way. Refer to your coaching philosophy, needs, values, and motivation. 	
How did you feel about what was done? Did you enjoy or dislike it and why? 	
Is there any action that you will take as a result of your reflection? What will you do differently next time? 	

Appendix III (E)

REFLECTION CARD	
Date:	Name:
Competency: <input type="checkbox"/> Leadership behaviour <input type="checkbox"/> Relationship component <input type="checkbox"/> Communication <input type="checkbox"/> Decision	
Event/Action:	Focus for reflection:
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Is there any action that you will take as a result of your reflection? What will you do differently next time? 	

Appendix III (E)

Reflective writing is about a personal reaction to an experience. It is therefore written in the first person (I learnt... I discovered... etc.) and is less formal than academic writing. Is there anything else you would like to reflect on? This page is provided to give you an opportunity to further reflect on your practice.

Appendix III (E)**Guidelines for sending effective messages:****1. Messages should be direct:**

Coaches who are weak on this quality avoid straightforward communication. Their athletes may not know where they stand. These coaches assume that others know what they expect, want, and feel. They hint at what they have in mind or they expect others to be mind-readers. Indirect messages tend to be distorted and misperceived.

2. Own your message:

Use “I” and “my” rather than “we” or “team” when referencing your messages. Using others to bolster what you have to say implies cowardice and failure to take ownership (e.g. “I think that you’re...”, not “Most people think that you’re..”)

3. Messages should be clear and consistent. Avoid double messages:

“I think you are a good athlete but you’ll just have to be patient” – this example of a double message (acceptance and rejection) leaves an athlete confused and probably hurt. Double messages have contradictory meanings and are usually sent when we are afraid to tell person directly something that might offend him or her.

4. Messages should be focused on one thing at the time:

Focus your message on one issue or topic at a time. Jumping from topic to topic will only confuse your athlete.

5. Messages should not contain hidden agendas:

It means that the stated purpose of the message is the same as the real purpose. Hidden agendas and intentions destroy relationships and trust. To determine if your message contains a hidden agenda, ask yourself “Why am I saying this?” Is it because I want him or her to hear it, or is there something else involved?

6. Verbal and nonverbal messages should be congruent:

Conflicting messages decrease your credibility in future communication. If you say to your athlete that it is OK, but your body says something opposite, he or she will not only be confused, but may also lose trust in what you say.

7. Messages should be at the receiver’s level and frame of reference:

Speak in a way that is easily understandable for your athletes. Your message can be better received if you tailor it to the experiences of people who you work with (the same with a language you use).

Appendix III (E)

Appendix III (E)

REFLECTION CARD	
Date:	Name:
Competency: <input type="checkbox"/> Leadership behaviour <input type="checkbox"/> Relationship component <input type="checkbox"/> Communication <input type="checkbox"/> Decision	
Event/Action:	Focus for reflection:
Why did you choose this action? Did it help you see something in a new light? Did it help you understand something deeper? 	
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How did you feel about what was done? Did you enjoy or dislike it and why? 	
Is there any action that you will take as a result of your reflection? What will you do differently next time? 	

Appendix III (E)

REFLECTION CARD	
Date:	Name:
Competency: <input type="checkbox"/> Leadership behaviour <input type="checkbox"/> Relationship component <input type="checkbox"/> Communication <input type="checkbox"/> Decision	
Event/Action:	Focus for reflection:
Why did you choose this action? Did it help you see something in a new light? Did it help you understand something deeper? 	
Explore why you behaved in a certain way. Refer to your coaching philosophy, needs, values, and motivation. 	
How did you feel about what was done? Did you enjoy or dislike it and why? 	
Is there any action that you will take as a result of your reflection? What will you do differently next time? 	

