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Empathic accuracy in the coach-athlete relationship

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Empathic accuracy in the coach-athlete relationship

By

Ross Lorimer

A Doctoral Thesis

**Submitted in partial fulfilment of the requirements for the award of Doctor
of Philosophy of Loughborough University**

August 2008

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Acknowledgements

"It is well to give when asked but it is better to give unasked, through understanding"

Kahil Gibran (1923)

I would like to take this opportunity to thank all those
that have helped me along the way:

My biggest thanks go to my Mum and Dad. Without them I wouldn't have got this far.

I'm also sure they are happy I have finally '*left school*' and got myself a job...

Thanks to my little sister Sally. Always there for me no matter how grumpy or snippy I got. Always willing to lend a hand, buy me lunch at the Orange Tree, or give me a lift when I needed to get somewhere.

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Abstract

The purpose of this project of research was to investigate empathic accuracy in the coach-athlete relationship. It presents methodological paradigms that, while well established in social psychology, are an innovative adaptation in sport psychology.

Study 1 assessed the empathic accuracy of 40 coach-athlete dyads. Coaches in individual sports were more accurate than coaches in team sports, and this result was mediated by shared cognitive focus between coaches and athletes. Coaches whose training sessions were longer demonstrated increased empathic accuracy, while female athletes were significantly more accurate than male athletes when working with a male coach.

Study 2 assessed the empathic accuracy of 60 coach-athlete dyads. The results indicated an association between members' meta-perceptions (judgments that their partner is positive about the athletic relationship) and increased empathic accuracy. Increased empathic accuracy was in turn associated with higher levels of satisfaction for athletes. No links between performance and empathic accuracy were evident.

Finally, study 3 explored how the empathic accuracy of 60 badminton coaches was influenced by their professional training and personality, and the quality of feedback they received from the athlete. All coaches watched a video of a technical training session and made inferences about what the athlete's thoughts and feelings had been. Half the coaches were given corrective feedback. Empathic accuracy improved over the course of the video for both groups; the experimental group improved significantly more. Coaches' coaching experience and imagination were significantly associated with empathic accuracy for the control group only.

This thesis has contributed to researchers' knowledge of how coaches and athletes understand each other and how this is influenced by how they interact and the views they hold about each other. It has expanded the broader literature on empathic accuracy through its examination in this unique context. The findings of this research highlight: (a) empathic accuracy can be measured in an actual training context, (b) the dynamics of the interaction play a key role in how well partners can accurately perceive each other, (c) empathic accuracy is associated with positive outcomes, and (d) empathic accuracy can be improved by manipulation.

Publications resulting from thesis

Peer-Reviewed Papers

- Lorimer, R., & Jowett, S. (2008). *Feedback of information in the empathic accuracy of sport coaches*. Submitted for publication.
- Lorimer, R., & Jowett, S. (in press). Empathic accuracy, meta-perspective, and satisfaction in the coach-athlete relationship. *Journal of Applied Sport Psychology*.
- Lorimer, R., & Jowett, S. (in press). Empathic accuracy in coach-athlete dyads who participate in team and individual sports. *Psychology of Sport and Exercise*.

Conference Proceedings

- Lorimer, R., & Jowett, S. (2008). *Coach-athlete positive perceptions and empathic accuracy*. Presented at the biennial conference of the International Association for Relationship Research. Providence, USA
- Lorimer, R., & Jowett, S. (2008). *Empathic accuracy in coach-athlete dyads from team and individual sports*. Presented at the biennial conference of the International Association for Relationship Research. Providence, USA.
- Lorimer, R., & Jowett, S. (2008). *A method for exploring empathic accuracy and understanding within coach-athlete relationships*. Presented at the School of Sport & Exercise Research Showcase. Loughborough: United Kingdom.
- Lorimer, R., & Jowett, S. (2007). *Empathy in coach-athlete dyads: The influence of relationship quality and group size*. Presented at the 12th European Congress of Sport Psychology. Halkidiki, Greece.
- Lorimer, R., & Jowett, S. (2006). *Assessing empathic accuracy within coach-athlete dyads*. Presented at the annual conference of the Psychology Postgraduate Affairs Group. Reading, United Kingdom.
- Lorimer, R., & Jowett, S. (2006). *Measuring empathic accuracy in the coach-athlete relationship*. Presented at the biennial conference of the International Association for Relationship Research. Rethymno, Greece.
- Lorimer, R., & Jowett, S. (2006). *Empathy and the coach-athlete relationship*. Presented at the seminar series of the Sport and Exercise Psychology Research Group. Loughborough, United Kingdom.

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Chapter 1

Sport, coaching, and understanding

Coach: Are you ready to try the drill we've been working on?

Athlete: Yes

Coach: Have you been practicing like I asked?

Athlete: Yes

Coach: Have you improved at all?

Athlete: Yes

Coach: Can you answer with anything other than a yes?

Athlete: Yes

This series of questions and responses, paraphrased from Ickes (2001), provides us with an immediate insight into the difficulties in understanding others. What is the meaning behind the athlete's responses? Is the athlete, as face value suggests, responding to the coach's questions? Is the athlete simply responding with the answer yes to whatever question is asked, or perhaps even being flippant and smart with the coach? How is it possible for the coach to know what the athlete's answers mean? How is it possible for the coach to know what the athlete intended by answering yes? Unless the coach knows why the athlete is responding in such a way, how can the coach reply appropriately? In order to do so, the coach must monitor and correctly interpret the athlete's thoughts and feelings as they are expressed through their words, expressions, and posture, and interpret it appropriately in regard to the current context (Mayer, Salovey, & Caruso, 2000).

In the simplest sense this understanding is the capacity to see things from another individual's viewpoint, as well as perceive that individual's thoughts and feelings, and their psychological state. Known as empathy, it can be seen as a form of everyday mind reading, a glimpse into another's world (Ickes, 2003). Imagine you are the coach instructing the athlete in this new drill. You have had them repeat the movements of the skill over and over again, but they are still not performing it correctly. You know that if they are to improve then they must master this skill before they can move on. However, you realise that if it was you being forced to repeat something so many times, with little success, you would become bored and start thinking about how pointless what you were doing was. You can see it in the athlete, the way he is fidgeting. He doesn't seem to be trying as hard. What he is saying and

doing tells it all. You decide to switch the training routine and come back to that skill later. What you have just done is take on the situational perspective of the athlete, you have '*seen the world through another's eyes*', '*walked in their shoes*', and then used this information to inform your own actions.

1.1 Introduction

"It's a game of two halves", that famous football commentators' quote that has been heard repeated at so many matches. It is a statement that tells us that we can't know the outcome of any sporting event until we have seen it in its entirety. Perhaps the quote should actually read "It's a game of two people", as we also cannot truly understand a sport performer by looking solely at them. In order to fully appreciate an athlete we must explore their relationships with those about them and the influences these have. Sport is a social environment, and researchers have noted that is an ideal context in which to examine interpersonal relationships, providing frequent and varied opportunities for social interaction, especially between an athlete and their coach (Carron & Bennett, 1977; Jowett, 2007). Athletes lie at the heart of a complex system of overlapping, and multifaceted agents such as coaches, support staff, team-mates, family, friends, officials, and fellow competitors (Cote, 1999; Jowett & Cockerill, 2002; Weiss, Smith, & Theeboom, 1996). The way in which athletes' interact with this social environment can potentially have a profound impact upon their experiences of competitive sport. It may influence such factors as their satisfaction, enjoyment, and motivation, and in turn directly or indirectly have an effect on their well-being (Iso-Ahola, 1995).

It is widely believed that perhaps the most important of these relationships is that which the athlete shares with their coach (Jowett & Poczwardowski, 2007). Coaches have a fundamental function in the performance and effectiveness of their athletes, particularly at higher levels as competition intensifies; they direct their athletes' development both physically, technically, and psychologically, through their knowledge, experience, and expertise (Lyle, 2002). It is not unusual then for coaches and athletes to form close relationships as they are often deeply involved in aspects of each others' lives within and out of the sport context (Jowett & Meek, 2000). Coaches and athletes therefore work closely together and have a high degree of interaction and reliance upon each other. This is manifested in the interdependence of the coach's and the athlete's affect, cognition, and behaviours (Jowett, 2007), as what one thinks or

feels may influence the other. Moreover, it is manifest in the athlete's need to acquire knowledge and skill, the coach's need to guide their athlete, and for them both to translate these interactions into positive outcomes such as performance success (Antonini Philippe & Seiler, 2006).

This highly complex and interdependent process primarily unfolds in training, during periods of practicing the requisite skills, techniques, and strategies required by the athlete. The manner in which coaches and athletes interact can have a profound impact upon the effectiveness of these training sessions (Jowett & Poczwardowski, 2007). This effectiveness is usually reflected in an athlete's performance in competition, and is highly prized by coaches and athletes, as well as sponsors, supporters, and the media. When athletes are successful the athlete, and the coach in particular, are commended and their roles acknowledged and praised. Equally, when those athletes are unsuccessful, it is often the coach that receives a large portion of the blame and responsibility (Riemer, 2007).

There is therefore an important emphasis placed on performance and other important outcomes such as the satisfaction and enjoyment of the coach and athlete. It would seem reasonable then to argue that efforts should be made to explore factors that may impact upon these outcomes. Equally, it would also seem reasonable to argue that the efficacy of interactions between the coach and the athlete is one of these factors (Iso-Ahola, 1995; Jowett & Cockerill, 2003). Therefore, researchers have a need to focus on those variables that impact on the success and effectiveness of these interactions. One of these variables is how well a coach and an athlete understand each other.

1.2 Understanding in coaching

In sports coaching literature, the capacity of the coach and athlete to understand each other is viewed as being vital, allowing them to react, respond, and interact effectively with each other (Jones & Cassidy, 2004; Lyle, 2002). Cross (1991) outlined in his discussion of what makes a good coach a number of features including; (a) communicating well, (b) understanding athletes, and (c) adapting to the athlete's needs. These three features all closely relate to the concept of individuals' perceiving and understand others, and using this knowledge to assist thought and to manage their own responses. Additionally, Lynch (2002) describes what he calls reflective listening as a key component of coaching; he states the need to "...ask yourself, *what it this athlete*

feeling right now? Try to understand and empathize with her position” (p. 35). More recently, Galipeau and Trudel (2006) emphasised the importance of shared understanding between coaches and athletes to in order to allow them to effectively coordinate their efforts and goals, stating the need for “ensuring understanding of each others’ (coaches’ and athletes’) perspective” (p. 90). Côté, Young, North, and Duffy (2007), in their definition of what coaching excellence is, stated that “coaches should understand and be responsive to athletes’ needs in the different environments in which they coach” (p. 6). Evidently, those involved in the theory and conceptualisation of coaching strongly emphasise a need for understanding to exist between a coach and an athlete in order to allow them to successfully work together.

Further evidence comes from a succession of qualitative studies conducted by Jowett and colleagues (e.g., Jowett, 2003; Jowett & Cockerill, 2003; Jowett & Meek, 2000). In a series of interviews they demonstrated that coaches and athletes viewed their ability to accurately perceive and understand each other as a key factor (e.g., “One of her qualities was that she made us feel she understood us”, “I can infer whether the program works or not from what I see... how she moves, how enthusiastic, and energetic she is” extracts from Jowett & Cockerill, 2003), and viewed a lack of understanding negatively (e.g., [coach] did not understand how I felt and he pushed me, something I could not tolerate at the time” extract from Jowett, 2003). Additionally, in a content analysis of interviews with forty coaches discussing their coaching philosophies, Lyle (1999) reported understanding and adaptability as being frequently referred to themes. Other researchers have also found that coaches place a similar importance on understanding; Jones, Armour, and Potrac (2004) interviewed several coaches about their opinions on a variety of factors, and understanding athletes emerged as a common theme. One elite football coach described coaching as “The art of... recognising the people and responding to the people you are working with” (p. 18). This suggests that understanding, as well as being regarded highly by coaching theorists, is also greatly valued by actual coaches and athletes as a factor in their relationship, and its success and effectiveness.

1.3 Understanding in coaching process models

Coaching research has been guided by several distinct theoretical models. These models offer a framework and key-concepts for the exploration of the coaching process. They potentially provide an indicator of the current state of coaching research,

highlighting links between the different components of coaching such as leadership and interpersonal relationships. Finally, they provide a template for researchers and coach education (Lyle, 2002). While none of these models directly implicates understanding as part of their theory, it permeates much of their composition. Examination of these models then shows the importance that theorists have already placed on understanding in the coaching process, even when not directly referring to it.

One of the earliest models is the Coaching Process Model (Fairs, 1987). It describes coaching as a cyclical series of steps; observation, assessment, goals, implementation, and reassessment (see figure 1.1). The model captures the key elements of the coaching process and highlights the need for the coach to observe and be aware of athletes and their needs, to act on this information, and to assess the results of these actions. This therefore closely echoes the ideas of Lynch (2002) and Galipeau and Trudel (2006) who argued that a coach must accurately perceive others, and use this information to manage their own responses. This suggests that understanding then is part of the concept of observing and knowing an athlete, and should inform the most effective behaviour to be used.

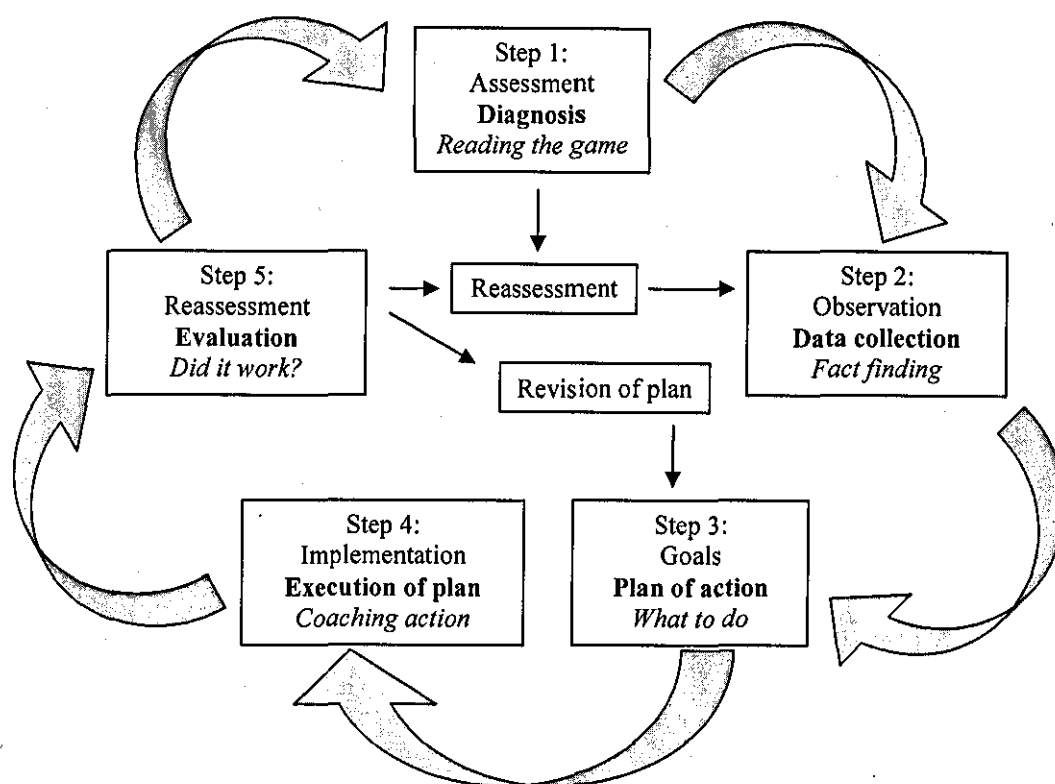


Figure 1.1 – Coaching Process Model
(adapted from Fairs, 1987)

A far more encompassing model is the Coaching Process model which was proposed by Lyle (2002). While describing this extensive model in depth is out with the remit of this thesis (see Lyle, 2002, pp.106-115), it is based on six broad areas; initiation, strategic planning, goal-setting, preparation, regulation, and competition. In Lyle's (2002) description of each of these areas he highlights how each of them is centred on knowing athletes' needs and expectations, and on feedback and evaluation. This model highlights the relative complexity of the coaching process, and underlines the importance of observation and knowledge of the athlete at every stage, as well as the athlete's involvement in the coaching process. Each of these elements is closely entwined with the concept of understanding.

Côté, Salmela, Trudel, Baria, and Russell's (1995) Mental Model goes beyond the primarily behavioural elements of other models of the coaching process. It instead focuses more on the cognitive element of the coaching process.

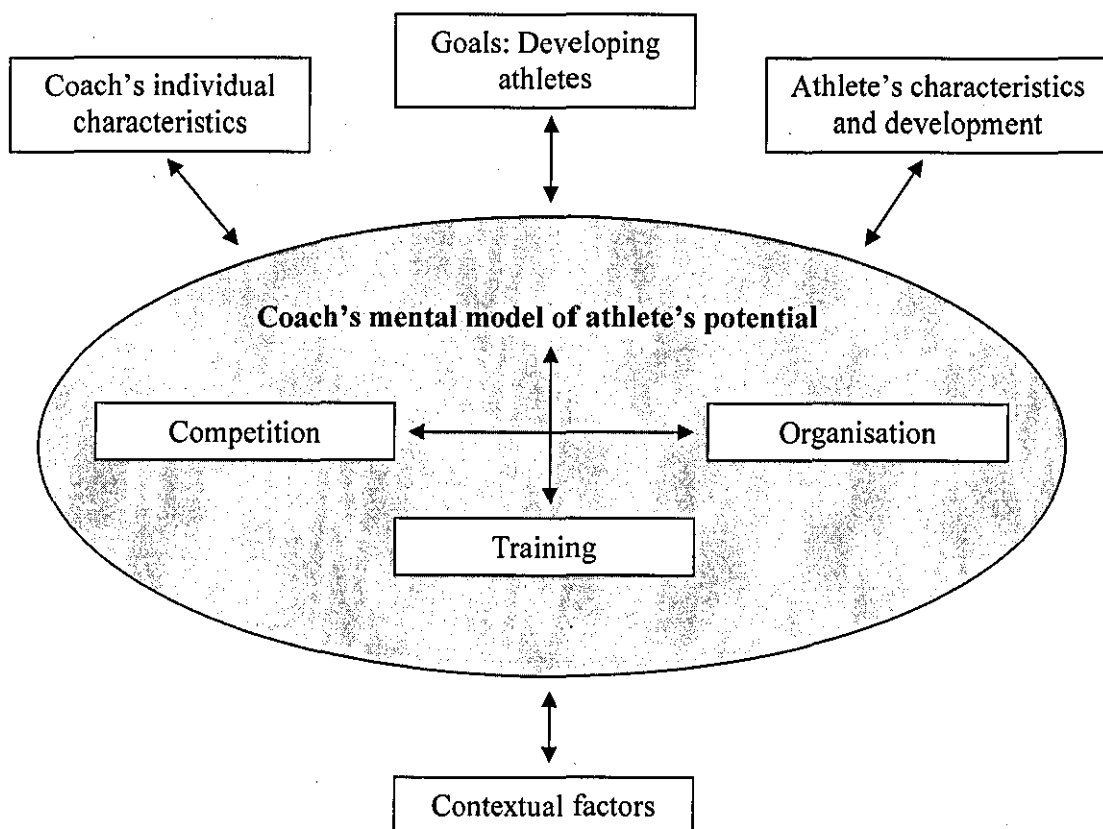


Figure 1.2 – Mental Model
(adapted from Côté et al., 1995)

The model of Côté et al. (1995) was developed based upon the opinions of high level gymnastics coaches from a single study, and therefore it is likely a reflection of their personal experiences and the context of their sport. The Mental Model's primary component is that of the coach's mental model of the athlete's potential (see figure 1.2). This is derived from the constantly adjusted and monitored observation of the athlete in training, competition, and organisational settings. In this we can recognise the importance of understanding the athlete in the construction of the coach's mental model of that athlete. Coaches need to be able to understand the athlete's behaviours, thoughts, and feelings in each of the three settings in order to be able to construct an accurate mental model of that athlete on which to base their decisions and choices about that athlete.