Appendix III (E)

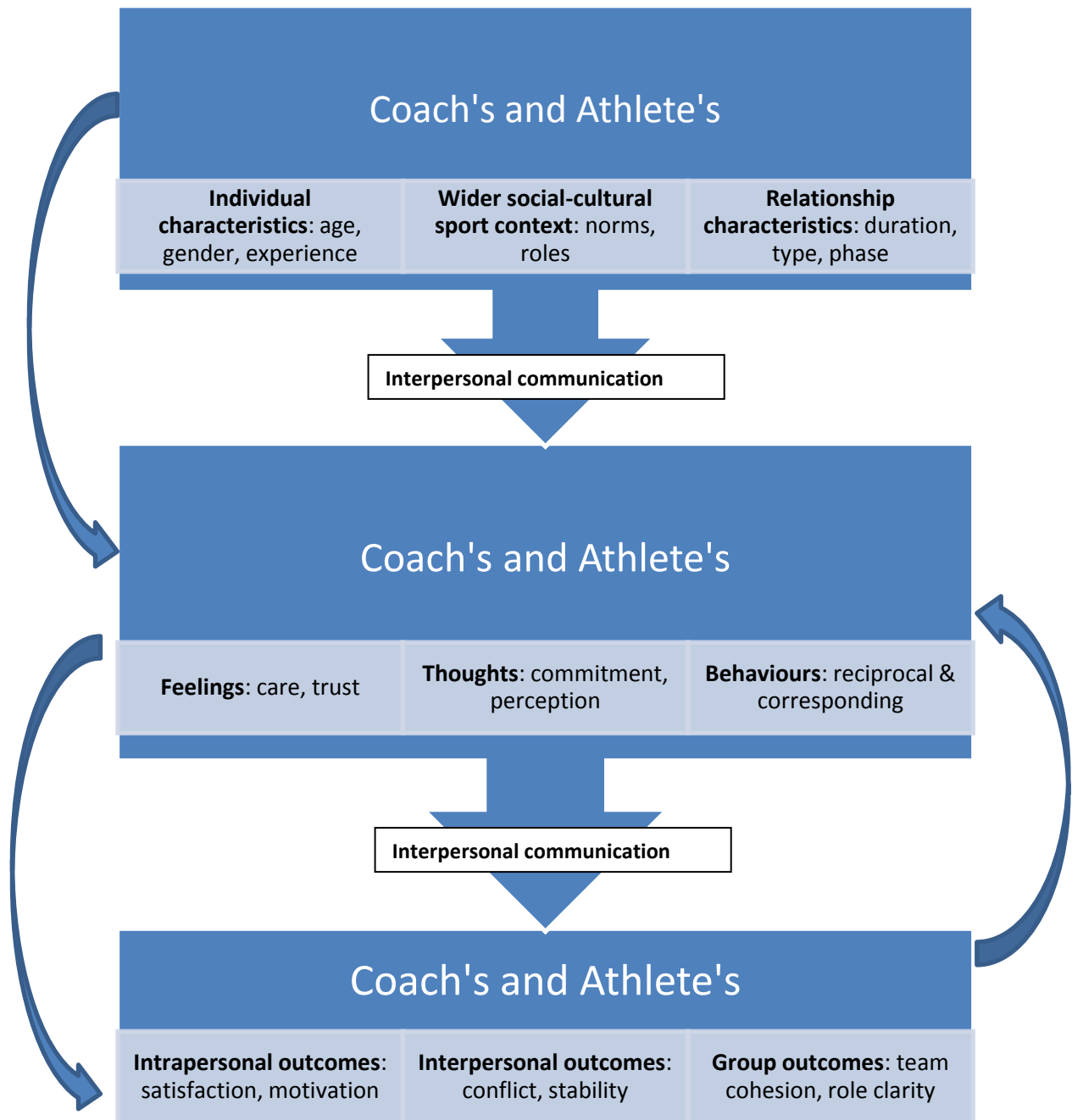
REFLECTION CARD	
Date:	Name:
Competency: <input type="checkbox"/> Leadership behaviour <input type="checkbox"/> Relationship component <input type="checkbox"/> Communication <input type="checkbox"/> Decision	
Event/Action:	Focus for reflection:
Why did you choose this action? Did it help you see something in a new light? Did it help you understand something deeper? 	
Explore why did you behave in that way? Refer to your coaching philosophy, needs, values, and motivation. 	
How did you feel about what was done? Did you enjoy or dislike it and why? 	
Is there any action that you will take as a result of your reflection? What will you do differently next time? 	

Appendix III (E)

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**No written word
nor spoken plea
can teach our youth
what they should be.
Nor all the books
on all the shelves.
It's what the teachers
are themselves
(Wooden, 2001)**

Coach-Athlete Relationship Model



Integrated Research Model of Coach-Athlete Relationships. Adapted from: Jowett and Poczwardowski (2007).