While the Côté et al. (1995) Mental Model and other coaching process models offer a potential for appreciating the method of coaching and the importance of understanding to it, they have yet to play a large part in guiding research or coach education (Lyle, 2002). Researchers have mainly chosen to centre their attention on more focused elements of coaching, such as leadership and interpersonal relationships. However, the importance of understanding is also evident in the construction and composition of models from those fields of study as well.

1.4 Understanding in the coach leadership models

Leadership is defined as the behavioural process of influencing individuals and groups (Barrow, 1977). It has long been perceived as an important dimension of coaching and has received substantial attention from sport psychology researchers. The two most commonly applied models in this field are known as the Multidimensional Model (Chelladurai, 1993) and the Mediational Model of Coach Leadership (Smith, Smoll, & Curtis, 1978).

The well established model of Multidimensional Leadership (Chelladurai, 1993) has been used extensively. It is based upon the idea that there are three dimensions to coaches' behaviour; their actual behaviour, the behaviour that would be preferred by the athlete, and the ideal or required behaviour for the situation. It suggests that outcomes such as performance and satisfaction are positively correlated with the congruence between these three behaviours, and that each is influenced by a range of individual factors (see figure 1.3). The congruence of these three states of coach behaviours may depend largely upon a coach's understanding and appreciation of the athlete's reactions

and preferences. This is particularly the case in regards to preferred behaviour where the coach must make some assessment of the athlete's preferences, and actual behaviour where the coach must balance the athlete's preferences with what they know and understand of the athlete's genuine needs. Hence, it can be argued that a key element in selecting the most effective behaviour for any given situation will be the coach's ability to understand the athlete.

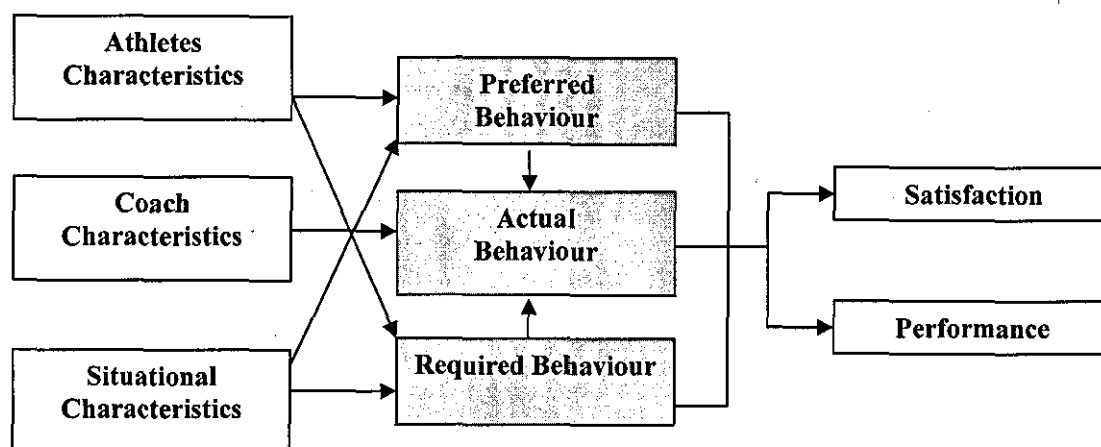


Figure 1.3 –Multidimensional Leadership Model
(adapted from Chelladurai, 1993)

While the Multidimensional Model is primarily focused on leadership from the coaches' perspective, the second prominent leadership model, the Mediational Model, focuses on the perspective of the athlete. It is primarily concerned with how the perception and recall of athletes mediates the impact of coaching behaviours on them (see figure 1.4). Like the Multidimensional Model, it also suggests that the athlete's experience of sport, including satisfaction and performance, depends largely on the type of behaviour the coach manifests. However, the Mediational Model goes further, and argues that this association is mediated by how the athlete perceives the manifested behaviours of the coach. It would not be unreasonable then to suggest that athletes who are more understanding of their coaches' intentions and behaviours are more likely to respond positively to their coach and enjoy their sport. While athletes who do not understand their coaches are more likely to perceive behaviours, particularly punitive or controlling behaviours, in a negative way. Additionally, the model is also reciprocal, suggesting that athletes' experiences are monitored by the coach, which in turn

influences the coaches' behaviour – a process similar to that suggested by the Multidimensional Model. As suggested by the Multidimensional Model above, the more the coach understands the athlete, the more likely they are to be able to manifest the most appropriate and effective behaviours in relation to their athletes.

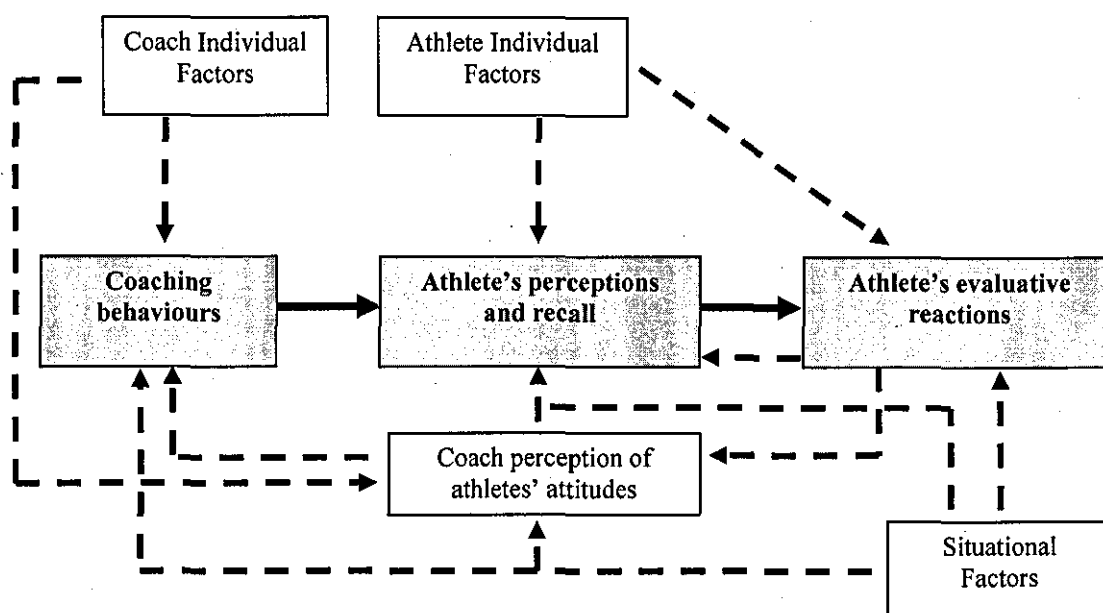


Figure 1.4 – Mediation Leadership Model

(adapted from Smith, Smoll, & Curtis, 1978)

1.5 Understanding in coach-athlete relationship models

More recently, coaching research has seen a paradigm shift towards the development of models based on the interpersonal relationship that exists between a coach and an athlete (Jowett, 2007). The Wylleman conceptual model (Wylleman, 2000) states that the coach-athlete relationship is based on the behaviours manifested by the coach and athlete during their interactions. These behaviours are classed into three categories; acceptance-rejection, dominance-submission, and social-emotional. Wylleman's model focuses on the complementarity between partners in relation to these categories of behaviour. It states that an effective relationship demonstrates reciprocity between these behaviours, with one individual's behaviours attracting the appropriate response from their partner. For example, a submissive athlete provokes more dominant authority behaviours from the coach. While not explicitly stated, it would appear evident that the manifestation of appropriate reciprocal behaviours would

be strongly based upon the correct observation of the other's behaviours and intentions, and is therefore based upon the understanding between partners.

The Poczwadowski model (Poczwadowski, Henschen, & Barott, 2002) conceptualises the coach-athlete relationship as a series of recurring interrelated behaviours categorised as either instructional or social-psychological (affective). They postulated then that the relationship is a continuous interrelated exchange, which includes both behavioural and cognitive-affective aspects. They argued that this interchange is based upon mutual care and shared meanings. This includes shared goals, and a shared similarity of meaning such as mutual jokes, anecdotes, views or beliefs. While understanding is again not explicitly implicated, it would seem reasonable to suggest that any mutual perceptions or shared meanings would be strongly based upon understanding of how partners each view their situation and environment.

While the previous two models offer guidance to researchers, they have not been empirically investigated. An alternative relationship model that has been supported by research is Jowett's 3+1 Cs conceptual model (Jowett, 2007). This model incorporates the interaction and interdependence of coaches' and athletes' closeness (affect), commitment (cognition), and complementarity (behaviour). A key dimension of this model is the notion of co-orientation, which relates to coaches' and athletes' interperceptions, their understanding, shared meanings and goals (see figure 1.5).

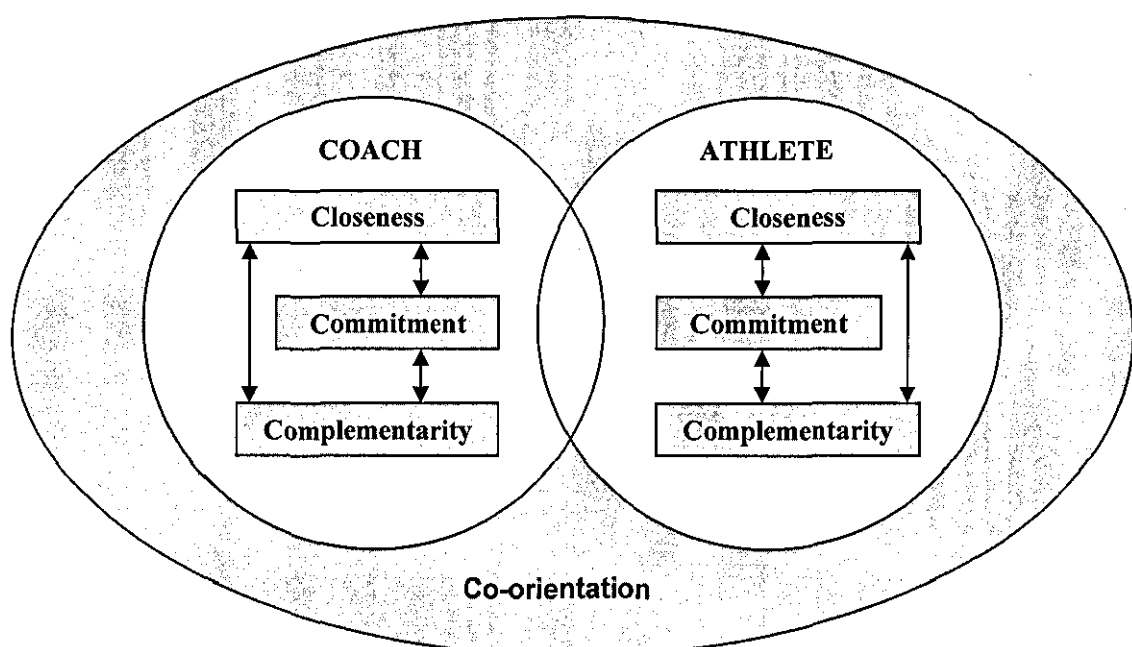


Figure 1.5 – 3+1 Cs model of coach-athlete relationships

Co-orientation reflects two different perceptions of how coaches and athletes' view the three constructs of closeness, commitment, and complementarity; the direct perspective, which encapsulates how one partner perceives their self and their relationship (e.g., "I trust my coach/athlete") and meta-perspective which captures how an individual perceives their partner sees them (e.g., "My coach/athlete trusts me"). The congruence between an individual's meta-perspective and their partner's direct-perspective is referred to as empathic understanding. This is the degree to which the coach and the athlete understand each other's perceptions about each other and the quality of their relationship. Jowett theorises that co-orientation is a key dimension of the quality of the coach-athlete relationship and is therefore fundamental to its effectiveness and success. As such this model explicitly includes understanding and empathy as part of its structure and composition.

1.6 Empathy and emotional intelligence

The ability to interact and respond to others in an appropriate manner is often referred to as emotional intelligence. It is believed to play a pivotal role in positive outcomes and effective peer, personal, and professional relations (Ciarrochi, Forgas, & Mayer, 2001). It is postulated that a key dimension of emotional intelligence is the ability to accurately perceive and understand others, their reactions, and the meanings behind them, and the ability of individuals to use this knowledge to assist thought and to manage their own responses (Mayer & Salovey, 1997). This understanding can be defined as the ability to perceive, recognize, and appreciate others' behaviours, feelings, attitudes, and intentions (Losoya & Eisenberg, 2001). In the broader social psychology literature this understanding is often referred to as empathy, and the terms empathy and understanding are often used synonymously.

When people interact they spend much of that time perceiving and making judgements about those people. They consciously and unconsciously observe and make inferences about others' personality, views, behaviours, intentions, emotions, and thoughts. Empathy is thought to be the process of making these judgements about others. It is these judgements that lead to individuals such as coaches and athletes gaining an understanding of each other. This understanding then contributes to emotional intelligence as a whole, which in turn deals with using this understanding to interpret a situation and to respond appropriately.

This capacity to understand others has been long regarded as an important phenomenon in relationships. Thomas and Fletcher (2003) refer to it as the “sine qua non” (p. 1) of a relationship, meaning that it is the essential factor in harmonious interactions. The relatively effective way in which the majority of individuals interact means that people must have some capability to know each other. They must possess some skill that allows them to make accurate judgements about each other upon which they base their responses (Hall & Bernieri, 2001). A potentially key skill in determining the success of coaching then must be the capability of coaches and athletes to accurately understand each other.

1.7 Empathic accuracy

Empathic accuracy as a general term refers to the precision of the judgements people make about each other (Davis, 1994). It can be seen then as an outcome of empathy, and can be defined as the success of the empathic process, the accuracy of the inference made about the other (Davis, 1994). More specifically, empathic accuracy is defined as the capacity to *accurately* perceive, from moment-to-moment, the psychological condition of another, such as thoughts, feelings, and moods, and the motivations and reasoning behind behaviours (Ickes, Stinson, Bissonnette, & Garcia, 1990).

As discussed above, emotional intelligence requires the ability to perceive and understand others and to use this knowledge to assist thought and to manage responses (Mayer & Salovey, 1997). Accuracy then is a key mediator between empathy and other outcomes. An individual who is inaccurate in their inferences about others will base their reactions, their thoughts, feelings, and behaviours, upon incorrect information. This inaccuracy could then lead to an inappropriate reaction. Therefore the consequences of accuracy include, first, that an individual's response will be appropriate for the situation (e.g., sympathy or compassion, the correct verbal response, or a change in approach; Davis, 1994), and second, it increases the likelihood that an individual will succeed in their social goals as they are more capable of selecting a behaviour that will elicit the desired reaction from another individual (Davis, 1994).

Two main factors influence the degree of accuracy that can be obtained. First, the amount of information an individual has on which to base their inferences, and second, their motivation to use that information (Funder, 1995). There are a variety of antecedents that influence these two factors, and therefore the level of accuracy that can

be obtained. These can be divided into three broad categories, observer, target, and relationship variables (Thomas & Fletcher, 2003). Observer variables refer to the individual differences that influence the degree to which an individual can make accurate inferences. These may include such things as their intelligence, maturity, or motivation for making an inference. Target variables are factors that influence how hard it is to 'read' certain individuals. For example, facial expressions, the amount of verbal information, and their body language can all influence the amount of information that an individual gives to the observer, and on which the observer can base their inferences. Finally, relationship variables refer to the association between the observer making the inference, and the target being observed. This includes how they know each other and the type of relationship they have, and may influence the knowledge the observer has about the target and the manner in which they interact.

Empathic accuracy is a key factor in the degree to which individuals understand each other, and in how useful that understanding is in guiding their actions and reactions (Ickes, 1997). The degree of accuracy that can be obtained can be influenced by a variety of factors including the type of relationship two individuals have (Thomas & Fletcher, 2003). It seems sensible to suggest that professional relationships, like the coach-athlete relationship, would be more effective and successful the greater the level of empathic accuracy shown by partners, as this increased accuracy would allow them to work more efficiently together. It would also seem sensible to suggest that the coach-athlete relationship, while sharing similarities with other relationship types, would exhibit a number of unique factors that influence the empathic accuracy of both the coach and the athlete.

1.8 Thesis

To summarise, the capacity to perceive and understand the internal condition of another is a constant feature of interaction between individuals. Known as empathy, it is a facet of emotional intelligence. It aids in allowing individuals to respond appropriately and as such it is theoretically a key aspect of effective and successful relationships, helping to maintain stability whilst avoiding conflict (Thomas & Fletcher, 2003). Empathy has previously been explored in a range of relationships; including strangers, friends, romantic partners, siblings, parent-child, and professional relationships (e.g., see Ickes 1997 for an overview).

The capability of coaches and athletes to understand each other has also been viewed as vital in allowing them to react, respond, and interact effectively with each other (Jones & Cassidy, 2004; Lyle, 2002). It permeates a variety of models that describe coach-athlete interactions from a range of perspectives (e.g., see Jowett & Lavallee, 2007). The idea of understanding, as described in the coaching literature, is comparable to the concept of empathy as discussed in the broader social psychology literature. Yet, this concept has not been empirically explored in sport, and as such a gap exists in our empirical knowledge of this important concept in coach-athlete interactions.

Given the potential importance of empathy between coaches and athletes, research in this area is both relevant and warranted. Studying empathy and its process in different relationships, not only gives us an insight into those relationships but also expands our knowledge of empathy as a psychological phenomenon. It allows us to discern the unique characteristics of each relationship and assess the impact of individuals' abilities to accurately perceive the thoughts and feelings of their partner. The investigation of empathy and understanding in sport offers us a new and intriguing insight into how coaches and athletes interact. However, exploration of empathy in sport relationships could also expand researchers' understanding of empathy as a whole.

In brief, the aim of this thesis was to explore empathy within the actual training context in which coach and athlete interactions naturally occur. To achieve this, the first objective of this project of research was to investigate how empathy had been conceptualised and measured in other fields. A literature review was initially conducted to allow a better understanding of how empathy has been conceptualised and measured in the broader psychology literature. Chapter 2 presents this literature review. It describes the conceptualisation of empathy and its early beginnings in psychology literature. The methods that have been used to measure empathy are described and discussed. Finally the findings regarding the process of empathy are reviewed.

Chapter 2

Empathy review

2.1 Conceptualising empathy

Psychologists have been interested in how people understand each other almost as long as psychology has existed as a discipline. The concept of empathy is seen as a highly desirable and valued ability in many areas of psychology. It is held to be a key factor in social relations, helping to avoid or manage interpersonal conflict, and allowing individuals to more effectively work together, unifying their goals and objectives (Simpson, Ickes, & Orifia, 2001). It has been extensively investigated for more than a century, from the very beginnings of fields of social (e.g., McDougall, 1908), developmental (e.g., Piaget, 1929), and clinical psychology (e.g., Rogers, 1957). In this chapter the literature from these fields is explored and discussed. The majority of this research comes from psychological disciplines and contexts out with of sport, and so where appropriate the processes related to empathy are discussed in regards to how they may be present or altered in the sports context.