Appendix III (E)

Coach-Athlete Relationship Model

Can you describe your coach-athlete relationship?

Individual characteristics	Wider social-cultural context	Relationship characteristics
Feelings	Thoughts	Behaviours
Intrapersonal outcomes	Interpersonal outcomes	Group outcomes

COMPASS MODEL (Rhind & Jowett, 2010; 2012)

Conflict Management –

Openness –

Motivation -

Preventative -

Assurance -

Support –

Social Networks –

Appendix III (E)

What do you think you need to work on? How do you want to do that? Let's set a SMART(ER) goal!

SMART(ER) goals are:

Specific

Measurable

Achievable

Realistic

Time bound

Ethical

Recorded

Appendix III (E)

REFLECTION CARD	
Date:	Name:
Competency: <input type="checkbox"/> Leadership behaviour <input type="checkbox"/> Relationship component <input type="checkbox"/> Communication <input type="checkbox"/> Decision	
Event/Action:	Focus for reflection:
Why did you choose this action? Did it help you see something in a new light? Did it help you understand something deeper? 	
Explore why did you behave in that way? Refer to your coaching philosophy, needs, values, and motivation. 	
How did you feel about what was done? Did you enjoy or dislike it and why? 	
Is there any action that you will take as a result of your reflection? What will you do differently next time? 	

Appendix III (E)

REFLECTION CARD	
Date:	Name:
Competency: <input type="checkbox"/> Leadership behaviour <input type="checkbox"/> Relationship component <input type="checkbox"/> Communication <input type="checkbox"/> Decision	
Event/Action:	Focus for reflection:
Why did you choose this action? Did it help you see something in a new light? Did it help you understand something deeper? 	
Explore why did you behave in that way? Refer to your coaching philosophy, needs, values, and motivation. 	
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How did you feel about what was done? Did you enjoy or dislike it and why? 	
Is there any action that you will take as a result of your reflection? What will you do differently next time? 	

Appendix III (E)

Reflective writing is about a personal reaction to an experience. It is therefore written in the first person (I learnt... I discovered... etc.) and is less formal than academic writing. Is there anything else you would like to reflect on? This page is provided to give you an opportunity to further reflect on your practice.

Appendix III (E)

What qualities does a perfect athlete have? Decide about up to 8 skills that you consider representative for an excellent athlete and specify at what level they should be according to you.

The diagram is a circular target with 8 equal sectors. It consists of 10 concentric circles centered on a small central circle. The levels are numbered 1 through 10, starting from the center and moving outwards. The number 10 is at the outermost edge, and the number 2 is at the innermost ring.

Appendix III (E)

What do you think you need to work on? How do you want to do that? Let's set a SMART(ER) goal!

SMART(ER) goals are:**Specific****Measurable****Achievable****Realistic****Time bound****Ethical****Recorded**

Appendix III (E)

REFLECTION CARD	
Date:	Name:
Competency: <input type="checkbox"/> Leadership behaviour <input type="checkbox"/> Relationship component <input type="checkbox"/> Communication <input type="checkbox"/> Decision	
Event/Action:	Focus for reflection:
Why did you choose this action? Did it help you see something in a new light? Did it help you understand something deeper? 	
Explore why you behaved in that way. Refer to your coaching philosophy, needs, values, and motivation. 	
How did you feel about what was done? Did you enjoy or dislike it and why? 	
Is there any action that you will take as a result of your reflection? What will you do differently next time? 	

Appendix III (E)

REFLECTION CARD	
Date:	Name:
Competency: <input type="checkbox"/> Leadership behaviour <input type="checkbox"/> Relationship component <input type="checkbox"/> Communication <input type="checkbox"/> Decision	
Event/Action:	Focus for reflection:
Why did you choose this action? Did it help you see something in a new light? Did it help you understand something deeper? 	
Explore why you behaved in that way. Refer to your coaching philosophy, needs, values, and motivation. 	
How did you feel about what was done? Did you enjoy or dislike it and why? 	
Is there any action that you will take as a result of your reflection? What will you do differently next time? 	

Appendix III (E)

REFLECTION CARD	
Date:	Name:
Competency: <input type="checkbox"/> Leadership behaviour <input type="checkbox"/> Relationship component <input type="checkbox"/> Communication <input type="checkbox"/> Decision	
Event/Action:	Focus for reflection:
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Explore why you behaved in that way. Refer to your coaching philosophy, needs, values, and motivation. 	
How did you feel about what was done? Did you enjoy or dislike it and why? 	
Is there any action that you will take as a result of your reflection? What will you do differently next time? 	

Appendix III (F)

How to develop and maintain a positive coaching environment – developmental programme for coaches

Aleksandra Krukowska & Dr Sophia Jowett

Overview:

- 4 sessions, each 70-90 minutes long
- Based on current research findings
- Part of a study investigating how coaches' behaviours influence athletes
- Topics: leadership, coach-athlete relationship, motivation, communication, positive coaching environment;

WARM-UP



WARM UP

Coaching effectiveness model (Coté & Gilbert, 2009).



WARM UP

Coaching effectiveness model (Coté & Gilbert, 2009).

Appendix III (F)

Benefits:

- You will learn about ways of enhancing athletes' motivation and engagement;
- You will improve your leadership skills;
- You will learn how to relate more effectively with your athletes;
- You will learn communication skills which will allow you to manage people more effectively;

Integration

WARM-UP

Let's get it started!

ME=Coach

- Why did you want to be a coach?
- What's your biggest motivation as a coach?

TRAINING

Coaching philosophy

- Coach K
- John Wooden

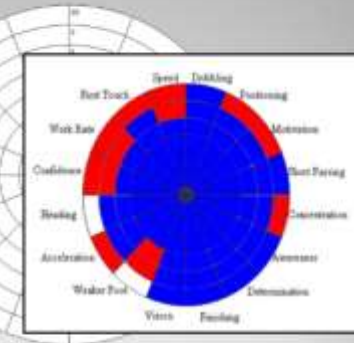


John Wooden's Pyramid of Success, Adapted from Wooden and Jamison, 2010.

TRAINING

Excellent coach's performance profile

Evaluate your skills with 1 = weak and 10 = excellent, mark that down in the graph (compare to the blue fields). Which skills do you want to improve and what goals would be realistic? (see the red marks)



TRAINING

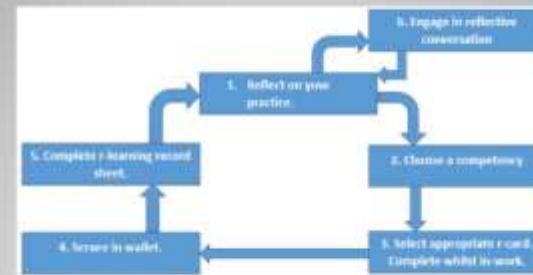
Appendix III (F)

- What is the most important lesson for you from today's session?
- What do you think you need to work on? How do you want to do that?

STRETCHING

Self-reflecting

- R-cards
- Reflective process (adapted from Ghaye, 2008)



STRETCHING

How to develop and maintain a positive coaching environment – developmental programme for coaches

Aleksandra Krukowska &
Dr Sophia Jowett

- Any thoughts from last session?
- Reflection cards – what was your experience with them?

WARM-UP

Appendix III (F)

Leaders

- Give an example of a good leader. Why did you chose him/her?
- What is a role of a leader?
- What makes a good leader-what qualities build a good leader?

WARM-UP

What qualities does a great leader manifest?

-
-
-
-



TRAINING

Transformational Leadership:

- Shows Individual Approach
- Inspires
- Stimulates
- Is a Role Model
- Builds Effective Relationships

(Bass & Riggio, 2006)

TRAINING

Transformational leadership

- *Appropriate Role Modelling* – a coach provides a positive behavioural model for athlete to follow. It includes pro-social behaviours, equitable treatment, respect for the opposition, etc.
- *Intellectual Stimulation* – intellectual challenging about for example different ways of solving problems or new ways of learning.
- *Individual consideration* – the extent to which a coach is able to understand and meet individual needs for growth and development of each athlete.

TRAINING

Appendix III (F)

- *Inspirational motivation* – the degree to which a coach is able to motivate athletes by providing inspiration to perform well. The coach uses a vision of the future to motivate athletes rather than just rewards and punishments.
- *Fostering acceptance of group goals* – coach facilitates team cohesion.
- *Contingent Reward* – the extent to which a coach uses positive reinforcement to strengthen the desirable behaviours
- *High Performance Expectations*

TRAINING

What are the benefits of being a transformational leader?