Despite its long history of investigation, or perhaps because of it, there is confusion and a lack of consensus regarding how the concept of empathy is defined, operationalised, and measured (Losoya & Eisenberg, 2001). Empathy has been conceptualised and described in a variety of ways, both in research and popular literature. Despite this diversity, there have been two clear themes that have emerged; the first theme, affective empathy, argues that empathy is an affective response, that it encompasses an individuals' emotional response to that observed in another; the second theme, cognitive empathy, sees understanding purely in the terms of a cognitive process of accurately perceiving others (Losoya & Eisenberg, 2001).

Affective response or affective empathy, relates to affect matching, a vicarious response defined as an emotional arousal caused by, and congruent with the perceived feelings of another (Eisenberg & Strayer, 1987). That is, identifying and sharing the emotions of others. Yet for this to be considered empathy an individual must recognise that their emotional response is a reflection of another; they must be able to identify the source of their emotional arousal and still recognise a degree of distinction between themselves and the source affect observed in the other (Losoya & Eisenberg, 2001). Parallels between empathy defined as an affective response and empathy-related responses such as the concept of sympathy or personal distress are fairly obvious. Yet

researchers have made it clear that the two concepts are distinct and that the second is not considered to be empathy. Sympathy, which is also often rather confusingly known as empathic concern (Losoya & Eisenberg, 2001), has been described as an altruistic response most commonly expressed as compassion or feelings of concern. It is considered to be a response to perceiving another in need or distress, but is not always dependent on this (Batson, 1991). Sympathy, while an emotional response, is considered distinct from affective empathy. Like other empathy-related responses, sympathy can arise from affect matching, but it can also stem from cognitive based perception of another (Losoya & Eisenberg, 2001). Sympathy and other empathy-related responses are not empathy. Despite this, the terms empathy and sympathy are often used interchangeably, particularly in earlier research literature, and this has added to the confusion surrounding these concepts.

Empathy, defined as a cognitive process of perceiving others, is described as the skill of perceiving and interpreting verbal and nonverbal cues and information, which are then in turn used to decode others' thoughts, feelings, intentions and characteristics (Losoya & Eisenberg, 2001). This skill has been conceptualised in a variety of ways but is closely linked to two ideas (a) the Theory of Mind (Leslie, Friedman, & German, 2004), and, (b) the Realistic Accuracy Model (Funder, 1995).

The Theory of Mind states that people are cognitive beings, and that individuals' experience a range of psychological states and conditions (Leslie, Friedman, & German, 2004). These experiences while distinct often have similarities. Based on this assumption, cognitive empathy is thought to encapsulate two main components; perspective or role taking, and application of knowledge. Role taking refers to the ability to cognitively represent the self from another's perspective or mental representation. That is, to be able to put yourself in another's place to *see the world through their eyes*. Application of knowledge refers to the ability to apply appropriate knowledge schemas in order to make an educated guess. These schemas have three levels ranging from general to specific: (a) an individual's knowledge of people or social contexts in general (e.g., "I know when people raise their voice they are generally angry"), (b) about a particular type of person or type of context (e.g., "I know when athletes raise their voice in competition they are generally excited"), and, (c) about a specific person or context (e.g., "I know when John the athlete raises his voice in training he is generally worried or upset") (Fletcher, 2002). The more specific the

knowledge structure that an individual can apply the more accurate his/her inference will be (Fletcher, 2002).

Funder's (1995) Realistic Accuracy Model is a simple model that states that accurate empathic inferences are dependent two factors: (a) the availability of relevant information, and, (b) the ability of the perceiver to appropriately use this information. The more information an individual has the more resources they have on which to base their inference. This idea is closely linked to the idea of the application of different levels of knowledge schema and the argument that the more specific the knowledge structure that an individual can apply the more accurate his/her inference will be (Fletcher, 2002). However, Funder (1995) states that this is moderated by motivation. Even if very specific knowledge can be applied, if an individual is not motivated to use it, they will be inaccurate. Conversely, even with very little knowledge, or very general knowledge schemas, an individual highly motivated to make the most of the knowledge they have may still make accurate inferences.

Some researchers have questioned if simply knowing someone like a set or series of facts is enough, and have postulated that an individual needs to identify with another on some level in order to truly understand them (Stewart, 1956). Hence, arguing for a definition of empathy that primarily includes an affective response element over a purely cognitive perspective. Researchers remain clear however that for affective empathy to be present an observer must be able to identify the source of their emotional arousal (Losoya & Eisenberg, 2001). Therefore a counter to this argument is the suggestion that for affective empathy to be present the perceiver must on some level, unconsciously or consciously, make a judgement or inference about the target individual. This implies the eminence of the cognitive process dimension of empathy.

It is also important to clearly separate empathy as a process from empathy as an outcome. Davis (1994) defines empathy as a process that potentially includes both of the described affective and cognitive elements, and which may enhance the accuracy of an individual's interpersonal perspective. Empathy as an outcome then can be defined as the success of these efforts, the accuracy of the inference made about the other. However, accuracy must involve the actual perception of the target individual, and hence is an outcome of the cognitive process of empathy. Researchers have warned then that accuracy should not be entangled with definitions of empathy that cite matching affective responses as a primary component (e.g., Eisenberg & Strayer, 1987). Further, it can be argued that empathy is one dimension of the concept of emotional

intelligence (Mayer & Salovey, 1997). That emotional intelligence includes the ability to (a) to perceive other people's emotions *accurately*, and (b) use this knowledge to assist thought. This then would suggest that accurate inferences about others may lead to positive social and emotional outcomes.

2.2 Origins of empathy research

The roots of the two dominate themes of empathy, affective and cognitive, can be seen in the early writings of theorists working in psychology, most predominantly in the fields of social, developmental, and clinical psychology. Some of the earliest writings referring to empathy appear in the field of social psychology. Wundt (1886) described what he called *Einfühlung*, literally 'feeling into', the concept of a disturbance in ones' own affective state due to observing the expression of emotions in another. While he described this concept as sympathy, it closely echoes the contemporary definition of affective empathy. Closer still, McDougall (1908) discussed the innate tendency of people to express and experience the same emotions and feelings that they observed in others. While McDougall referred to this concept as sympathetic response, predominantly focusing on the suffering felt when observing pain in others, he also stressed that not only did this tendency have a negative aspect, but that it also had a positive dimension which encompassed such ideas as infectious laughter and other contagious emotional responses. McDougall's description of a vicarious emotional response seems to be a combination of the two modern definitions of affective empathy and sympathy. McDougall also suggested that this vicarious response was of significant importance in social interaction; that these contagious emotional responses stimulated social co-operation by either diminishing pain or enhancing pleasure. Later social psychologists, like Heider (1958), did make a clear distinction between affective empathy and other empathy-related responses such as sympathy.

Social psychology theorists also provided some of the earliest grounding for the concept of cognitive empathy. In 1942, Cottrell separated the concept of affective empathy, or affect matching, from the process of taking on the role/perspective of another. He theorised that an individual possess a variety of skills by which he or she "assimilated him [or herself] to the active perspective of his [or her] subject". That is, skills such as identification and introspection about another allow an observer to place him or herself in the role of another and to take on their perspective. This idea of role

taking, of *putting yourself in another's place*, is identical to the contemporary concept of role taking in the cognitive process of empathy. However the separation of role taking and application of knowledge was not clearly apparent in Cottrell's work. He described his work instead as being a call for further investigation of the skills involved in role taking. Contrasting this, two decades earlier in 1924 Allport had noted that an individual's empathy was based upon their own past experiences echoing the cognitive empathy concept of applying knowledge schema and experiences. Allport (1924) also stated that empathy, as well as being based on past experience, was influenced by emotional habits. Habitual emotional responses thought to eventually lead to an inability to see another's viewpoint due to self-biases, with our own learned responses influencing how we perceive others' viewpoints.

Further support for empathy as role taking has its roots in developmental psychology. Piaget (1929) discussed the need for child to develop non-egocentric behaviours and to be able to see the world from another's viewpoint. This is linked to the concept of role taking, where the ability to place yourself in the mental representation of another is based on being able to separate the self from the other. Piaget (1929) theorised that egocentric behaviours like self-biases, would leave people unable to see others' perspectives. He suggested that egocentric functioning leads to "...the greatest difficulty in entering into anyone else's point of view" (p. 216). He based this argument on Baldwin's (1987) writing about the three stages in a child's development: 1) the ability to distinguish between persons and things; 2) the ability to then assimilate other experiences through imitation; and 3) the ability to distinguish between themselves and others. While the second stage is reminiscent of affective empathy, imitating others' emotional responses, Piaget argued that it is only on the realisation of the third stage of development that true empathy can be experienced; recognising a self-other distinction, allowing for the recognition that others may experience things and react differently to ourselves. Piaget (1929) referred to this developmental process as *decentring*, and conceptualised it as the separation of self from other, and the gradual development of the ability to see from another's viewpoint.

While early social and developmental psychologists have influenced the major themes of modern empathy research, affective and cognitive empathy, it is perhaps the field of clinical psychology, including psychotherapy and counselling, that is most frequently referenced and referred to, and that has most significantly shaped contemporary empathy research. In 1922, Freud wrote about empathy as part of the

psycho-analysis process, emphasising its place as part of establishing a rapport with a patient. He described it as an emotional tie with another person, and discussed it as the "introjection of the object into the ego" (p. 65), literally meaning assuming or absorbing the characteristics of the other person. Here we can see ties with the modern definition of affective empathy and the ideas of affect matching. He referred to this process as identification, stating that imitation enabled an individual to comprehend another's attitudes. This diverges from Piaget (1929) who saw imitation as quasi-empathic, however Freud did not explicitly state that imitation was empathy, but emphasised only that it could lead to understanding. Freud's identification process, while predominantly similar in nature to affective empathy, also through his description of imitation has elements of cognitive empathy, of attempting to imitate or take on the role of the patient. The role of empathy in therapeutic counselling was further emphasised by Reik (1948). He, like Freud, discussed the ideas of incorporating another into your ego, of "psychological cannibalism" (p. 223), and of vicariously living the patient's experiences. Again, this is comparable to the modern definition of affective empathy. However Reik specifically emphasised the need for the therapist to also be a factual observer of the patient's experiences. Here again we can see some ties with empathy as a cognitive process, and Reik's arguments echo Piaget's (1929) claims that there must be some distinction between the self and other for true empathy to exist.

A heavier emphasis on role taking and understanding as a process in therapy can be seen in the works of Reik's contemporary, Rank. Rank (1950) stressed the importance of managing the patient and stated that this could only be done by understanding their individual reactions; essentially identifying their current thoughts and feelings during a therapy session. This more cognitive approach was most heavily supported by the therapist Rogers. Similar to Reik (1948), Rogers (1951) discussed the balance between identifying with the patient and being an objective observer. He argued that a counsellor must be able to perceive the patient as the patient perceives themselves, to be able to place themselves within that patient's mental framework. Rogers also stressed that a counsellor, while they should be able to perceive the emotions of their patients, should do so without experiencing those emotions themselves, "to perceive the internal frame of reference of another... without ever losing the 'as if' conditions" (1959, pp. 210-11). Here we can see a very clear distinction between affective and cognitive empathy. He stated that empathy required an objective standpoint, and argued for an 'as-if' approach. That is, to attempt to see

the world as if you were the patient, clearly paralleling a modern cognitive empathy approach.

Further distancing himself from previous theorists, Rogers was the first theorist to directly refer to “accurate empathy” to describe the ability to infer an individual’s specific thoughts and feelings (Rogers, 1957). He defined empathy as the ability to “perceive the internal frame of reference of another with *accuracy*...” (1959, p. 210, italics added for emphasis). Rogers (1951) further emphasised this by stressing the importance of being able to communicate back to the patients this understanding of their internal condition. Rogers saw the accuracy of the empathy process as a key element and as one of the most beneficial components of empathy in counselling and helping-type relationships (e.g., parent-child, teacher-pupil, coach-athlete). While Rank (1950) had earlier stressed that in order to help the patient, they needed to be guided, it was Rogers (1951) that stated that this relied on the accurate perception of the patient’s reactions. Hence it can be argued that the cognitive processes of empathy and how they relate to the accuracy of inferences is a key element of empathy in interacting and reacting to others.

2.3 A model of empathy

Empathy is a complex and multifaceted concept that has caused disagreement amongst researchers about how empathy should be defined and operationalised (Losoya & Eisenberg, 2001). In the previous historical review we see a gradual shift from early theorists emphasising empathy as an unconscious affect matching process to recognising a distinctive, more conscious, cognitive process. Both are seen as valid, and certainly useful, social processes that help to strengthen social ties (Losoya & Eisenberg, 2001). Additionally, there has been a degree of confusion over the distinction between empathy and empathy-like reactions such as sympathy (Davis, 1994). Finally, it is obvious that there has also been confusion connecting the ideas of empathy as a process and the idea of accuracy in empathic perceptions (Davis, 1994).

To date, only a single researcher has attempted to bring all of the disparate elements of empathy together into a coherent model. Davis (1994) proposed the Organisational Model of empathy (see figure 2.1) that he argued showed how the different elements of empathy fitted together. The Organisational Model (Davis, 1994) is made up of four distinct elements; (a) antecedents, (b) processes, (c) intrapersonal outcomes, and (d) interpersonal outcomes. The associations between these elements are

shown in figure 2.1. Davis (1994) believed that the closer two elements were in the model the stronger the association between them. For example, intrapersonal outcomes would have a stronger link with interpersonal outcomes than would antecedents and interpersonal outcomes.

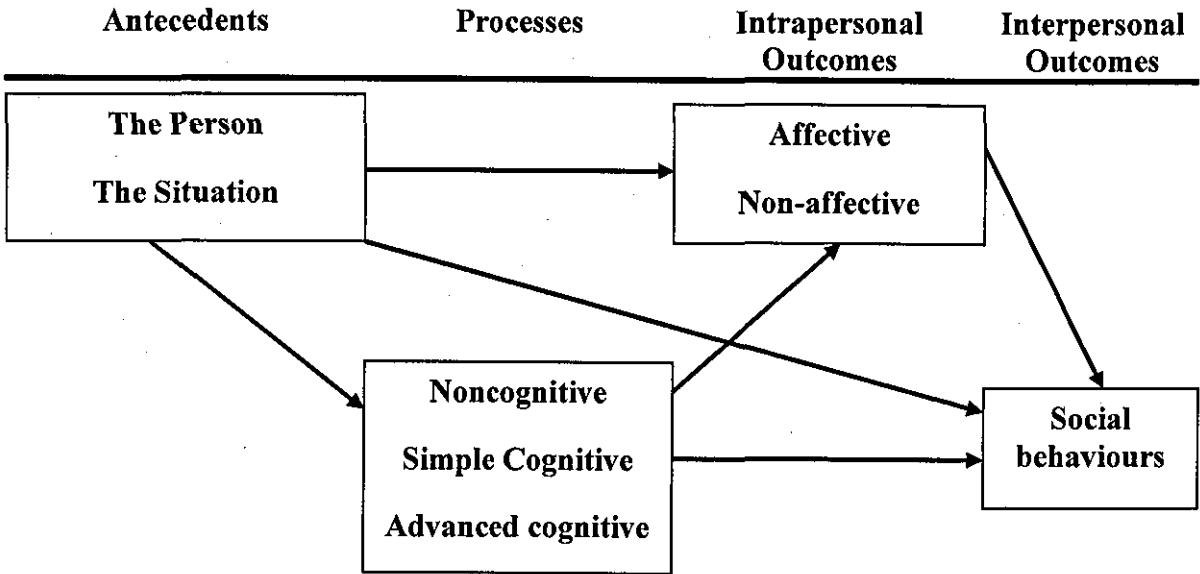


Figure 2.1 – The Organisational Model
(Adapted from Davis, 1994)

Antecedents. Davis (1994) described the antecedents of empathy as having two distinct elements: (a) the person, and (b) the situation. The first, the person, includes the individual differences of both the observer and the target. This includes differences in the observer’s capacity for empathy, such ability to take on the role of another, and their past experiences and motivations for doing so. The person also includes the target, how expressive they are and their intellectual complexity, essentially how easy they are for the observer to make inferences about. The second element, the situation, describes the context in which the inference is made. This includes the relative importance of the situation to the observer and the degree of similarity between themselves and the target. Antecedents then closely resemble Funder’s (1995) Relative Accuracy Model in that they are concerned with factors that either (a) influence the amount of information available, or, (b) influence the observer’s motivation to use that information.

Processes. Davis (1994) described the processes of empathy as having three levels of increasing cognitive complexity. Noncognitive processes are those such as mimicry and innate responses such as a mother responding to a baby's crying. Mimicry is thought to create a similarity between the observer and the target which allows them to experience the same affect. Innate responses are those which automatically cause an emotional reaction in response to perceiving emotions in other. As such, these factors are most closely associated with affective empathy or empathy responses such as sympathy. Simple cognitive processes are those basic empathic processes such as labelling and association where the observer makes an inference based upon general information schema (e.g., winning makes athletes happy). As such it is closely linked to the idea application of knowledge from the Theory of Mind (Leslie, Friedman, & German, 2004). Finally, the advanced cognitive process is role taking, the idea of suppressing ones own ego in the attempt to take on another's perspective, exactly as postulated by the Theory of Mind (Leslie, Friedman, & German, 2004). Simple and advanced cognitive processes are more closely linked with non-affective outcomes and cognitive empathy. The more sophisticated processes allow the observer to make complicated attributions and judgements that can result in complex and accurate inferences.

Intrapersonal outcomes. Davis (1994) divided the intrapersonal outcomes into two categories, affective, and, non-affective. Affective outcomes include all emotional reactions experienced by the observer and as such encapsulate not only the idea of affect matching and affective empathy, but also empathy responses such as sympathy and pity. Non-affective outcomes are cognitive in nature and include judgements made about the target by the observer (e.g., "I think this athlete is lazy"), and the accuracy of these inferences made about the target.

Interpersonal outcomes. Davis (1994) defined interpersonal outcomes as the behaviours the observer manifests towards the target. These outcomes have the most similarity to the idea of emotional intelligence, and of using knowledge to assist thought and to manage social responses (Mayer & Salovey, 1997).

Using the organisational model as a guide, it is apparent that the biggest influences on interpersonal outcomes of empathy are the intrapersonal outcomes of empathy. This means that how we think and feel about the target after making an empathic inference about them is the strongest factor in deciding how we react towards them. It can be argued that accuracy is the most important of these intrapersonal outcomes. Emotional intelligence, the ability to effectively interact with others,

includes the ability to (a) to perceive other people *accurately*, and (b) use this knowledge to assist thought (Mayer & Salovey, 1997). It is also important to consider the effect of affective outcomes, as how we feel will, as shown by the organisational model, strongly influence the behaviours that occur. However, it can still be argued that accuracy is the most important element. If a coach makes an inference about an athlete, (e.g., the athlete is being lazy in training) this will cause an affective intrapersonal outcome (e.g., the coach gets mad at the athlete) which will result in an interpersonal outcome (e.g., the coach punishes the athlete). Yet, if the original inference is incorrect then the interpersonal outcome will be inappropriate (e.g., the athlete isn't trying hard because they are worried about an injury, not because they are lazy).

Davis (1994) has hypothesised that empathic accuracy, appropriate social behaviours, and effective and successful relationships are strongly linked. Davis (1983) found that, in a population of college students, the tendency to take on an accurate perspective of another was significantly associated with positive social behaviours such as warmth and an even temper, and negatively associated with insensitivity towards others. Davis and Oathout (1992) have also noted that accurate perspective taking is associated with positive communication behaviours such as "opening up" and "readily listening". In a study of empathic accuracy in married couples, Kilpatrick, Bissonnette, and Rusbult (1999) found that increased accuracy was significantly associated with increased commitment to the relationship and willingness to compromise and accept incidences of negative behaviour from a partner. Additionally, Davis and Kraus (1997) reported that lower perspective taking in adolescent boys predicts increased levels of conflict. Acitelli, Douvan, and Veroff (1993) have also found that wives' marital well-being was positively related to their accurate understanding of their partner's conflict behaviours. Finally, Sillars, Weisberg, Burggraf and Zietlow (1990) found that wives' marital satisfaction was significantly associated with their husbands' accurate understanding of how they viewed their relationship with the husband.

The accuracy of empathic inferences is thought to be associated with manifesting appropriate social behaviours (Davis, 1994). As such, it can be seen as a key component in developing and maintaining effective and successful social relationships such as romantic relationship and friendships, and professional relationships such as doctor-patient and coach-athlete relationships. Rank (1950) and Rogers (1951) also argued that in 'helping' relationships where one partner guides the

other (e.g., counselling or coaching) accurate perceptions were vital in allowing the guiding partner to effectively feedback information that would assist in the development of the guided partner. Given this focus on the importance of accuracy, and therefore on the cognitive processes of empathy, for this thesis empathy will be conceptualised as the process of perceiving others and the accuracy of these perceptions (Losoya & Eisenberg, 2001).

2.4 Measurement paradigms

In his brief overview of empathy research, Ickes (1997) identified four distinct phases in empirical research related to the accuracy of the empathy process. In this text these four paradigms are referred to as target accuracy, meta accuracy, affective accuracy, and empathic accuracy. Each of these groups of methodologies are similar in that they are based upon measuring individuals' inferences or judgements of others, and comparing this judgement against some form of criteria to assess their accuracy. In addition to the four related paradigms identified by Ickes (1997), there is a fifth paradigm that first warrants discussion, that of self-reported measures.

2.4.1 Self-reports

Having participants in empirical studies report their own levels of empathy would seem perhaps the easiest and most pragmatic way of assessing their skill at making accurate inferences. A variety of measures are available for this, from asking participants to rate their ability to be accurate on a simple magnitude scale, to more involved psychometric instruments. The most prevalent of these instruments is the Interpersonal Reactivity Index (IRI; Davis, 1980). The IRI is a scale that assesses four dimensions of empathy: perspective-taking, fantasy, empathic concern, and personal distress. The perspective-taking subscale relates to the tendency of the participant to spontaneously adopt others' points of view, while the fantasy subscale concerns the ability to transpose themselves into the feelings and behaviours of fictional characters. Both therefore are closely related to the cognitive role taking elements of empathy. The final two scales are more closely associated with empathic responses than empathy itself. Empathic concern assesses individuals' feelings of concern and more closely echoes the modern definition of sympathy, while personal distress measures feelings of anxiety in response to distress experienced by others and so is similar to affective empathy. The IRI was used extensively for almost a decade (e.g., Bernstein & Davis, 1982; Carey, Fox, & Spraggins, 1988; Davis, 1983) before concerns were raised about

the validity of this and other self-report measures (Davis, 1994; Ickes, Stinson, Bissonnette, & Garcia, 1990).

Ickes et al. (1990) used a variety of self-report measures including the IRI and their own measure of self-reported accuracy, and compared them to individuals' actual ability to make accurate inferences about a target's thoughts and feelings. Not only did Ickes et al. (1990) find that there was no significant correlation between participants' self-reported empathy and their actual accuracy measured by an empathy task, but the correlations between the perspective-taking and fantasy subscales and the participants' actual accuracy were negative. Further evidence comes from a meta-analysis of studies comparing self-report measures to actual accuracy tasks by Davis (1994), which stated "the overall pattern [between accuracy and self-report measures], to put it charitably, is mixed..." (p. 91). More recently Marangoni, Garica, Ickes, and Teng (1995) asked participants to self-rate how accurate they had been after the completion of an empathy task where they inferred the thoughts and feelings of a patient depicted in a counselling video. Once again no significant association between the self-report and actually ability was evident.

A variety of reasons have been forwarded to explain the lack of association between actual accuracy and self-reported empathy. A lack of self-awareness has been proposed as well as a lack of feedback about the target (Ickes et al., 1990). Ickes et al. (1990) suggests that perhaps individuals do not receive enough feedback from targets to be accurately aware of their own ability; that individuals do not actively seek out feedback, and the feedback they do receive may be either misleading, vague, or purposefully altered due to the self-presentation of the target.

Whatever the reason, researchers have highlighted a lack of behavioural validity associated with self-report measures of empathy and actual manifested behaviours (e.g., Davis, 1983). This coupled with the inability of these measures to predict actual accuracy (e.g., Ickes et al., 1990; Marangoni et al. 1995), suggests that individuals have little or no reliable self-awareness of their own empathic skill. Hence, such self-report measures are likely to be unsuitable for research exploring actual empathy, accuracy, and how these are associated with other factors. The findings of previous research using this approach (e.g., Davis, 1983) can then be seen as support for associations with an individual's perceived empathy, but cannot be taken as evidence of any influences or associations with any genuine skill to accurately perceive or understand others.

2.4.2 Target accuracy

The four accuracy paradigms highlighted by Ickes (1997) differ from self-reported measures in that they assert to assess actual accuracy as opposed to individuals' subjective opinions of their own ability. They do this by taking individuals' inferences of others and comparing this against a set of accuracy criteria. Each paradigm differs in regards to the type of inferential content and the criteria for accuracy used.

The paradigm with the longest history of all the interpersonal perception research paradigms is target accuracy, which concerns individuals' ability to make accurate judgements about the individual and personality traits of others. The prevalence of this research paradigm in early investigations is likely due in part to the ease of the methodology employed. The development of standardised pen-and-paper psychometric instruments in the early 20th century, used to assess individual differences, gave researchers all the tools they needed. Participants could simply observe the target individual and then complete the relevant questionnaire as if they were that person. In this way an individual's inferences about a variety of individual factors of another person could easily be carried out. However, target accuracy research has been heavily criticised for the criterion used to assess the accuracy of these inferences (Ickes, 1997).

Target accuracy researchers have most frequently used one of two criteria to assess accuracy; interjudge agreement and self-judgement agreement. Interjudge agreement research is based upon using the judgements of a number of observers, and treats the consensus of these observers as synonymous with accuracy (Taft, 1955). It has been argued that while if two observers agree this may not be evidence for accuracy, if two observers disagree this is definitely evidence for inaccuracy, as one or both observers must be wrong. Therefore there must be some association between interjudge agreement and accuracy, and the more observers you have, and the greater the consensus, the greater accuracy must be (Schenider, Hastorf, & Ellesworth, 1979). The fundamental problem with this approach however lays with the fact that high agreement and consensus between observers does not mean they are correct or accurate. Even if all the observers agree they could still be wrong. This argument is further reinforced by research that has shown that people often make inferences about others' personalities based upon superficial characteristics such as appearance, dress, and ethnicity (Shweder & D'Andrade, 1980). This suggests that agreement between observers may not necessarily arise from accurate observation of an individual, but

instead through widely held and shared stereotypes. It would seem more sensible then to use the second of the commonly used accuracy criteria, self-judgement agreement. That is, directly comparing the inferences of the observer to what the target individual thinks about him or herself; simply comparing the observer and target's answers on whatever psychometric instruments were used. Yet this method has come under extremely heavy criticism due to inherent statistical issues (e.g., Cronbach, 1955; Hastorf & Bender, 1952). The problem lies with the way in which both the observer and target complete the psychometric instrument. Essentially the criticism states that the variance in observers and targets' score are based on a variety of components. Only one of these represents an actual judgement, the rest of the variance being attributable to report biases (see Kenny, 1994, for a review). Additionally researchers have shown that self-judgements are not reliable. Individuals may be strongly motivated to present a favourable image of themselves (Kenny, 1994). Furthermore, it has even been suggested that people are not as good judges of their own personality as others are (Wilson, Hull, & Johnson, 1981) and so using a self-judgement as an accuracy criteria would appear fundamentally flawed.

While researchers have also developed methods of overcoming the statistical concerns raised by researcher such as Cronbach (1955), the issue of whether an individuals' self-reported level of a trait is their actual level remains. Researchers have sought to overcome these issues in a number of ways. The most obvious being the use of behavioural prediction as an accuracy criterion. After all, researchers have suggested that the main reason people make judgements about others' individual traits is in order to predict their behaviour (Funder & Colvin, 1988). However this has raised further issues and doubts about this paradigm. The main problem is the difficulty matching which individual traits are associated with which behaviours. If an observer's judgement about another fails to predict that person's behaviour it could be because they were inaccurate in their judgement, but it is also possible that the individual trait they are being asked to infer does not actually match up to the behaviour being measured (Funder & Colvin, 1988).

Some researchers have also attempted to overcome the issues of self-reported traits by subtly altering their methodology. Rather than ask the observer to rate the target's individual and personality traits, they instead ask them instead to rate how they think the target would describe themselves (e.g., Taft, 1966). Alternatively they ask the target individual to rate how they believe their personality would be rated by an external

observer, rather than ask them to rate their own personality (e.g., DePaulo, Kenny, Hoover, Webb, & Oliver, 1987). Yet this can be interpreted as the accuracy of judging others' judgements, not of understanding and judging individual differences (Funder & Colvin, 1988). It is instead a reflection of either how well individuals understand how others perceive themselves, or how they themselves are perceived. This has more in common with meta accuracy, the second research paradigm identified by Ickes (1997).

2.4.3 Meta accuracy

An area of research that came in to focus later than target accuracy, and with a more recent history of investigation is meta accuracy. Meta accuracy is the judgement about how others view us. As a paradigm it evolved as researchers began to focus on the fact that people are not passive objects to be observed; instead while judgements and inferences are being made about them by observers, they are in turn attempting to understand and judge how they themselves are being perceived (Kenny & DePaulo, 1993). The basis of this paradigm is the belief that individuals view themselves and the world about them from at least two perspectives; a direct-perspective and a meta-perspective (Laing, Phillipson, & Lee, 1966). The direct-perspective refers to their own point of view, how they see themselves and others, including such things as their attitudes, values, or self-conceptions. The meta-perspective however refers to how that individual believes others see the same things, and how similar or different these perceptions are.

In his review and meta-analysis of meta accuracy research, Kenny (1994) evaluated four models that encapsulated the various theories that had been postulated of how people accurately know how others view them. While these models directly related to meta accuracy, they and the theories that preceded them provide an insight in the mechanism of empathy as a whole, revealing how researchers were beginning to advance theory and methods in empirical empathy research. The *naïve model* argued that accurate meta perspectives (how we believe others view us) arose from individuals' general perceptions of how others viewed them. In direct contrast the *self-theory model* suggested instead that individuals' simple assumed that others saw them as they typically saw themselves. In balance to the first two models that emphasised a general schema approach, the *direct observation model* argued for a more situational stance, stating that individuals observed their own behaviour and attempted to determine what impressions it was likely to make. Finally, similar to the direct observation model, the *self-judgment model* postulated that individuals evaluated their own behaviour and

assumed that others made the same evaluation. This differs from the direct observation model in that while the direct observation model incorporates an element of perspective taking, the self-judgement model does not. These models can loosely be grouped into two categories, those where meta perspectives are a result of self perceptions (how individuals view themselves; e.g., "I know I am a motivated athlete, so others will see me as a motivated, enthusiastic athlete") and those where they were the result of how individuals believed others perceived them (e.g., "I am doing well in this training session, the coach watching must think I am very motivated"). A parallel between these models and the development of the cognitive process perspective of empathy can be seen, with elements of both role taking and application of knowledge being evident. However, while both elements can be ascribed to meta perspectives generated as a result of how individuals believe they are perceived, meta perspectives as a result of self-perceptions focuses solely on a very narrow application of egocentric knowledge.

The methodologies employed in this paradigm are superficially similar to that of target accuracy in that it typically involves the comparison of the observer and target's responses to a pen-and-paper psychometric instrument that assesses stable or relatively stable characteristics or dispositions; the observer is asked to rate how they view the target, and the target is asked to rate how they believe they were rated by the observer. Also, in order to answer questions involving target's generalisations in their beliefs of how they are viewed, studies have also used multiple observers (Kenny & DePaulo, 1993). However it is obvious that the passive observation methods that were predominant in the target accuracy paradigm are not entirely suitable. While an individual can make broad inferences about how others perceive them in general, the nature of meta accuracy requires some form of interaction to have occurred between the observer and target, that they either are interacting, part of a relationship, or at least have some knowledge of each other, if that individual is to make inferences about how specific groups or individuals view them. Therefore, while a substantial body of meta accuracy research uses related individuals (e.g., friends or romantic partners) who then complete questionnaires about each other, research has also used acquainted and non-acquainted individuals in interactive settings, either in actual real life situations (e.g., job interviews) or staged scenarios (Kenny, 1994).

Using multiple observers, researchers have been able to address the question of a target's generalisations in their beliefs of how they are viewed. This is done via the

approach of whether different observers view the same target in the same or different ways, and whether the target is aware of this. Multiple studies have shown that while observers do differ significantly in how they view the target, the target involved typically believes that he/she was viewed in a similar way by all observers (Malloy & Albright, 1990). This supported the idea that individuals make generalisations about how they are perceived by others, and hints at a lack of role taking, suggesting that meta perceptions are more a result of self perception. In further support, individual differences in targets have been found to influence how the target views the impression they are giving (e.g., socially anxious individuals consistently rated observers' judgements as being more negative; Reno & Kenny, 1992). However, in a review of meta accuracy research, Kenny and DePaulo (1993) were quick to point out that while targets displayed higher generalised accuracy than specific accuracy (i.e., they were more accurate at rating general impressions of themselves as opposed to the impression they had made on one specific person), they still displayed some specific accuracy. They suggested that while self perceptions dominated targets inferences about others' judgements of them, targets still observed their partner, used role taking, and were open to feedback in their inference generation.

Overall the findings that have emerged from the meta accuracy paradigm match those of early theorists, especially those of Piaget (1929) who argued that egocentricity would leave people unable to accurately judge others' perspectives. While a useful and valid field of investigation, which continues to provide insights into empathy within different relationships (e.g., Jowett & Clark-Carter, 2006; Kenny, 1994), this paradigm is still limited by its reliance on pen-and-paper psychometric instruments assessing relatively stable characteristics or dispositions. As well as the usual difficulties with biases and social desirability issues (individuals may either not want to be seen to make negative judgements about others, or self-judgements may reflect how individuals wish others perceived them), these instruments limit the inferences being made about others, both in nature and intensity (i.e., limited items and restricted response scales) and may not reflect the naturally occurring empathic process or inferences regarding changing psychological states.

2.4.4 Affective accuracy

A more recent focus in empathy research involves exploring individuals' ability to accurately infer the emotional state of others. While the accurate judgement of others' stable or relatively stable characteristics can give an individual a general

understanding of another, it is thought that only by being able to accurately infer others' psychological states can they appropriately interact and react to others during a social interaction (Argyle, 1994). The question of whether people can understand others' emotions has been a key issue for theorists. Rogers (1975) wrote that empathy "involves being sensitive... to the changing felt meanings", suggesting then that a key concept in empathy was the inference of psychological states such as affect. While theoretically important, the biggest barrier to affective accuracy research has been one of measurement. While the target and meta accuracy paradigms most frequently use previously developed standardised pen-and-paper psychometric instruments to assess stable or relatively stable characteristics, this method is not suitable for capturing inferences about more fleeting psychological conditions (Ickes, 1997).

In order to explore affective accuracy, researchers were forced to develop their own methods and psychometric instruments, and affective accuracy saw the first major and widespread use of what would be known as standardised stimulus designs (Hall, 2001). Researchers developed standardised or fixed sets of affective stimuli. That is, they created a range of video clips, audio clips, or photographs depicting targets expressing a range of emotions, which can be shown to observers. The advantage of this is that a criterion for accuracy is relatively easy to establish for each set of stimuli. In her review of affective accuracy instruments, Hall (2001) highlights the primary benefit of this approach as the ease with which observers can be compared. All study participants are given the same stimuli and have the same criterion for accuracy. This allows individual differences in either observers or targets to be assessed, and the effect of these on the accuracy of the observers' judgements to be investigated (Marangoni et al., 1995). However, an inherent weakness of standard stimulus designs is that the influence of the relationship between the observer and target cannot normally be assessed, as in most cases none exists.

The standard stimulus methods used in affective accuracy research vary in a number of ways, including (a) the type of stimulus (videos, photographs etc), (b) how the criterion for accuracy is established, and (c) how the observers are asked to respond. A common way to capture affective stimuli is via photographs of the target which are then shown to observers (e.g., Ekman & Friesen 1974; Nowicki & Duke, 1994). This can be criticised for not accurately capturing the fleeting nature of affect. Researchers often give observers as much time as required to observe photographs and respond (Nowicki & Duke, 1994) and so are unlikely to be capturing the naturalistic nature of

affective accuracy. Ekman and Friesen (1974) sought to compensate for this by presenting photographs for less than 1/25 of second, attempting to replicate how quickly facial movements are expressed. However, perhaps a more ecologically valid method is to present observers with video recordings of targets so that affect can be observed as it occurs (e.g., Constanzo & Archer, 1989). Further strengthening the ecological validity of this approach, video clips give observers access to all the information sources they would normally have (e.g., facial expressions, movements, and audio information), and that are not available in photograph based methods. This was taken further in the Profile of Nonverbal Sensitivity test developed by Rosenthal, Hall, DiMatteo, Rogers, and Archer (1979), who created a series of short video clips where any source of information (e.g., facial expressions or audio) could be restricted.

The criterion for accuracy employed also varies by design. One approach has been to show the stimulus to a panel of judges whose collective inferences then become the criterion of accuracy (e.g., Ekman & Friesen 1974). This however leaves the criterion open to many of the criticisms and problems previously discussed that plagued interjudge agreement in target accuracy. A more common approach is to control the criterion by using staged or acted stimuli to generate an accurate set of criteria (e.g., Baum & Nowicki, 1998; Magill-Evans, Koning, Cameron-Savava, & Manyk, 1995; Rosenthal et al., 1979). However, a potential criticism is that the staged behaviours or information presented by the actors only reflects the stimuli they believe to be associated with the desired affect, but this may not be representative of the actual naturalistic information generated while experiencing those emotions. To counter this some researchers have attempted to strengthen the validity of their method by using interjudge agreement to provide some consensus that the stimuli provided does match the desired staged affect (Rosenthal et al., 1979). Yet this still suffers from the issues previously discussed. A more suitable approach may be to use naturalistic interactions and spontaneous affect (e.g., Constanzo & Archer, 1989). The targets can then be debriefed and report back what they were experiencing and this becomes the criterion for accuracy. However this may still have issues of self-report bias due to social desirability issues with the target.