- Higher level of commitment (Pitman, 1993)
- Higher level of satisfaction (Dum Dum, Lowe & Avolio, 2002)
- Lower levels of stress and burnout symptoms (Seltzer, Numerof, & Bass, 1989)
- Higher levels of perceived positive developmental experiences (Vella, Oades, & Crowe, 2012)
- Higher level of well-being (Stenling & Tafvelin, 2013),
- Higher level of task cohesion (Smith et al., 2013)

TRAINING

- What can you do to be more transformational – what can you do in your coaching practice ?
- What difficulties you might experience and how to overcome them?

TRAINING

Transformational leadership is ought to result in performance beyond previous expectations. What is the mechanism through which a TL conveys his/her message?

Effective communication

TRAINING

Appendix III (F)

Communication:

- Let's play!
 - Observe how both players will behave and focus on communication;
- Effective communication contains six elements (Crookes, 1991):
 - Clear** - Ensure that the information is presented clearly
 - Concise** - Be concise, do not lose the message by being long winded
 - Correct** - Be accurate, avoid giving misleading information
 - Complete** - Give all the information and not just part of it
 - Courteous** - Be polite and non-threatening, avoid conflict
 - Constructive** - Be positive, avoid being critical and negative

TRAINING

- Feedback

Can you change those sentences?

- You played well today.
- Next time do it better!
- Your each pass was horrible.
- Last year your technique seemed better.

- Guidelines for sending effective messages
(adapted from Burton and Raedeke, 2008)

TRAINING

- Explain to others something related to your sport using only verbal communication;
- Explain to others something related to your sport using only non-verbal communication;

TRAINING

- What was the most important for you from today's session?
- What do you think you need to work on? How do you want to do that?
- Let's set a **SMART(ER)** goal!

SMART(ER) goals are:

- Specific
- Measurable
- Achievable
- Realistic
- Time bound
- Ethical
- Recorded

STRETCHING

Appendix III (F)

How to develop and maintain a positive coaching environment – developmental programme for coaches

Aleksandra Krukowska &
Dr Sophia Jowett

- Any thoughts from the last session?
- Any new reflections from coaching?

WARM UP

- Think about a coach who had the biggest impact on you.
- Relationship quality – why do we care?

No written word
Nor spoken plea
Can teach our youth
What they should be.
Nor all the books
On all the shelves.
It's what the teachers
Are themselves.

WARM UP

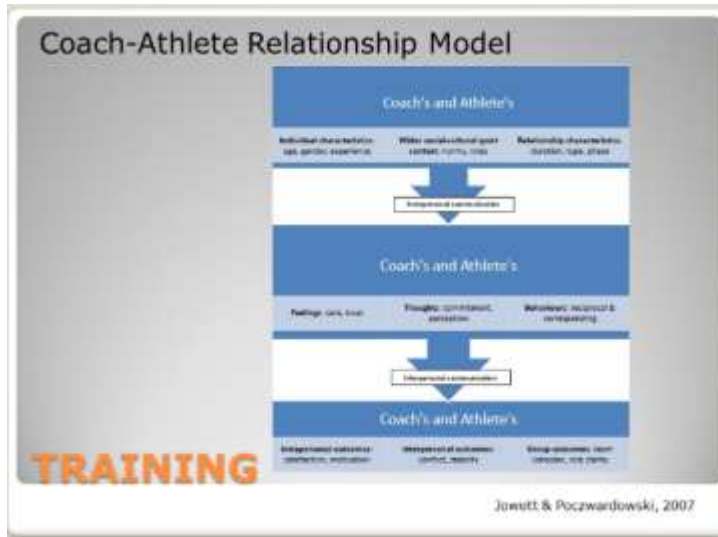
Coach-Athlete Relationship:
Examples: **Bob Bowman & Michael Phelps, Toni Minichiello & Jessica Ennis;**

- Closeness – emotions, liking, trust;
- Commitment – thoughts, long-term perspective of working together;
- Complementarity – behaviours that are corresponding or reciprocal;

(Jowett, 2009)

TRAINING

Appendix III (F)



- What was the most important for you from today's session?
- What do you think you need to work on? How do you want to do that?