Finally, affective accuracy research has used two methods of generating observer inferences. The first and most common is to have observers respond using a limited number of preset choices, either selecting emotions or identifying the circumstances under which affect was being experienced (e.g., Constanzo & Archer,

1989, Ekman & Friesen 1974; Nowicki & Duke, 1994). These instruments suffer from the same limitations as those used in target and meta accuracy research. They may not reflect the naturally occurring empathic process because observer responses are restricted and observers are aware at least one of the listed responses is correct. A more ecologically sound approach is to allow observers to respond in an unrestricted open-ended way. This method is not common and has been employed relatively rarely (e.g., Magill-Evans et al., 1995). This may be due in part to the time consuming and more complicated ways in which this data must be treated, yet it allows observers to respond in a more naturalistic way.

Perhaps guided by this predominance of fixed response methodologies, affective accuracy, as its name suggests, has been limited to those easily categorised emotional labels. Psychological states however are far more complicated, involving not only affect but also cognition such as thoughts regarding values, situations, and meanings (Ickes, 1997).

2.4.5 Empathic accuracy

Guided by the theoretical advice of Rogers (1951, 1957, 1959), Ickes (1993) argued that to be a truly valid assessment of the accuracy of the empathy process, any measure had to fulfil three criteria: (a) it should assess empathy as an ongoing moment-to-moment process as interactions unfold, (b) observers should be allowed to make open-ended and complex inferences regarding the psychological state of the target, and (c) the accuracy of these inferences should be determined by directly contrasting them with the target's actual psychological state. That is, it has to be ecologically sound, reflect actual social interactions and naturalistic inference forming, and the criterion for accuracy should be as authentic and reliable as possible. In his paper, Ickes further argued that none of the previous three accuracy research paradigms discussed had fully met all three of these criteria. Unsatisfied with previous methodological approaches, Ickes et al. (1990) developed a procedure that they termed "the dyadic interaction paradigm" which they believed met all three requirements, and which provided the beginnings of a new area of accuracy research focused on the inferences of psychological states.

In this procedure, two individuals, a dyad, are led into a room and left alone together while the researcher makes a fake pretext for leaving and excuses him/herself. The spontaneous interaction that occurs between the dyad in the researcher's absence is unobtrusively filmed. The researcher returns and debriefs the dyad in relation to the

surreptitious filming and acquires their permission to proceed further with the experiment. Both individuals are then asked to independently review the film of their interaction. They are asked to stop the video whenever they remember specific thoughts or feelings they were having during that interaction, and to record both these and the time at which they occurred. In this way they build up a chronological record of their thoughts and feelings during the recorded interaction. Subsequently, the individuals are again asked to watch the film. This time the video is stopped for them at the time points that their partner has indicated remembering a specific thought or feeling. The individual's task is then to make an empathic inference, and to write down what they believe their partner reported thinking and feeling at that point. Empathic accuracy is then determined by comparing each individual's self-reported thoughts and feelings with their partner's empathic inference. A team of independent raters assess the similarity of each pairing of inferences and self-reports and an average score for each individual is calculated.

The dyadic interaction approach has several advantages, being both temporally extended and allowing participants to form complex and detailed inferences of their own as opposed to selecting responses from a limited list. It also allows the interdependence of participants' inferences to be more fully explored; the perceiver is actually involved in the interaction, and individuals can react to each other and play an active role. For example, a husband may judge that his wife is not feeling upset during a discussion about a previous argument, and so may be more frank and open about the event, allowing his wife to more accurately infer his own thoughts and feelings. Alternatively he may decide his wife is becoming irate and so he may become more guarded and in doing so decrease the accuracy of his wife's inferences. Each interaction is also unique and directly involves the participants of any study in the interaction. Thus, it can be argued it is more representative of actual social interaction than the previous research paradigms developed. Additionally the criterion for accuracy is based upon the target's own self-selected moments and self-reports. Although a drawback of this approach is that the number of inferences any participant can make is dependent on how many incidences of thoughts and feelings are reported by their partner. It is possible that one individual may be asked to make only a handful of inferences resulting in very few data points. This makes determination of accuracy more difficult and could reduce the validity of the measure. Finally, congruence is

based upon averaged ratings of several individuals as opposed to a direct one-to-one comparison such as found in the target or meta accuracy paradigms.

Despite being a powerful tool, Wilhelm and Perrez (2004) have recently suggested that the ecological validity of the finding from this paradigm is suspect for a number of reasons. First, the laboratory setting may influence the dynamics of any interactions; participants may feel imposed upon by the experimental setting in which they are being filmed, such as in the waiting room scenario when the experimenter leaves, or they may be further influenced by non-spontaneous interaction studies where participants are filmed and instructed to discuss a particular issue such as a marital problem or other topic (e.g., Kilpatrick, Bissonnette, & Rusbult, 2002). Second, the relatively short duration of the interactions (e.g., 5 or 10 minutes) in previous studies does not reflect changes that can occur over time in extended interactions. Third, in most prior studies the range and intensity of thoughts and feelings were restricted, with participants' engaging in what amounted to 'small talk'. Consequently they proposed that future studies using this paradigm would do well to tackle some of these issues, *sampling real interactions in real contexts, which have meaning and importance to those involved.*

However, despite the issues raised about its ecological validity, the unstructured dyadic interaction paradigm remains a powerful tool and has been used extensively in social psychology research in the last two decades to explore a variety of relationships such as strangers (Thomas & Fletcher, 2003), friends (Stinson & Ickes, 1992), romantic partners (Kilpatrick, Bissonnette, & Rusbult, 2002), and siblings (Neyer, Banse, & Asendorpf, 1999).

Ickes and colleagues' approach to assessing the accuracy of moment-to-moment inferences has also been further adapted by Marangoni, Garcia, Ickes, and Teng (1995). Their adapted procedure is identical in that it involves the filming of naturalistic interactions between individuals who are then asked to watch the video and report the specific thoughts and feelings they remember having. However, following this the video recording and self-reported thoughts and feelings are then used as the stimulus materials for other observers. The video can be shown to multiple observers who were not involved in the interaction, and the criterion for accuracy is the self-reported thoughts and feelings of those actually depicted in the recordings. In this design, participants watching these standardised videos are asked to infer the target's thoughts and feelings at the points reported by that individual, the similarity of which is then assessed by a

team of independent raters. Thus, this procedure is still temporally extended and uses a repeated-measure, stills allows participants to form complex and detailed inferences, and the criterion for accuracy is still based upon the target's own self-reports. While the dyadic interaction paradigm is useful for exploring empathic accuracy and how the relationship between individuals affects it, this alternate procedure provides an assessment that is more suited to exploring the individual factors of both observers and targets that affect accuracy (Ickes, 2001).

2.4.6 Rationale for changing paradigms

Ickes (1997) highlighted that a gradual, temporally overlapping, and chronological shift in research paradigms was evident in accuracy research over the last several decades. Research has shifted gradually from the investigation of stable and long-term traits and dispositions to the exploration of more short-lived and fleeting psychological states. At first this may seem counter intuitive; after all, early theorists seemed to be most concerned with moment-to-moment perception of psychological states. They stressed the importance of individuals being "sensitive moment-to-moment to changing... meanings" (Rogers, 1975), and asserted that "to be helpful [an individual] must be accurately empathic... with the [other]" (Truax & Carkhuff, 1967), and that it is only by being able to accurately infer what another is thinking and feeling *moment-to-moment* that one person can appropriately react to another in a given situation (Argyle, 1994).

Ickes (1997) attributed this shift to pragmatic concerns, and theoretical and methodological development. The primary reason for the early focus on stable characteristics was likely methodological. Inference of stable dispositions can easily be carried out in a simple manner by using pen-and-paper instruments, as opposed to the more complex and time involved open-ended inferences more typical in state inference. Additionally stable disposition inferences do not necessarily require the presence of the target. State inferences require some representation of the target as either video or audio clips, or their actual presence. Therefore the exploration of state inferences is far more involved and time-consuming in comparison to the investigation of the inferences of more stable dispositions. Theoretically, researchers have also suggested that knowledge of another individual's dispositions can help in the prediction of his/her behaviour or psychological state (Funder & Colvin, 1988). It is possible to argue that individuals may rely on the accurate inference of stable dispositions and traits when making these predictions rather than upon inferences about more transient

psychological states, thus justifying an early focus on dispositional inferences (Ickes, 1993).

However, Ickes (1993, 1997) argued that if an individual is to make accurate inferences about another's stable dispositions or characteristics, then this inference will be most accurate when based upon past knowledge and observation; that is, if an individual is to make accurate inferences about another's stable characteristics then this must at least be partially based upon them having previously made accurate inferences about more short-lived psychological states. Hence, the exploration of accuracy in regards to the inferences of stable dispositions would provide only a limited picture. Ickes concept of empathic accuracy focuses on the ability of individuals to accurately perceive *specific* thoughts and feelings of another *moment-to-moment* (Ickes, 1993). Empathic accuracy is perhaps the most challenging of inferential accuracy skills, but also one of the most useful, and perhaps the most representative of actual social interaction and processes. It is also perhaps one of the more valuable methods for exploring dyadic relationships as it focuses on actual interaction between partners, allowing the perceptions of both partners to be explored (Ickes et al., 1990).

2.5 Empathic process

The exact process of empathy, and how it leads to accurate inferences, is still not completely understood. However, most researchers agree that the mechanisms involved are rooted in a series of complex deductions based upon observation, memory, knowledge, and reasoning (Ickes, 1997). The Theory of Mind states that these deductions are moderated by the use of knowledge schema related to general, specific, and situational levels of knowledge (Leslie, Friedman, & German, 2004). Similarly, Funder's (1995) Realistic Accuracy Model states that accurate empathic inferences are dependent on the availability of relevant behavioural cues, and the ability of the perceiver to detect and appropriately use these cues. Accuracy then is founded upon the use of information about the target, the situation, and/or wider social knowledge. Important things to consider are either (a) those factors that increase the amount of information available to the perceiver (e.g., relationship and length of interaction with the target, individual differences in the target) or (b) those factors that influence how effectively this information is used (e.g., motivation, individual differences in the perceiver). These factors are likely interrelated on some level, and it is important to consider the limitations of motivation or ability on their own to increase the accuracy of

the perceivers' inferences; no matter how motivated someone is to make an accurate judgement, if they have little or no knowledge or information on which to base that judgement on, then the accuracy will still be limited (Pelham & Neter, 1995). The following sections then relate to the different sources of information that are available to an observer, factors that influence the observer's ability to use that information, and how these relate to the accuracy of inferences that they make.

2.5.1 Immediately available Information

The most obvious source of information in a social interaction would seem to be what the target actually says and does; information that is made immediately available during an interaction. These verbal and nonverbal messages provide a source of immediately available information that may provide an insight into the target. Gladwell (2005) describes "[our] ability... to find patterns in situations..." (p. 23), "where careful attention to the details... can tell us an awful lot" (p 47). For example, in a hypothetical training session an athlete has come to the conclusion that his coach is angry with him for failing repeatedly at a drill. The athlete feels this is not their fault and becomes stand-offish and angry as well. In response to this, the coach's behaviours and comments suggest surprise at the athlete's behaviour. The athlete may decide that the surprise displayed by the coach indicates that their own behaviours were unexpected and therefore it is unlikely that the coach was angry with them; realising this, the athlete's inferences about the psychological state of the coach may alter.

Ambady and Rosenthal (1992) have argued that this close attention to the immediately available information in a situation is more than sufficient to make highly accurate judgements. In a meta-analysis of 38 studies that had used variations of the affective accuracy paradigm, Ambady and Rosenthal (1992) found that perceivers observing an unknown target for less than five minutes in duration still predicted their criterion for accuracy with a significant average effect size of $r = .39$. They concluded that intuitive judgements about another could be highly accurate, and suggested that over-thinking may be detrimental to the accuracy of empathic judgements. In a follow up study of their own, Ambady and Rosenthal (1993) also had nine female students evaluate short video clips of 13 different college teachers instructing classes. They found that these judgements had a high positive correlation with evaluations of those teachers made by their own students at the end of the semester. While it may seem obvious that perceivers are using immediately available information in these situations, it is possible that they were simply making their inferences based upon stereotypes and

superficial characteristics, especially as the criterion for accuracy was most often perceiver consensus (Shweder & D'Andrade, 1980).

The amount of immediately available environmental information is largely dependent on the target's behaviours. It is more difficult to make accurate inferences about those individuals who do not communicate well, or who are difficult to read, and subtle or ambivalent in their reactions. Ickes, Marangoni, and Garcia (1997) found that when 80 students were asked to watch three different videos of clinical counselling sessions, the students were more accurate when observing the recording of a woman who was straightforward and articulate than when watching another recording where the target was closed and comparatively non-reactive.

Communication then is important, and has long been acknowledged as a key dimension of effective coaching (Vealey, 2005; LaVoi, 2007). It is through the process of communication that coaches impart knowledge, set the tone of the training session, and the interpersonal climate, whilst athletes provide feedback about their current psychological state, thoughts, and feelings. It is in the best interests of any relationship for both partners to maximise the effectiveness of their communication and minimise any ambiguity. Accurately perceiving the thoughts and feelings of each other allows individuals to reach an understanding of one another, and to adapt their own responses to maximise the desired relationship outcomes; if two individuals can not communicate and interact successfully then these goals will suffer (Thomas & Fletcher, 1997). For example, if a coach does not realise an athlete has become bored or frustrated with training, because the athlete hides his own reactions or the coach misinterprets them, then this will likely result in decreased motivation in the athlete which in turn will frustrate the coach, both of which will negatively impact on the athlete's performance. It benefits both individuals to minimise any misinterpretations by being as open as possible and by giving effective feedback both verbally and nonverbally. Communication appears to be one of the most important processes by which individuals acquire information that can subsequently be used to construct inferences about others (Thomas & Fletcher, 1997).

Further evidence for the importance of immediately available information to the making of accurate inferences comes from Stinson and Ickes (1992). They used a cross-sectional study to further investigate participants' self-reports about their thoughts and feelings experienced during a social interaction, and identified the percentages of these thoughts and feelings that were not directly related to the content of that social

interaction. They found a negative correlation between the percentage of thoughts and feelings not related to the immediate situation, and empathic accuracy. They concluded therefore that participants were at least partially relying on immediately available information to form their inferences, and that when this information became less relevant the difficulty of making accurate inferences increased. These ideas were further explored by Marangoni et al. (1995) who had participants view video recordings of counselling sessions and make inferences about the depicted patient's psychological state at fixed intervals throughout the recording. They found that participants' accuracy towards the end of watching a recording was greater than at its beginning. This meant that the more time the participant had to observe the target the more accurate they became, suggesting they were drawing upon immediately available information, and the greater the volume of this information accumulated, the greater the accuracy of the inferences. This finding was reinforced by an experimental condition used in their study, where half of the participants were given feedback about the recorded target's thoughts and feelings throughout the recording. These participants were found to display a significantly greater increase in accuracy than those not given feedback, suggesting that the more relevant the immediately available information was in a social interaction, the greater accuracy would be.

Despite the positive findings of these studies, Stinson and Ickes (1992) have argued that to thoroughly understand another's internal condition and be truly empathic, an individual must also have knowledge of the target's situation and past experiences, knowledge that is not always immediately available from the target, and that would be more readily available with increased levels of familiarity or association, a line of reasoning also supported by several other researchers (Thomas & Fletcher, 1997, 2003; Thomas, Fletcher, & Lange, 1997). They have argued that in the case of complex empathic judgements such as those involving the inference of specific thoughts and feelings, an association with the target is essential if a high level of accuracy is to be achieved.

2.5.2 Relationship

Another source of information about the target comes from the perceiver's relationship with them. Thomas and Fletcher (2003) defined this relationship as the degree of association between two people; a factor that can be measured both in terms of quality (e.g., relationship type; strangers, friends, romantic partners etc) and quantity (e.g., duration of a relationship). It has been suggested that as the level of association

between two people increases their knowledge and understanding of each other likewise increases (Fletcher, 2002). Given the assumption that increased information leads to the increased accuracy of empathic judgements, it would seem logical to suggest that as the association between two individuals increases their ability to make accurate empathic judgements about each other would also increase.

One of the earliest studies examining association used a target accuracy method, it attempted to replicate greater association by giving individuals increasing amounts of written information about a target (Weiss, 1979). They had mixed results, with increased information showing an improvement in interjudge agreement for inferences on one personality inventory, but not another. This approach has also been criticised as it is unclear how well written information relates to the knowledge gained through association or acquaintanceship with another. A more valid approach was pioneered by Funder and Colvin (1988) who, also using a target accuracy method, compared the accuracy of strangers and friends at inferring the personality traits of another. They found that interjudge agreement between friends was significantly higher than that between strangers.

Stinson and Ickes' (1992) study also investigated how different levels of association, as conceptualised by strangers vs. friends, affected empathic accuracy. They secretly video-recorded the spontaneous social interactions between 24 pairs of strangers and 24 pairs of friends. Their results showed that when the level of immediately available information was controlled for, friends were significantly more accurate than strangers at judging each others' specific thoughts and feelings. They concluded therefore that a closer association lead to increased knowledge about the target, which in turn lead to greater accuracy. Thomas and Fletcher (2003) also used a similar methodology to compare the accuracy of empathic judgements of dating couples, friends, and strangers. 50 couples were openly video-recorded during an interaction in which they discussed previously identified issues of conflict within their relationships. Each recording was reviewed by both partners who made self-reports about their thoughts and feelings during the interaction, as well as making inferences about their partner's thoughts and feelings. Each video was also watched by a friend of the couple and a stranger, both of whom made inferences about the partners' thoughts and feelings. The results showed that as association increased, as conceptualised by relationship type (stranger>friend>dating partner), so did empathic accuracy. Thomas and Fletcher (2003) also assessed the relative difficulty of inferring the target's thoughts

and feelings based solely on the immediately available information. It can be argued that, as the difficulty of making an accurate judgement increase, accuracy should decrease as relevant immediately available information decreases (Ambady & Rosenthal, 1992). However, Thomas and Fletcher (2003) reasoned that as association increased, an individual's reliance upon immediately available information would decrease, and this would therefore moderate the relationship between difficulty and accuracy. They found that while empathic accuracy of strangers, friends, and dating partners was negatively associated with the relative difficulty of an empathic judgement; this correlation was substantially higher for strangers than for friends or partners. This suggests that the increased knowledge of the target, decreased perceivers' reliance on immediately available information.

Taken together, the findings of Stinson and Ickes (1992), and, Thomas and Fletcher (2003) support the idea that the association between two individuals can be a key source of additional information on which to base empathic inferences. It can be argued that in situations where there is a large degree of relevant, immediately available information, the additional information gained from this association may not be such a crucial factor (Ambady & Rosenthal, 1992). However, there are situations where immediately available behavioural and contextual information is minimal or unrelated to the thoughts and feelings of the target. In these situations, individuals more acquainted or familiar with the target of their judgements will exhibit greater accuracy than those with a lesser degree of familiarity; their superior knowledge giving them an insight into each others' internal world.

While this concept of association may seem particularly pertinent to close friendships and romantic relationships, the closeness that can develop within the coach-athlete relationship should not be underestimated. Coaches and athletes can, and often do, form deep and meaningful relationships (Jowett & Poczwardowski, 2007). Glynis Nunn, described her relationship with her coach as "just as in a father-daughter relationship or in marriage", while Steve Cram called his coach "... another sort of father figure" (excerpts from Hemery, 1986). Coach-athlete relationships then go beyond being purely pedagogical in nature, and coaches and athletes may have a large body of knowledge about each other upon which to draw. The very nature of the coach-athlete relationship prescribes a degree of interaction. Coaches and athletes with greater levels of closeness are likely to display more trust, appreciation, and liking for each other, key factors in the level and quality of communication between them (Jowett

& Cockerill, 2003). Consistent complementary and reciprocating behaviours may also increase the accuracy of any inferences made by the coach and athlete as these would provide each individual with reliable personal theories about the structure of their relationship which in turn could act as a mental 'road map' for the inference of each others' psychological states (cf. Surra & Ridely, 1991).

However, the issue of the association between two individuals and the effect it has on empathy is further complicated when it is conceptualised as a quantity (i.e. duration of a relationship). Following our original logic, as duration increases individuals should in most cases gain a greater knowledge and understanding of each other, and will therefore be more accurate in their empathic judgements. Yet, as suggest by Funder's (1995) Realistic Accuracy Model, information will only be of use if it is recognised and appropriately used. Kenny and DePaulo (1993) have suggested that over long periods of time individuals involved in relationships become complacent and fall into habitual behaviours and reactions in regards to their partner. In this situation such is the extent of their familiarity and knowledge of each other that they rely solely on that, and begin make assumptions about their partner, lacking the motivation to closely monitor changes or immediate behavioural cues.

Using the dyadic interaction paradigm, Thomas, Fletcher and Lange (1997) assessed the empathic accuracy of 74 married couples from well established relationships (6-25 years). Their results showed a negative correlation between empathic accuracy and relationship duration. In a study examining more moderately developed relationships, Kilpatric, Bissonnette and Rusbult (2002) used a longitudinal design to assess the empathic accuracy of each couple for each year of the first six years of their marriage. They found that levels of empathic accuracy started to decline following the first year of marriage, and continued to do so throughout the marriage. Both Thomas, Fletcher and Lange (1997) and Kilpatric, Bissonnette and Rusbult (2002) concluded that their findings could be explained by increased complacency resulting in a greater dependency on stereotypes and habitual assumption, and a decreased motivation to correctly monitor and interpret immediately available information.

The combination of these two studies and the findings of Stinson and Ickes (1992) and Thomas and Fletcher (2003) suggest a curvilinear association between empathic accuracy and relationship duration. Empathic accuracy increases during the initial stages of association, such as friendships and dating (Stinson & Ickes, 1992; Thomas & Fletcher, 2003); as association increases it peaks in the early years of the

relationship (Kilpatric, Bissonnette, & Rusbult 2002), finally accuracy of judgements begins to decrease (Kilpatric, Bissonnette & Rusbult, 2002) and continues to do so throughout the later stages of the relationship (Thomas, Fletcher & Lange, 1997).

Again, this concept of association may seem particularly pertinent to marriages or other life-long partners. However, the duration of coach-athlete relationships is not inconsequential, Lance Armstrong was with his coach for over 15-years (Coyle, 2005), and three-time Olympian, Diane Konihowski worked for 16-years with her coach before retiring (Guttman, 1992). Coaching partnerships may exceed even this, spanning several decades over an entire athletic career. In line with the findings of Kilpatric, Bissonnette and Rusbult (2002), Jowett and Clark-Carter (2007) found in a study of the meta accuracy of coaches and athletes regarding their relationship and satisfaction, that athletes from newly developed relationships (0.5-2 years) were more accurate in their inferences than athletes in more developed relationships (3-12 years).

It would seem then that in the initial stages of a relationship, when interaction between partners is novel, partners are motivated to get to know each other and pay careful attention to one and other. This increases their information and knowledge of each other, allowing them to more empathically accurate. As the relationship progresses similar situations are encountered and individuals develop relatively stable interpretations of their partner's behaviours upon which they place increasing reliance. These habitual judgements lead to a decreased monitoring of more immediate informational sources, which in turn can result in decreased accuracy. It would seem then that the relationship between two individuals is an important factor that does not only influence empathy in terms of the amount of the information available to the perceiver, but that can also influence the motivation of the perceiver to recognise and effectively use that information.

2.5.4 Motivation to be accurate

It appears that an influential factor impacting upon the use of information is the importance to the perceiver of making an accurate judgement; how motivated they are to use readily available information in making an accurate inference. Even if the perceiver has access to information about the target, if for example they have knowledge of each other over many years, if they lack motivation to use that information then their accuracy will still be low. Alternatively, should the perceiver place great importance on the accuracy of the inference then his/her effort and hence accuracy may increase. In support of this idea Ickes et al. (1990) found that the

accuracy of inferences made by opposite-sex strangers about each others' thoughts and feelings increased in relation to their assessment of the strangers' attractiveness, and they postulated that it was the desire to form a positive relationship with the other that increased individual's motivation and effort in making those inferences.

The importance of the inference to the perceiver may also influence them in a profoundly different way. It has been suggested that in certain situations individuals may actually be motivated to be less accurate in their judgements (Thomas & Fletcher, 1997), reflecting not a lack of motivation to make an accurate inference, but an effort to be purposefully wrong. Simpson, Ickes, and Blackstone (1995) created an experimental condition where dating couples at a university were video-recorded while being exposed to slides depicting individuals at the same university who were currently single. Partners were asked to rate the attractiveness and sexual appeal of those individuals out loud, and later reviewed the recordings indicating how they felt at the time and what they thought their partners were thinking. They found that in those high risk situations where both partners had rated the individual on the slide highly, then the accuracy of inferences was greatly reduced. The effect was more evident in those partners who rated their relationship as having a high degree of closeness or insecurity. Simpson, Ickes, and Blackstone (1995) argued that this was a defensive strategy and that individuals sought to protect their own self-esteem and their relationship by failing to acknowledge their partners' true feelings. In relationships where partners perceive a large cost associated with its dissolution, it is likely individuals will be motivated to be inaccurate in their perceptions about potentially relationship threatening information (Thomas & Fletcher, 1997).

Motivation then is a powerful force, and would seem to be strongly associated with the nature of the relationship itself (Simpson, Ickes, & Blackstone, 1995). This is especially the case in relationships where individuals have contributed a great deal of time and effort to or where there are few alternatives, such as in professional coach-athlete relationships, those individuals may not always be accurate in their judgements despite access to rich sources of information about the target. This may protect the relationship, as threatening information is not acknowledged, but it could potentially lead to misunderstanding and leave important, chronic conflict issues unresolved. Alternatively, being in a highly desirable relationship, or having the opportunity to work with a particular individual such as a talented athlete or highly regarded coach, then individuals may be highly motivated to understand another in order to form and

maintain a positive impression (Ickes et al., 1990). The coach-athlete relationship not only incorporates close interdependence that may be developed over an extensive extended periods, but is also a relationship upon which the achievement of highly desirable outcomes for both the coach and athlete are based, and for which few alternatives may exist. As such it is likely that there are strong motivations inherent in the involvement of coaches and athletes.

2.5.5 Authority

While the quality and duration of a relationship seem to play an important role in acquiring information and how well it is used to make accurate inferences there are a variety of other factors related to the relationship that may also influence levels of empathy. It has been speculated that in any relationship where there is an imbalance of power, or where one partner has authority over the other, that the superior partner will display decreased levels of empathy while the subordinate member will exhibit increased levels (Snodgrass, Hecht, & Ploutz-Snyder, 1998). There are a variety of reasons why an imbalance in power may diminish or increase empathy. Those in power have at least some control over their partner and are therefore less dependent on them. They do not need to rely on an accurate understanding of others to accomplish their goals and are therefore less motivated to do so. Additionally, those in power often have increased demands on their attention. This gives them less resources on which to base their inferences and impacts on the time they have to develop a more comprehensive understanding (Fiske, 1993). Those in a subordinate position however have little or no power over their partner. They therefore need to be more sensitive to how their partner thinks and feels as their own wellbeing and the achievement of their goals depends on the ability to correctly modify their own behaviour and react appropriately to their partner (LaFrance & Henley, 1993).

Research investigating empathy in relationships where there is an evident power imbalance such as the parent-child or doctor-patient relationship, have tended to focus on the dominant member of the relationship using an individual rather than dyadic paradigm, making it impossible to compare partners' relative levels of empathy. However, in a recent study employing a dyadic methodology based on the meta accuracy paradigm, Jowett and Clark-Carter (2006) contrasted coaches and their athletes. In a comparison of how accurate they were at perceiving their partners perspective in regards to them and their relationship, Jowett and Clark-Carter found that athletes were significantly more capable of accurately inferring their coaches' feelings

of closeness than their coach was at inferring theirs. This lends support to the argument that subordinates will display greater accuracy. However the influence of authority may not be as simple as this hypothesis suggests.

In two related studies, Snodgrass (1992, 1985) randomly assigned partners to undertake a series of social interaction tasks. Participants were either allotted the roles of teacher and student (Snodgrass, 1985) or manager and employee (Snodgrass, 1992). Participants interacted for approximately an hour and were asked at 4 points to fill in questionnaires related to how what they were thinking and feeling during the activity, and what they believed their partner had been thinking or feeling. While Snodgrass in both cases found a significant effect for authority, it was shown that this effect had a two-way interaction depending on the content of thoughts and feelings being reported. They did find that the subordinate partners, in a similar fashion to those in Jowett and Clark-Carter's (2006) study, were more accurate at inferring their partner's thoughts and feelings about them (e.g. "My partner likes me") than their superiors were at inferring theirs. However, they also found that the superior partners in the relationships were more accurate at inferring their partners' thoughts and feelings about themselves (e.g. "I was a good student") than the subordinate partners were at inferring theirs. They interpreted these findings in regards to the roles superiors and subordinates play in a relationship. Subordinates need to be sensitive to what their superior thinks and feels about them in order to react appropriately. However, the superior's role is often to evaluate the subordinate. This is particularly the case in pedagogical relationships like teacher-student or coach-athlete relationships, where the superior must express their opinion about what the subordinate needs to improve or adjust. In those situations it may be particularly valuable for the superior to know how their subordinate views themselves and their own abilities, and so the superior will be more motivated to use available information to make accurate inferences in regards to this.

The coach-athlete relationship has been described as one where the coach's control is indisputable and absolute; one where the athlete is conditioned to submit without question to the control of the coach (Burke, 2001), suggesting that athletes would do well to closely monitor and suspect the motivations of their coach. If we were to apply the logic of Snodgrass, Hecht, and Ploutz-Snyder (1998), the athletes' reduced power requires that they be more sensitive to how coaches think and feel. Some support for this idea is evident in the findings of Jowett and Clark-Carter (2006), who found that athletes were more accurate than coaches at inferring their partners

feelings towards them in regards to affective elements of their relationship, such as trust, appreciation, liking and respect. However, the meta accuracy methodology employed by Jowett and Clark-Carter (2006) is focused on the accuracy of inferring partners perceptions about the observer (e.g., "My coach likes me"). The work of Snodgrass (1992, 1985) suggests that perhaps in situations where the coach has to infer what an athlete is thinking and feeling about him/herself, as a coach may be required to do in an instructional setting, the coach would be more accurate than the athlete would be if the athlete was called on to infer what the coach was thinking or feeling about him/herself.

2.5.6 Gender

An important issue related to authority and motivation, is that of gender. A popularly held stereotype is that women possess a greater insight and sensitivity into the feelings of others than men (Ickes, Gesn, & Graham, 2000). This suggest that people as a whole believe that there is a differential ability between genders; that women as a group possess some inherent difference that makes them better perceivers than men. Snodgrass (1985), however, has argued that the traditional subordinate status of women in society may have led them to exhibit greater empathy which has lead to this stereotype; suggesting any differences in gender are primarily one of differential motivation rather than ability.

Graham and Ickes (1997) conducted a qualitative review of ten studies that used the empathic accuracy paradigm and also reported the gender of participants. They found only 3 out of 10 reported a significant difference between genders. The first seven studies conducted revealed no differences, while the last three studies found women to be significantly more empathically accurate than men. The only differences between these studies was that the final three had used a slightly modified self-report form that asked perceivers to rate how well they thought they had inferred the targets' psychological states after making each inference. Ickes, Gesn, and Graham (2000) have suggested that the differences found for gender were due to the women involved being aware that their empathic ability was being evaluated.

Eisenberg and Lennon (1983) have found that women self-report higher levels of empathy than men, and women have also been shown to view empathy as more important to their self-concept than men (Gilligan, 1982). Snodgrass (1985) argues that this is because the traditionally perceived subordinate role of woman has created a climate where women believe that they should be more empathic. Therefore, women's

beliefs about their own empathic abilities may motivate them to be more empathic in situations where they are aware they are being evaluated. If this is the case we would expect that women would be more accurate in situations where (a) they were aware empathy was being evaluated and/or (b) the expectation of their gender-role was made salient. This is supported by the findings of Klein and Hodges (2001); they compared male and female college students undertaking an empathic accuracy task. They found that women were only better at inferring the thoughts and feelings than men when they were given a task of assessing their own feelings of sympathy toward the target prior to inferring the thoughts and feelings of that person. This task was also repeated with another sample, this time with both males and females being given monetary payments directly related to their accuracy. In this case no gender difference was found, suggesting the original difference was one of motivation and not ability.

Researchers have also suggested that the imbalance of power in the coach-athlete relationship is particularly pronounced where a male coach is working with a female athlete; that the dynamics of that type of relationship are intrinsically about the power over the female athlete (Tomlinson & Yorganci, 1997). It could be argued that this increased imbalance of power is due to the traditional subordinate role of women to men being reinforced by placing them in a situation where the nature of their relationship naturally gives the male coach power over them. If this is the case then it can be argued that when a woman's gender-role is made salient, such as in this case when the traditional subordinate roles of a woman is reinforced, then that woman will display increased empathic accuracy. This suggests that female athletes with male coaches will display higher accuracy than male athletes or coaches of either gender.

The concepts of authority and gender therefore seem closely related. Research supports the theory that in certain situations athletes will be more accurate in their empathic judgements than coaches (Jowett & Clark-Carter, 2007), and that this may be due to increased motivation due to their subordinate role within the relationship (Snodgrass, 1985). In addition, we can speculate that female athletes with male coaches may be even more accurate due to increased motivation as a result of their subordinate role within the coach-athlete relationship, which in turn further reinforces their traditional gender-role (Snodgrass, 1985).

2.5.7 Additional individual differences

Even if the influence of gender on accuracy is unlikely to be one of differential ability, the question still remains concerning other individual factors. Are there

characteristics of an individual that allow them to more accurately perceive and effectively? While intrinsically appealing, this area of research has consistently been confounded and contradictory. Funder (1995) wrote, "although historically the good judge is the first potential moderator to have been addressed by research, it remains the one for which, to date, the accuracy literature has the sparsest data and fewest firm findings..." (p. 660).

In 1955, Taft attempted to evaluate the few studies then currently available. In a qualitative review analysis, Taft concluded that while evidence was sparse, the best potential correlates for researchers to explore were intelligence, psychological adjustment, and aesthetic interest. Since that point many studies have explored individual factors and empathy. However, given the vast array of factors examined, and the often conflicting findings, overall conclusions remain elusive. More recently Davis and Kraus (1997) structured this research into a more cohesive whole in their quantitative meta-analysis. They examined 36 studies that had explored over 32 different individual factors using a variety of empathy methodologies. Davis and Kraus divided these factors into five broad categories; intellectual functioning, cognitive style, adjustment, social sensitivity, and interpersonal orientation. Their findings were similar to Taft's (1995). They found that while accuracy appeared to be associated with all five categories, the mean effect size was extremely modest, and many variables that they had classified as a single broad factor displayed contradictory effects. The strongest and most consistent finding for any category were intellectual functioning (.23), and cognitive style (.16).

Ickes et al. (2000) suggested that perhaps these modest findings were actually a result of the methodologies employed. They reviewed five papers that each explored empathic accuracy using a different approach. They found that individual variance in the accuracy of perceivers was most evident in designs in which a large set of participants were asked to infer the thoughts and feelings of the same set of targets, and least evident in those studies where each perceiver viewed a different target. Ickes et al. (2000) suggested then that standardised stimulus approaches, where the relationship between individuals was controlled for, would be optimal for exploring individual differences. To investigate this further they then applied the most important individual factors related to intellectual functioning and cognitive style identified by Davis and Kraus (1997) to this research design, in order to maximize the chances of producing reliable findings. They found that even in this apparently optimal design the effect size

of each individual factor was relatively small and in some cases contradicted the findings of Davis and Kraus (1997).

Despite these rather mixed findings, it is evident that there are some inherent differences between individuals that allow some to be better perceivers than others. Marangoni et al. (1995) had participants view three different video recordings of counselling sessions while making inferences about the patient's thoughts and feelings. They found that some participants were reliably better than others at accurately inferring patients' thoughts and feelings across all three videos. This suggests then that people do reliably differ in their ability to make accurate inferences about others. Hence, this further suggests that certain individuals possess some differential ability that gives them an advantage.

Additional evidence comes from a series of studies (Ponnet, Roeyers, Buysse, De Clercq, & Van der Heyden, 2004; Roeyers, Buysse, Ponnet, & Pichal, 2001) where researchers tested adults with pervasive developmental disorders (PDD); individuals that have difficulty using and understanding language, and relating to people, objects, and events. Using empathic accuracy tasks based on standardised stimulus, PDD and control participants both watched videotaped interactions between strangers, and in all cases the task clearly showed differences between the group with PDD and the control group.

The links between PDD and empathic accuracy are in agreement with Taft (1995), Davis and Kraus (1997), and Ickes et al. (2000), who all found some evidence to suggest that intellectual functioning and cognitive complexity played a role in empathy. Additionally, Thomas, Fletcher, and Lange (1997) have previously found a significant association between men's education level and their empathic accuracy. One possible explanation is that in those tasks where individuals are allowed to make naturalistic inferences, those with higher intellectual functioning, especially in regards to verbal intelligence, may simply have higher empathic expression. That is, they are better able to express the inferred psychological state that they believe the target is experiencing. This would not necessarily reflect a lower empathic ability but instead a problematic measurement issue. Further evidence for this comes from Ponnet, Buysse, Roeyers, and De Corte (2005), who found that those with PDD performed normally at empathy tasks where inferences were selected from a pre-determined list, but in more naturalistic inference tasks where inferences were in their own words, their empathic accuracy was significantly lower than a control group. This however does not explain

the significant association between intellectual functioning and empathy seen using other methods (Davis & Kraus, 1997), and the importance of its role remains unclear.

It has long been held that developmental and personality disorders have a negative impact on empathy (Roeyers et al., 2001; Guttman & LaPorte, 2000). It could be argued then that one of the most important differences between individuals may therefore be related to personality. The most prevalent theory in personality research is the Five Factor model that describes personality as five basic traits which go by a variety of names but that are referred to here as extraversion, agreeableness, conscientiousness, emotional stability, and imagination (Matthews & Deary, 1998). There are sound theoretical reasons why personality should correlate with empathy. In particular, agreeableness which refers to the quality of interaction with others (Costa, McCrae, & Dye, 1991), conscientiousness, which has been shown to correlate negatively with psychoticism, which in turn is defined as a lack of empathy (Aluja, García, & García, 2002), and imagination which represents openness to intellectual experiences and as such could be seen as comparable to intellectual functioning which has previously been linked with empathy (e.g., Ickes et al. 2000). So far however, research is far from conclusive, del Barrio, Aluja, and Garcia (2004) found that while empathy was positively correlated with agreeableness, extraversion, conscientiousness, and imagination, regression analyses revealed that this association was negligible. Taken together with the Ickes et al. (2000) paper then it seems that while individual factors do have a role to play, it is perhaps of less importance than those factors more related to the quantity and quality of information available.