Let's set a **SMART(ER)** goal!

STRETCHING

- Reading materials:
1. Coach-Athlete Relationship.

STRETCHING

Appendix III (F)

How to develop and maintain a positive coaching environment – developmental programme for coaches

Aleksandra Krukowska &
Dr Sophia Jowett

- Any thoughts from last session?
- What did you focus on in your reflections?
- Have you changed something thanks to reflecting on your coaching practice?

WARM-UP

- What do you expect from your athletes?
- What qualities does a perfect athlete have?



WARM UP

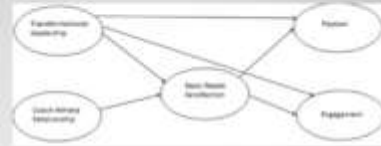
Self-determination Theory: Theory of **motivation**

- Underlines the role of satisfying needs for autonomy, competence, and relatedness
 - **Autonomy** – the need to make decisions, be in charge of one's own actions;
 - **Competence** – the need to experience constant grow of one's skills;
 - **Relatedness** – the need to build and maintain meaningful relationships;

TRAINING

Appendix III (F)

- How can you as a coach satisfy athletes' needs for autonomy, relatedness, and competence?
- Other positive outcomes?



TRAINING

- What can you change in your practise?
- How can you change it?

Let's set a **SMART(ER)** goal!



TRAINING

- What was the most important for you from today's session?
- What was the most important for you from all of the sessions? Are you going to change your coaching practise somehow?

STRETCHING

Reading materials:
1. Basic Needs Satisfaction.

STRETCHING

Appendix III (G)

Understanding Coaching Environment Questionnaire

The questionnaire was developed to understand the coaching environment in which athletes in team sports train and compete. **Please respond to the questions as honestly as possible and relevant to how you actually feel.**

Please note that the information you provide here will be treated as strictly confidential and will not be made available to any third party or attributed to you in person.

Details:

Age: _____ years

Date of birth: / / / (DD/MM/YY)

Place of birth: _____

Gender: M F

Sport: _____

At what level of sport do you generally play?

University Club Regional

National International

Other: _____

What part of your sporting season are you currently in?

Preseason Regular season Not applicable

Play-offs Off-season

How long have you been playing this sport? _____ years

How long have you been working with your coach? _____ months

What is the gender of your coach? M F

How long have you been working with your current team? _____ months

Appendix III (G)

Please judge how frequently each statements fits into your principal coach's normal behaviour:

	Not at all		Sometimes			All of the time	
1. Tries to help us to work out how to solve problems.	1	2	3	4	5	6	7
2. Treats each team member as an individual.	1	2	3	4	5	6	7
3. Talks optimistically about the future.	1	2	3	4	5	6	7
4. Helps team members to develop their strengths.	1	2	3	4	5	6	7
5. Talks in a way that makes me believe I can succeed.	1	2	3	4	5	6	7
6. Gives me special recognition when I do very good work.	1	2	3	4	5	6	7
7. Talks enthusiastically about what needs to be accomplished.	1	2	3	4	5	6	7
8. Gives us praise when we do good work.	1	2	3	4	5	6	7
9. Gets me to re-think the way I do things.	1	2	3	4	5	6	7
10. Praises athletes when they show improvement.	1	2	3	4	5	6	7
11. Shows performers how to look at difficulties from a new angle.	1	2	3	4	5	6	7
12. Considers that I have different strengths and abilities from others.	1	2	3	4	5	6	7
13. Encourages athletes to be team players.	1	2	3	4	5	6	7
14. Expects a lot from us.	1	2	3	4	5	6	7
15. Develops a strong team attitude and spirit among team members.	1	2	3	4	5	6	7
16. Recognises that different athletes have different needs.	1	2	3	4	5	6	7
17. Leads by example.	1	2	3	4	5	6	7
18. Expects us to achieve high standards.	1	2	3	4	5	6	7
19. Expresses confidence that goals will be achieved.	1	2	3	4	5	6	7
20. Leads from the front whenever he/she can.	1	2	3	4	5	6	7
21. Challenges me to think about problems in new ways.	1	2	3	4	5	6	7

Appendix III (G)