Interestingly, sport psychology also has a long history of exploring individual differences, and these play a key role in different conceptualisations and models of coaching (e.g., Chelladurai, 1993; Côté, Salmela, Trudel, Baria, & Russell, 1995; Smith, Smoll, & Curtis, 1978). It may be that some of these differences may play a role in empathy. Particularly interesting may be those individual factors unique to the coach-athlete relationship such as coaching qualifications, experience, and training. While the effectiveness of coach education has not been systematically evaluated (Lyle, 2007), it may be that this training plays a role in the effectiveness and expertise of coaches, the way in which they interact with their athletes, and ultimately how well they can accurately perceive and understand them.

2.5.8 Similarity

As well as the role individual differences play in how empathically accurate people are, the similarities between a perceiver and target individual may also influence accuracy. The richest and most readily available source of information available to an individual on which to base their inferences comes from their own thoughts, feelings, personal attitudes, and past experiences. It is thought that a perceiver making inferences about a target may possibly consult this body of knowledge, using any perceived similarities between him/herself and the target to aid in taking others' perspective and constructing empathic inferences (Hoch, 1987). Although obviously these perceived similarities will only increase the accuracy of inferences if they themselves are accurate.

Numerous studies using target and meta accuracy methodologies have explored the degree to which similarities between individuals impact upon the accuracy of judgements about the target, and have found a positive association between the two (e.g., Neyer, Banse, & Asendorpf, 1999; Sillars, Pike, Jones, & Murphy, 1984). There is however a long running debate in the literature as to the reasoning behind this association. If, as suggested by Hoch (1987), it is a product of careful evaluation on the part of the perceiver as to the degree of similarity between themselves and the target, then it represents an important empathy mechanism. However, if assumed similarity is a product of egocentric function, and the perceiver has difficulty seeing the world from any viewpoint but his own, then the increase in accuracy is coincidental – the perceiver assumes everyone is like them and judges accordingly, and in the few instances where there is an actual similarity accuracy will appear higher. In those circumstances, it is like all egocentric functioning, likely to be a hindrance when trying to adopt the perspective of another (Chandler, 1977; Piaget 1929). In reality it is likely that both the careful evaluation of similarities and a degree of egocentric functioning exist, and it is therefore important to separate the process behind an assumption of similarity in any study examining its relationship with empathy.

Thomas, Fletcher, and Lange (1997) have also investigated the idea of similarities in psychological states, by comparing the similarity in thoughts and feelings of the partners with the accuracy of the inference made about their partner at that specific point. Thomas, Fletcher, and Lange (1997) called this shared cognitive focus, and defined it as "the actual similarity between the contents of the partners' thoughts and feelings at the same point... considering the degree to which the same topic was being addressed" (p. 843). They argued that this similarity would increase empathic

accuracy because individuals can not only perceive with greater ease what their partner is thinking about, but they can also rely on their own reactions as a basis for inferring the thoughts and feelings of their partner. Their findings revealed a modest relationship between similarity and accuracy, suggesting that it may play a role in situations where factors may cause shared cognitive focus to vary.

There exists evidence therefore that similarity in either a stable factor like personality, or similarity in a current psychological state may increase the accuracy of inferring the same in another. Additionally, Stinson and Ickes (1992) suggested that partners who had similar personalities would be more likely to "see things the same way" and therefore more easily understand each other's perspective. That is, similarities in stable factors like personality would make it easier for them to take on the other's perspective and more easily infer their psychological states. Stinson and Ickes (1992) found that friends were more likely to have similar personalities than strangers, and that friends were more accurate at inferring the current psychological state of their partner. This is possibly another explanation for why better-acquainted couples are more accurate in their inferences of each other.

Similarity may play an important role in empathy within the coach-athlete relationship. Jowett and Clark-Carter (2006) found that higher similarities in the way in which coaches and athletes viewed the quality of their relationship was related to the accuracy with which they inferred each others views of the relationship. Additionally, researcher have shown that sport context influences perceptions of similarities in sport. Salminen and Liukkonen (1996), in a survey of 68 Finnish coaches and their 400 athletes, found that coaches and athletes' perceptions of the leadership behaviours being used were more similar in individual sports than in team sports. More recently, Vargas-Tonsing, Myers, and Feltz (2004) questioned 78 team-sport coaches and their athletes about their perceptions of effective efficacy building. Results showed a degree of congruence in the perceptions of only two of twelve techniques assessed, and a particularly large degree of incongruence in perceptions of instruction and verbal persuasion. Hence, it could be argued that coaches and athletes in team sports seem to have a lower level of mutual understanding or similarity than those in individual sports, which in turn could influence their empathic accuracy. This may relate to the way in which coaches interact with teams or individual athletes, the size of the group they work with, and the duration and quality of the interactions between them.

The ability to find similarities and use them to aid in the construction of empathic inferences may also be of particularly relevance in situations where the perceiver does not have the same role or is not experiencing the same situational variables as the target. Such is often the case in the coach-athlete relationship as the coach and athlete have different roles and responsibilities. For example, if a coach watches his athlete lose a competition, they are unlikely to be experiencing the same thoughts and feelings at that moment in time. However, the coach can use perceived similarities in personalities or other factors to justify the use of other sources of information such as their own past experiences. The coach may have competed previously as an athlete themselves, and remember what it felt like to lose; if the coach believes that the athlete and himself share similar characteristics, perhaps that they are both very competitive or hold their sport in great importance, the coach may believe the athlete to be experiencing a similar psychological state to that he experienced when he himself lost a competition, and so uses this information to construct his inference.

2.6 Conclusion

Despite a history of research spanning the better part of century, the literature pertaining to empathy is far from complete. Many unanswered questions remain, and new and innovative approaches to answering these questions are still being put forward. It is not enough simply to explore what makes an individual an accurate judge. Researchers must investigate how the type and context of the relationship, and the individual's place within it, influences these judgements, as the processes and motivations involved likely vary between relationships (Colvin & Bundick, 2001). The majority of research to date has explored social and romantic relationships, only a minority of research investigating the various helping-type relationships that exist. The coach-athlete relationship is unique. It shares many of the qualities of other service providing relationships such as the teacher-student and doctor-patient relationship, yet its prolonged duration, personal and intricate social interactions, and often deep involvement of relationship members in different aspects of each others lives marks it as profoundly different. While these very same characteristics would seem to indicate a degree of similarity with parent-child relationships, the coach-athlete relationship is markedly different due to the greater power the athlete can wield, especially manifest in their ability to choose alternatives to that relationship. Hence, not only does the exploration of empathy offer a potentially unique perspective on the mutual

understanding that exists between a coach and an athlete, the exploration of those processes within that relationship will also increase our understanding of empathy as a whole.

2.7 The current project of research

Little is known about empathy in the coach-athlete relationship. Yet the accuracy with which people perceive each other is considered not only an important facet of romantic relationships, and friendships (Thomas & Fletcher, 2003), but also the coach-athlete relationship (Jowett & Clark-Carter, 2006). Rogers (1951) argued that a key component of helping-type relationships such as counselling, teaching, and coaching, was the ability to communicate back the accurate understanding of the others' internal condition. He suggested that this ability was essential in providing guidance and assisting in others' personal development. Rogers (1957) and more recent researchers (e.g., Ickes, 1993, 1997) have also stressed the importance of the accurate perception of moment-to-moment changes in others in developing a greater understanding of all aspects of them (e.g., psychological states, dispositions, personality traits etc). It is therefore vital for researchers to understand how coaches and athletes perceive each other, and the accuracy of these perceptions moment-to-moment.

The first and most important question to be addressed then is whether it is possible to measure empathic accuracy moment-to-moment within the context of a sports training environment. How useful then are the methodologies in helping researchers understand the processes by which coaches and athletes perceive each other, and in how they reach some level of accuracy?

It would seem prudent, if we are to establish if and how empathy exists within the coach-athlete relationship, to examine the inferences made by both the coach and the athlete. Additionally, if we are to understand how empathy influences how the coach and athlete work together, then it is important to examine understanding and empathy moment-to-moment in actual interactions. The moment-to-moment interaction methodologies such as the dyadic interaction paradigm developed by Ickes and colleagues (Ickes et al., 1990) are powerful research tools. They are representative of actual social processes, and as such offer a valuable insight into how individuals actually understand each other while interacting, making them far more ecologically sound than pen-and-paper methodologies. As such, they are perhaps one of the more

valuable methods for exploring dyadic relationships such as the coach-athlete relationship.

Despite this, there still exists scope for improvement. Although more ecologically valid than pen-and-paper instruments, researchers have raised concerns about their ecological validity (Wilhelm & Perrez, 2004). Interactions in the majority of previous studies have been very short, sometimes only a few minutes, and the laboratory setting used to host their discussions may have influenced interaction between participants. If we are to explore coaches and athletes' understanding of each other in the coaching process, then this should be undertaken in the primary context in which the interaction between a coach and an athlete unfolds. That is, the training environment, during the practice of the skills, techniques, and the strategies of their sport. As such, assessment of their empathic accuracy should utilise naturalistic interaction in an appropriate setting.

While the Dyadic Interaction approach would seem an ideal tool for exploring the ideas of empathy within the coach-athlete relationship, careful consideration of its application is needed. Previous studies using this approach have all been conducted within social psychology laboratories (e.g., Ickes et al., 1990; Stinson & Ickes, 1992) and while this may be suitable for the exploration of friendships, romantic partners, and strangers, it is less relevant to the coach-athlete relationship. The majority of interaction in a typical coach-athlete relationship occurs during training and competition, which may take place in a variety of contexts such as in a gym, place of training/competition (e.g., playing field, running track, swimming pool). The context of any interaction is likely to have an impact on empathic accuracy; training equipment, clothing and practices may influence the type and amount of immediate behavioural information that is available, and the context may have an impact on the contents of any discussion.

In the majority of situations the interaction between the coach and athlete will be broken up; for example, in a training session, interaction between the coach and athlete will be in small chunks interspersed with the athlete carrying out a training task. This may have an impact on the way in which any recording can be used, and will define those points when inferences are being made. In either case, maintaining spontaneous interaction that is not influenced by bias or social desirability issues caused by knowledge of being filmed may be problematic. Secretly filming, while also having ethical issues, is challenging and impractical in the environment in which athletes train,

which may not have suitable locations in which to conceal recording equipment and which may also have many other coaches and athletes training in close proximity.

It would seem the most reasonable to be honest with the coach and athlete, but give them an extended time frame for filming and not inform them of which elements of their session the research is concerned with (i.e., the interaction and their understanding of each other). While this approach would not completely guarantee natural and spontaneous behaviour, it does allow the researcher to minimise social desirability while still allowing the coach and athlete to be observed in a naturalistic context. The value of exploring empathic accuracy in these contexts must be weighed against any potential issues and limitations, and a decision reached dependent on the explicit goals of each individual study.

The second and third questions to be addressed concerns assessing how factors specific to the coach, the athlete, and their context, are associated with the accuracy with which they perceive each other. These are important in order to provide a degree of validity to the methodology being applied, as well as explore how the unique characteristics of the sport training environment and the coach-athlete relationship influence and are influenced by empathy. A large amount of evidence regarding previously highlighted correlates of empathy and accuracy exist in the literature concerning other relationship types. Hence, it is essential in the early stages of these investigations that researchers allow this previous knowledge to guide them. Therefore, researchers need to look at previously highlighted antecedents and outcomes in other relationships while carefully considering how these would apply to the unique context and structure of the coach-athlete relationship.

The final question that needs to be addressed is whether the level of accuracy can be altered. Griffith (1925) argued that it is important to remember that the role of a sports psychologist is not only the development of theory and the understanding of psychology in sport, but also to be able to *communicate back to coaches and athletes* principles and guidelines which allow them to improve. An important part of this project of research then is to show that empathy can be altered and improved.

In summary then, the current project of research addressed the questions:

- (a) Can empathic accuracy be measured in an actual training situation?
- (b) How do factors specific to the coach, the athlete, and their context influence their accuracy?
- (c) Is empathic accuracy important for coaches and athletes?
- (d) Can we alter the level of accuracy of coaches' interpersonal perceptions of their athletes?

2.8 Chapter Summary

Chapter 3 (Study 1) presents and tests an appropriate methodology for assessing empathy in coaching sessions. Using a cross-sectional design, it provides evidence for the validity of a methodology by assessing the correlates of empathy and comparing these with previous results, as well as looking at some of the most prominent features of the sports training context.

Chapter 4 (study 2) focused on previously identified outcomes of the coach-athlete relationship. Using the same methodology employed in study 1, it investigated satisfaction and performance, and their association with how coaches and athletes perceive each others' beliefs about their relationship, and how accurate they are at making inferences about each other during actual training sessions.

Chapter 5 (study 3) explores how coaches' accuracy during training sessions can be affected by the quality of feedback they received from an athlete. Using an experimental lab-based design, it investigated how the accuracy of coaches' inferences could be improved by altering the quality of that feedback whilst accounting for individual differences.

Chapter 6 summarises the findings of the previous three studies. It discusses the sum total of this research programme, and considers its contribution to the understanding of the coaching process and how it furthers the field of empathy as a whole. Finally it discusses future methodological approaches and research directions that need to be pursued in order provide a more complete understanding of this topic.

Chapter 3

Study one: Empathic accuracy in coach-athlete dyads who participate in team and individual sports

3.1 Abstract

The purpose of the present study was to investigate the empathic accuracy of coach-athlete dyads participating in team and individual sports. An adaptation of Ickes's (2001) unstructured dyadic interaction paradigm was used to assess the empathic accuracy of 40 coach-athlete dyads. Accordingly, each dyad was filmed during a training session. The dyad members viewed selected video footage that displayed discrete interactions that had naturally occurred during that session. Dyad members reported what they remembered thinking/feeling while making inferences about what their partner's thought/felt at each point. Empathic accuracy was estimated by comparing self-reports and inferences. The results indicated that accuracy for coaches in individual sports was higher than coaches in team sports. Shared cognitive focus also differed between team and individual sports, and fully mediated the effect of sport-type on coach empathic accuracy. Moreover, coaches whose training sessions were longer demonstrated increased empathic accuracy. Finally, female athletes were significantly more empathically accurate than male athletes when working with a male coach. The results suggest that the dynamics of the interaction between a coach and an athlete play a key role in how accurately they perceive each other

3.2 Introduction

The purpose of this thesis is to investigate empathy, specifically empathic accuracy, in the coach-athlete relationship. Chapter 2 reviewed previous accuracy measurement paradigms. The empathic accuracy paradigm known as the unstructured dyadic interaction paradigm would seem of all these methods to be the most valid, assessing empathic accuracy in a way that most closely resembles how empathic inferences are made in real situations (Ickes, 1997). Despite its strengths it has been criticised for its use of laboratory based social interactions of relatively short durations (Wilhelm & Perrez, 2004).

Whilst Ickes (2001) has argued that this paradigm can be used to measure empathic accuracy in many types of relationships, empathic accuracy has remained unexplored in the coach-athlete relationship. The purpose of this first study then was to answer the question: Can empathic accuracy be measured in an actual training situation? In order to address this question an adapted version of the unstructured dyadic interaction paradigm was employed. To establish the validity of this measurement a number of hypotheses based upon previous findings in other relationships types were examined. Subsequently, this study also addressed the question: How do factors specific to the coach, the athlete, and their context influence their accuracy?

Team versus individual sports and group size. Coach-athlete relationships occur across a spectrum of different sports, and the nature of a sport may potentially influence the level of empathic accuracy that coaches and athletes exhibit. The coach-athlete relationship unfolds in either individual sports where the athlete competes individually (e.g., gymnastics, badminton, boxing) or in team sports where the athlete competes as part of a team (e.g., football, rugby, hockey). Researchers have described how the dynamics between the coach and the athlete may vary between these two broad categories of sports (Bloom, Durand-Bush, Schinke, & Salmela, 1998; Jowett, Paull, & Pensgaard, 2005). Salminen and Liukkonen (1996) investigated the perceptions of the leadership behaviours of 68 Finnish coaches and their 400 athletes. They found that perceptions of leadership behaviours between coaches and athletes in individual sports were more similar than in team sports. They interpreted this finding by arguing that coaches and athletes of individual sports have more and better opportunities to develop close relationships. It is believed that in individual sports the coach and athlete operate on a one-to-one basis, and even though the coach may train with several athletes, the

focus is on individual development and progression. In contrast, in team sports the focus is upon the synergy between players and the performance of the team; therefore athletes will most often train as a group, working together, with the coach overseeing the whole (Bloom et al., 1998).

If coaches and athletes in individual sports do develop closer relationships than those in team sports then it can be argued that they will also have higher empathic accuracy. Funder's (1995) Realistic Accuracy Model states that the more information that an individual has on which to base an empathic inference the more accurate they will be. Previous empathic accuracy research has shown that those involved in closer relationships have a greater knowledge about each other (Stinson & Ickes, 1992; Thomas & Fletcher, 2003). Additionally, Funder (1995) states that the more motivated an individual is to use information the more accurate they will be. In individual sports the coach and athlete operate on a one-to-one basis while in team sports the focus is more upon the synergy between players (Bloom et al., 1998). It can be argued that the coach and athlete in an individual sport will be more motivated to make an accurate inference, while in team sports the focus on groups will downplay the importance of making an accurate inference about any single individual. Thus the first hypothesis was formulated.

Hypothesis 1. Coaches and athletes in individual sports will display higher empathic accuracy in comparison to those involved in team sports.

Shared cognitive focus. Shared cognitive focus is a notion introduced by Thomas, Fletcher, and Lange (1997). They defined it as "the actual similarity between the contents of the partners' thoughts and feelings at the same point... considering the degree to which the same topic was being addressed" (p. 843). They claim that this similarity increases empathic accuracy because individuals can perceive with greater ease what their partner is thinking about and can rely on their own reactions as a basis for inferring the thoughts and feelings of their partner (Thomas et al., 1997). For example, if a coach is focused on the technical instruction they are giving, it is reasonable that they would assume that their athlete would also be focused on this. However, if the athlete thinks the coach is talking about a different technical point, or is focused on something different (e.g., an upcoming drill or what other athletes are doing) it will be more difficult for the coach to accurately perceive what that athlete is thinking and feeling.

Jowett and Clark-Carter's (2006) finding that coaches rely on how similar they actually are (i.e., actual similarity) with their athletes to draw accurate inferences about them as individuals (i.e., empathic understanding) provides some support for this claim in the coach-athlete relationship context. Thus, because it is believed that addressing similar issues and perceiving them in a similar way makes it easier for an individual to make accurate inferences about their partner's thoughts, the second hypothesis was formulated.

Hypothesis 2. Empathic accuracy will be positively associated with shared cognitive focus.

Within the notion of shared cognitive focus, it is also important to consider the group size of team and individual sports. Considering the group size of a sport, regardless of whether it is a team or individual sport, may enable a clearer interpretation of the relationship between empathic understanding and team versus individual sports. This notion is based on Carron, Hausenblas, and Eys's (2005) assertion that larger groups require the coach to take a more central role which inevitably affects the amount of one-to-one interaction. Moreover, individuals in larger groups have been shown to display less congruence in their shared goals (Carron et al., 2005; Hare, 1981). Thus, because the increasing size of a group can change the dynamics and interactions of the individuals, the following two hypotheses were formulated.

Hypothesis 3. Empathic accuracy and shared cognitive focus will decrease as groups increase in size.

Hypothesis 4. Shared cognitive focus and group size will mediate the relationship between sport type (i.e. team versus individual) and empathic accuracy.