22. Will not settle for second best.	1	2	3	4	5	6	7
23. Gets the team to work together for the same goal.	1	2	3	4	5	6	7
24. Leads by “doing” rather than simply “telling”.	1	2	3	4	5	6	7
25. Is a good role model for me to follow.	1	2	3	4	5	6	7
26. Always recognizes our achievements.	1	2	3	4	5	6	7
27. Always expect us to do our best.	1	2	3	4	5	6	7

Please indicate how you personally feel about your relationship with your principal coach:

	Strongly Disagree		Moderately			Strongly Agree	
28. I am close to my coach.	1	2	3	4	5	6	7
29. I am committed to my coach.	1	2	3	4	5	6	7
30. I like my coach.	1	2	3	4	5	6	7
31. When I am coached by my coach, I am at ease.	1	2	3	4	5	6	7
32. I trust my coach.	1	2	3	4	5	6	7
33. I think that my sporting career with my coach is promising.	1	2	3	4	5	6	7
34. When I am coached by my coach, I am responsive to his/her efforts.	1	2	3	4	5	6	7
35. I respect my coach.	1	2	3	4	5	6	7
36. I appreciate my coach’s sacrifices in order to improve performance.	1	2	3	4	5	6	7
37. When I am coached by my coach, I am ready to do my best.	1	2	3	4	5	6	7
38. When I am coached by my coach, I adopt a friendly stance.	1	2	3	4	5	6	7

Appendix III (G)

Please indicate how you personally think your principal coach feels about you:

	Strongly Disagree		Moderately			Strongly Agree	
39. My coach is close to me.	1	2	3	4	5	6	7
40. My coach is committed to me.	1	2	3	4	5	6	7
41. My coach likes me.	1	2	3	4	5	6	7
42. My coach is at ease when he/she coaches me.	1	2	3	4	5	6	7
43. My coach trusts me.	1	2	3	4	5	6	7
44. My coach feels that his/her career is promising with me.	1	2	3	4	5	6	7
45. My coach is responsive to my efforts when he/she coaches me.	1	2	3	4	5	6	7
46. My coach respects me.	1	2	3	4	5	6	7
47. My coach appreciates the sacrifices I make in order to improve performance.	1	2	3	4	5	6	7
48. My coach is ready to do his/her best when he/she coaches me.	1	2	3	4	5	6	7
49. My coach adopts a friendly stance when he/she coaches me.	1	2	3	4	5	6	7

This questionnaire contains items that are related to your experience with your coach (trainer). Coaches have different styles in dealing with athletes, and we would like to know more about how you have felt about your encounters with your coach.

	Strongly Disagree		Neutral			Strongly Agree	
50. I feel that my coach provides me choices and options.	1	2	3	4	5	6	7
51. I feel understood by my coach.	1	2	3	4	5	6	7
52. My coach conveyed confidence in my ability to do well at athletics.	1	2	3	4	5	6	7
53. My coach encouraged me to ask questions.	1	2	3	4	5	6	7
54. My coach listens to how I would like to do things.	1	2	3	4	5	6	7
55. My coach tries to understand how I see things before suggesting a new way to do things.	1	2	3	4	5	6	7
56. My coach tries to motivate me by promising to reward me if I do well	1	2	3	4	5	6	7
57. My coach only rewards/praises me to make me train harder	1	2	3	4	5	6	7

Appendix III (G)

58. My coach only uses rewards/praise so that I stay focused on tasks during training	1	2	3	4	5	6	7
59. My coach only uses rewards/praise so that I complete all the tasks he/she sets in training	1	2	3	4	5	6	7
60. My coach is less friendly with me if I don't make the effort to see things his/her way	1	2	3	4	5	6	7
61. My coach is less supportive of me when I am not training and competing well	1	2	3	4	5	6	7
62. My coach pays me less attention if I have displeased him/her	1	2	3	4	5	6	7
63. My coach is less accepting of me if I have disappointed him/her	1	2	3	4	5	6	7
64. My coach shouts at me in front of others to make me do certain things	1	2	3	4	5	6	7
65. My coach threatens to punish me to keep me in line during training	1	2	3	4	5	6	7
66. My coach intimidates me into doing the things that he/she wants me to do	1	2	3	4	5	6	7
67. My coach embarrasses me in front of others if I do not do the things he/she wants me to do	1	2	3	4	5	6	7
68. My coach expects my whole life to center on my sport participation	1	2	3	4	5	6	7
69. My coach tries to control what I do during my free time	1	2	3	4	5	6	7
70. My coach tries to interfere in aspects of my life outside of my sport	1	2	3	4	5	6	7
71. My coach tries to motivate me by promising to reward me if I do well	1	2	3	4	5	6	7

Please indicate how you generally communicate and interact with your athletes in training:

	Strongly Disagree		Moderately			Strongly Agree	
72. I try not to lose my temper during disagreements.	1	2	3	4	5	6	7
73. I am patient during disagreements.	1	2	3	4	5	6	7
74. I am understanding during disagreements.	1	2	3	4	5	6	7
75. I listen to my athlete during disagreements.	1	2	3	4	5	6	7
76. I co-operate with my athlete during disagreements.	1	2	3	4	5	6	7
77. I state my opinion when we are setting goals.	1	2	3	4	5	6	7

Appendix III (G)

78. I give my athlete a constructive feedback.	1	2	3	4	5	6	7
79. I give my athlete praise when appropriate.	1	2	3	4	5	6	7
80. I am open about my feelings.	1	2	3	4	5	6	7
81. I show that I am motivated to work hard with my athlete.	1	2	3	4	5	6	7
82. I show my ability as a coach.	1	2	3	4	5	6	7
83. I show that I am motivated to achieve.	1	2	3	4	5	6	7
84. I work hard to achieve our goals.	1	2	3	4	5	6	7
85. I show that I am passionate about our sport.	1	2	3	4	5	6	7
86. I tell my athlete what I expect from him/her.	1	2	3	4	5	6	7
87. I talk about where we stand.	1	2	3	4	5	6	7
88. I tell my athlete when he/she has/has not met my expectations.	1	2	3	4	5	6	7
89. I like to have regular talks about our relationship.	1	2	3	4	5	6	7
90. I show my athlete that he/she can rely on me even when things are not going well.	1	2	3	4	5	6	7
91. I show my athlete that he/she can count on me.	1	2	3	4	5	6	7
92. I show my athlete that he/she can talk to me about anything.	1	2	3	4	5	6	7
93. I give my athlete support when they are going through difficult times.	1	2	3	4	5	6	7
94. I am considerate of events in my athlete's personal life.	1	2	3	4	5	6	7
95. I give my athlete support when things are not going well.	1	2	3	4	5	6	7
96. I like to spend time with our mutual friends.	1	2	3	4	5	6	7
97. I socialize with my athlete.	1	2	3	4	5	6	7
98. I spend time outside of training with my athlete.	1	2	3	4	5	6	7
99. I talk about our mutual friends and affiliations.	1	2	3	4	5	6	7

Appendix III (G)

Please indicate your confidence in your team's ability to perform on certain tasks.

	Not At All						Fully
100. The degree of which you have reached your performance goals during the season.	1	2	3	4	5	6	7
101. The improvement in your performance over the previous season.	1	2	3	4	5	6	7
102. The improvement in your skill level thus far.	1	2	3	4	5	6	7
103. The team's win/loss record this season.	1	2	3	4	5	6	7
104. The team's overall performance this season.	1	2	3	4	5	6	7
105. The extent to which the team has met its goals for the season thus far.	1	2	3	4	5	6	7
106. The degree of which you have reached your performance goals during the season.	1	2	3	4	5	6	7
107. The improvement in your performance over the previous season.	1	2	3	4	5	6	7

For each statement circle the number that best indicates how you feel:

	False						True
108. In my sport I consistently perform to the level of my ability.	1	2	3	4	5	6	7
109. My performance in my sport overall is particularly good for important competitions.	1	2	3	4	5	6	7
110. Overall I am an excellent performer in my sport.	1	2	3	4	5	6	7
111. My performance in my sport consistently meets my goals and expectations.	1	2	3	4	5	6	7
112. Coaches and other competitors at my level see me as an excellent overall performer.	1	2	3	4	5	6	7
113. I am consistently able to give my best overall performance in my sport.	1	2	3	4	5	6	7
114. I excel at my sport event because I am able to give a peak performance when necessary.	1	2	3	4	5	6	7
115. I am consistently able to "pull it all together" (e.g. skills, physiological, body, and the mental side of things) when performing in my sport.	1	2	3	4	5	6	7

Thank you for completing the questionnaire.