Relationship and contact time. Researchers (Thomas & Fletcher, 2003) in the empathic accuracy field have found that accuracy increases during the initial stages of relationships, before decreasing in the later stages of the relationship. The idea of relationship duration would seem particularly pertinent in sport, where it may take many years for an athlete to progress to the higher levels of performance, taking as long as 10 years of training to develop the expertise needed to compete at the highest levels (see Ericsson, 2003). Jowett and Clark-Carter (2006) found that athletes in moderately developed (2 or fewer years in duration) as opposed to established relationships (greater than 2 years in duration), demonstrated higher levels of empathic accuracy. It was explained that athletes are more motivated to observe their coaches closely in an

attempt to get to know them during the early stages of the athletic partnership (Jowett & Clark-Carter, 2006). Based on the above, the following hypothesis is proposed.

Hypothesis 5. Empathic accuracy will be negatively associated with relationship duration.

Gender of athlete. Researchers have suggested that the imbalance of power in the coach-athlete relationship is particularly pronounced where a male coach is working with a female athlete; that the dynamics of that type of relationship are intrinsically about the power over and dominance of the female athlete (Tomlinson & Yorganci, 1997). While the issue of authority and empathy is a complex one (Snodgrass, Hecht, & Ploutz-Snyder, 1998), Snodgrass (1985) has argued that the traditionally perceived subordinate role of woman has created a climate where women believe that they should be more empathic. If this is the case then it can be argued that when a woman's gender-role is made salient, such as in this case when the traditional subordinate roles of a woman is reinforced, then that woman will display increased empathic accuracy. This suggests that female athletes with male coaches will display higher accuracy than male athletes in a similar position. Based on this idea, the final hypothesis was proposed.

Hypothesis 6. Female athletes with male coaches will have significantly higher empathic accuracy than male athletes with male coaches.

3.3 Method

3.3.1 Participants

Forty coaches ($M_{age} = 29.45$ $SD = \pm 10.7$) and forty athletes ($M_{age} = 21.35$ $SD = \pm 3.87$), forming 40 coach-athlete independent dyads were recruited from a range of team ($n = 21$), and individual sports ($n = 19$). Coach-athlete dyads had been together for an average of 18.6 months ($SD = \pm 30.34$), trained for an average of 2.68 sessions per week ($SD = \pm 1.42$), for 1.86 ($SD = \pm 0.41$) hours at a time. Sixty percent ($n = 24$, 60%) of dyads had a male coach and male athlete, 22.5% ($n = 9$) a male coach with a female athlete, 7.5% ($n = 3$) a female coach with a male athlete, and 10% ($n = 4$) a female coach and female athlete. Coaches had been involved in coaching for an average of 7.98 years ($SD = \pm 7.87$). Athletes had an average competitive experience of 6.69 years ($SD = \pm 4.49$). The performance level of the participants was categorised as follows: regional (30%), national (35%), and international (35%).

3.3.2 Procedure

Coach-athlete dyads were approached via either the coach or the athlete using a variety of means including personal contact, email, and letter (see Appendix III). Participants were invited to take part in a study exploring how coaches and athletes interact during training. Brief descriptions of the study's aims and practical implications were supplied with information related to confidentiality and anonymity, as well as the voluntary nature of the study. Coaches who volunteered to participate were allowed to select the athlete they worked with. Allowing coaches to select the athlete increased their willingness to participate, additionally it increased the chances of selecting a willing athlete and having both the coach and the athlete available throughout the study. It is possible that this may have introduced a degree of positive bias (i.e., coaches selecting athletes with whom they would appear more able). When questioned about their choice, coaches had based athlete selection on a range of criteria (e.g., new athletes they wanted to develop a rapport with, older athletes they wished to analyse their relationship with, difficult athletes so the coach could analyse their own coaching, or most often simply the athlete who was most likely to be available), suggesting that while numerous biases in selection existed amongst coaches, they were not aligned across the entire sample.

There were two criteria for participation: (a) both coach and athlete participants were at least 18 years of age, and (b) athlete participants were actively engaged in training under the supervision of the coach they would work with in the study, and also participated on a regular basis in competitions. Prospective participants who expressed an interest completed informed consent forms before any further involvement. Ethical approval was granted by the University's Ethical Advisory Committee before the data collection phase of the study.

3.3.3 Materials

Collection of video-footage. The protocol is based on Ickes and colleagues' (Ickes, 2001; Ickes et al., 1990) methodological paradigm. This paradigm was modified appropriately to reflect the context in which coach and athlete interactions naturally occur. A mutually convenient date and time were identified for the video recording of a typical training session. Coaches were asked to wear a small portable lapel microphone that allowed their conversations to be remotely recorded directly onto the video camera. This meant filming could be done from a distance with a zoom function – minimizing

disruption caused by filming. Coach and athlete dyads were also asked to conduct the session as they normally would. After briefing the coach and the athlete, the researcher had no further interaction with them until the conclusion of the training session. The session was recorded from an unobtrusive position. Although the coach and athlete were ideally kept in shot the whole of the session there were instances when this was not possible.

Editing. The video-recording of each dyad's training session was uploaded to computer and reviewed by the first author. As the training sessions in this sample varied in length (from 20 minutes up to 4 hours) and were most often far longer than the brief discussions used in previous empathic accuracy research, a representative sample of discrete coach-athlete interactions was used.

All interactions between the coach and athlete were first identified. Interactions were rejected if sound quality was poor enough to make dialogue unclear or the view of the coach or athlete was obscured. Interactions were identified as being where a single topic or issue was addressed. For example, a coach and athlete may have talked continuously for several minutes, first about a drill and then about a future competition. This would be divided into two interactions. Interactions were sampled using a simple formula: 20% of sampled interactions were selected from the first third of the footage (usually the-warm up phase), 50% from the middle (main training session), and 30% from the final section (usually the cool down and conclusion). No criterion based upon types of behaviour/interaction was used. This gave a representative sample from across the training session. Selected interactions were compiled into a continuous video, with each discrete interaction sequence separated by 80-seconds of blank footage. 12 ($M = 11.53$, $SD = 0.93$) episodes of interaction were selected as a sufficient amount, giving a range of interactions from across the training session, without making the end video so prohibitively long that coach-athlete dyads would be unwilling to participate.

3.3.4 Data Collection

Collection of thought and feeling data. The day following the video-recordings, coach-athlete dyads attended the laboratory (see figure 3.1) where each member of the dyad was asked to independently review the video. Participants were each given a standardised coding sheet on which to record their thoughts and feelings, like the one Ickes and colleagues use in their studies (Ickes, 2001; Ickes et al., 1990; see Appendix D).

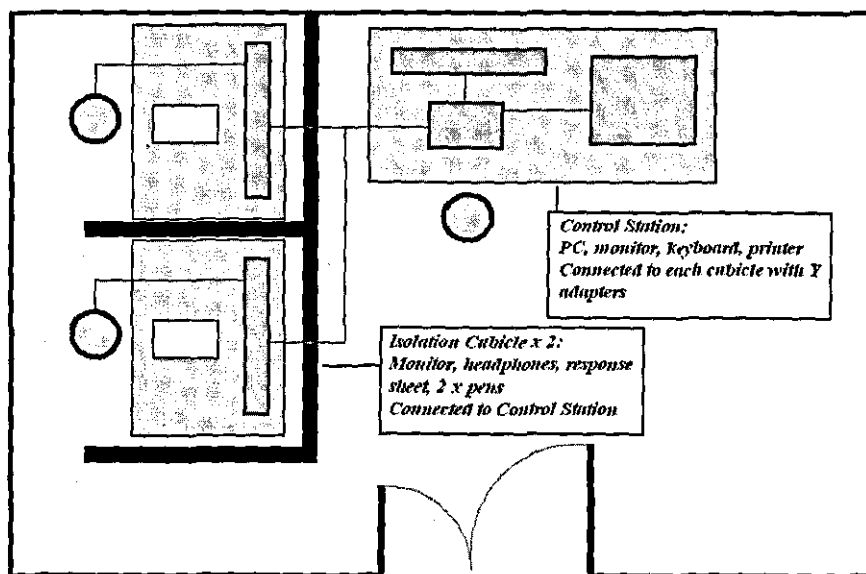


Figure 3.1 – Laboratory layout

The coding sheet was broken down into numbered sections, one for each interaction. Each section was completed during the period of blank footage following the viewing of an interaction. Pilot testing of this method had established that an 80-second period was sufficient for participants to record their thoughts and feelings, while still placing a time pressure on them to more accurately reflect how inferences are made on a moment-to-moment basis. Participants were asked to only record what they clearly remembered experiencing during the training session and not to create new thoughts and feelings. They were told that their partner would not be allowed to see these responses. Three specific responses were required: (i) the general feelings they remembered experiencing, (ii) the specific thoughts they remembered having, and (iii) their interpretation of training at each selected point (i.e., positive, neutral, negative). Participants could report as many thoughts and feelings as they remembered experiencing during the depicted interaction (see Appendix IV for example data).

Collection of inference data. Each coach-athlete dyad was then asked to watch the video a second time. Participants were supplied with new coding sheets, identical to those used to record their own thoughts and feelings. This time the coach and athlete were instructed to watch the recording and at each break to record what they believed their partner had been feeling and thinking at that selected point in the training session, and how their partner would have interpreted it.

At the conclusion of this task, coaches and athletes provided various demographic data. These data included gender, age, performance level, relationship duration, the average number of trainings sessions together per week, and the average length of a typical training session. The coach and athlete were fully debriefed about the nature of the study, the variables involved, its purpose, and expected findings.

3.3.5 Calculating empathic accuracy and shared cognitive focus

Empathic accuracy. According to Ickes's (2001) computation of empathic accuracy scores, accuracy is calculated by comparing an observer's inferences with his/her targets's self-reported thoughts and feelings, for each of the selected interactions. Three raters independently assessed the similarity of each pairing (i.e., inferences and self-reports) using a 3-point scale: 0 – *essentially different*, 1 – *similar, but not the same*, and 2 – *essentially the same*. Typically there are 12 pairings, one for each interaction, each assessed by three raters to give a total of 36 ratings (see Appendix IV for example pairings). These ratings are then used to calculate an aggregated score. Summing the ratings given by each of the three raters for each of the pairings and then dividing this value by the total number of ratings, typically 36, to do this. This aggregated score will be a value ranging from 0 to 2. To make this score easier to interpret it is multiplied by 100 to produce a score between 0 and 200, which is then divided by 2 to produce a percentile score describing the level of accuracy: 0% *describing total inaccuracy* and 100% *describing perfect accuracy*.

The empathic accuracy scores of the present study were corrected for accurate inferences based purely upon chance as follows. Individuals' self-reported thoughts and feelings were randomly paired with their partners' inferences. Each inference and self-report was printed on an individual slip. These slips were then mixed in a box before a single inference and a single self-report was blindly selected to make up each pairing. Three raters then independently scored the similarity of the content of these random pairings using the same method described above (see Appendix IV for example pairings). The resulting score (called baseline accuracy, see Ickes et al., 1990) was subtracted from the original empathic accuracy score to yield a chance-corrected value. From this point onwards all references to empathic accuracy refer to this corrected value. The inter-rater reliability for the original empathic accuracy measure was 0.88 for both coaches and athletes, and 0.82 and 0.81 respectively for the baseline accuracy measure.

Shared cognitive focus. As described by Thomas et al. (1997), shared cognitive focus was calculated by comparing self-reports made by both partners for each interaction (see Appendix IV for example pairings). Three raters independently scored the similarity of the content of these pairings and a mean value was then calculated. The degree to which the same topic was being addressed by both the coach and the athlete was rated as, 0 - *different topics*, 1 - *similar topics*, 2 - *the same topic*. As with the calculation of empathic accuracy described above, this produced 3 ratings for each interaction, typically given a total of 36 ratings. This score was then aggregated using the same procedure described above for aggregating empathic accuracy; calculating a mean rating that was then multiplied by hundred, and then divided by 2 to give a percentile describing the degree of shared cognitive focus: 0% *describing total dissimilarity* and 100% *describing perfect similarity*. The inter-rater reliability for shared cognitive focus was 0.88.

3.4 Results

Hypothesis 1. This hypothesis explored whether athletes and coaches involved in individual sports as opposed to team sports would report higher levels of empathic accuracy. Empathic accuracy was compared using independent t-tests. Effect size was given as Cohen's *d value*, where *d* is calculated as the difference between the means of the two groups divided by the root mean square of the standard deviations of the two groups (Rosnow & Rosenthal, 1996). Effect sizes were defined as either: small, $d \Rightarrow 0.2$, medium, $d \Rightarrow 0.5$, or large, $d \Rightarrow 0.8$ (Cohen, 1988). There was a significant large effect, $t(38) = 2.50, p < .05, d = 0.81$, with coaches demonstrating higher empathic accuracy in individual sports. No significant difference was found for athletes. A significant medium-to-large effect for shared cognitive focus was also found, $t(38) = 2.23, p < .05, d = 0.72$, with coaches and athletes showing a higher shared cognitive focus in individual sports.

Hypotheses 2 and 3. Here it was anticipated that empathic accuracy would be positively associated with shared cognitive focus, and that both empathic accuracy and shared cognitive focus will be negatively associated with group size. Table 2 shows the bivariate correlations between these variables. Coach empathic accuracy was strongly correlated with shared cognitive focus, $r(38) = .63, p < .01$, whereas athlete empathic accuracy was not. Only shared cognitive focus was significantly and negatively correlated with group size $r(38) = -.40, p < .05$.

Table 1*Means and standard deviations for team sports, individual sports, and total sample*

	Team		Individual		Total	
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>
Coach empathic accuracy (raw)	36.01	10.99	46.11	13.92	40.80	13.32
Coach baseline accuracy	8.20	7.22	7.74	6.84	7.99	6.95
Coach empathic accuracy (refined)	27.80	13.70	38.36	12.97	32.82	14.23
Athlete empathic accuracy (raw)	38.27	12.27	43.67	11.28	40.84	11.97
Athlete baseline accuracy	8.47	7.53	8.19	7.94	8.33	7.63
Athlete empathic accuracy (refined)	29.80	12.30	35.49	12.83	32.51	12.72
Shared cognitive focus	27.99	11.41	36.04	11.39	31.82	11.97
Group size	14.10	8.59	8.53	13.15	11.45	11.20
Relationship duration	15.81	13.97	21.68	41.93	18.60	30.34
Sessions per week	2.67	1.28	2.68	1.6	2.68	1.42
Length of session	1.79	0.29	1.95	0.49	1.86	0.41
Coach age	28.24	6.53	30.79	13.16	29.45	10.17
Athlete age	20.86	2.29	21.89	5.10	21.35	3.87

Table 2*Correlations between empathic accuracy, shared cognitive focus, and group size*

Subscale	1	2	3	4
1. Coach empathic accuracy	-	.21	.63**	-.05
2. Athlete empathic accuracy		-	.23	.04
3. Shared cognitive focus			-	-.40*
4. Group size				-

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

Hypothesis 4. It was hypothesized that shared cognitive focus and group size would mediate the relationship between sport type (i.e. team versus individual) and empathic accuracy. However, as there was no significant differences between team and individual sports for group size or athletes' empathic accuracy, only the possibility of shared cognitive focus mediating the relationship between sport type and coach

empathic accuracy was further investigated. Baron and Kenny's (1986) procedures for mediation regression were followed. First, coach empathic accuracy was regressed on sport-type to establish if there was a relationship to be mediated. Sport-type significantly predicted coach empathic accuracy, $\beta = .38$, $t(38) = 2.49$, $p < .01$, explaining a significant proportion of the variance, $R^2 = .14$, $F(1, 38) = 6.23$, $p < .05$. Next, coach empathic accuracy was regressed on shared cognitive focus and shared cognitive focus was regressed on sport-type to establish if shared cognitive focus could act as a mediator. Shared cognitive focus significantly predicted coach empathic accuracy, $\beta = .63$, $t(38) = 4.95$, $p < .01$, $R^2 = .39$, $F(1, 38) = 24.53$, $p < .01$. Sport-type significantly predicted shared cognitive focus, $\beta = .34$, $t(38) = 2.23$, $p < .05$, $R^2 = .12$, $F(1, 38) = 4.96$, $p < .05$. Finally, coach empathic accuracy was regressed both on sport-type and shared cognitive focus. In this analysis the association between sport-type and coach empathic accuracy became non-significant, while shared cognitive focus still significantly predicted coach empathic accuracy $\beta = .56$, $t(37) = 4.24$, $p < .05$, while explaining a significant proportion of the variance $R^2 = .42$, $F(2, 37) = 13.51$, $p < .01$. As sport-type predicted no significant independent variance in coaches' empathic accuracy, the association between sport-type and empathic accuracy was mediated by shared cognitive focus.

Hypothesis 5. We predicted that athletes and coaches in longer athletic relationships and whose training sessions are longer in duration will be associated with high levels of empathic accuracy. Three variables addressed the amount of contact between coaches and athletes: overall length of the relationship, number of training sessions per week, and the length of these training sessions. Coach and athlete empathic accuracy were each regressed on these three variables. Only the regression for coach empathic accuracy was significant, $R^2 = .25$, $F(3, 36) = 5.38$, $p < .05$, with only training session length significantly predicting any variance, $\beta = .53$, $t(36) = 3.73$, $p < .05$.

Hypothesis 6. It was predicted that female athletes with male coaches would exhibit significantly higher empathic accuracy than male athletes with male coaches. There was a very large effect, $t(31) = 2.73$, $p < .05$, $d = 0.98$, with female athletes demonstrating higher empathic accuracy ($M = 41.32$ $SD = \pm 9.93$) than male athletes ($M = 29.82$ $SD = \pm 11.00$).

3.5 Discussion

The objective of this study was to investigate the role of empathic accuracy in the context of the coach-athlete relationship by assessing it during a typical training session where there is a plethora of interactions on a moment-to-moment basis. An adaptation of Ickes's (2001) paradigm was employed to obtain data of coaches and athletes' feelings and thoughts as well as their inferences of each others' feelings and thoughts. The analysis of the obtained data indicated coaches and athletes display a degree of error in their inferences, on average less than 40% accuracy, suggesting that a large proportion of the time they were unaware of what their partner was thinking and feeling. This is consistent with previous empathic accuracy research, which revealed lower than 50% accuracy in relationships such as friendships (Stinson & Ickes, 1992) and dating partners (Thomas & Fletcher, 2003). In addition, relatively low accuracy has also been observed in the coach-athlete relationship; Jowett and Clark-Carter (2006) demonstrated an average co-efficient of less than 0.30 between coaches' and athletes' direct and meta-perspectives of each other.

The relatively low accuracy scores reported above can be interpreted in two ways. First, it may indicate a genuine lack of accuracy and awareness on the part of coaches and athletes. Second, given the nature of the task, it may be that asking participants to consciously make inferences about each other is more difficult than what is likely a predominantly unconscious process in social interaction. Additionally, researchers have suggested that over-thinking inferences can lead to a decrease in accuracy (Ambady & Rosenthal, 1992). To separate these issues, future research will need to compare the degree of accuracy with the success of each interaction as an effective interaction can be seen as an indication of accurate inferences (Ciarrochi, Forgas, & Mayer, 2001).

Findings indicate that the distinct nature of team versus individual sports and group size can affect the empathic accuracy of coaches. This finding partially supports the hypothesis that higher levels of empathic accuracy will be demonstrated by those involved in individual sports as opposed to team sports. The present findings demonstrated that coaches in individual sports may have more and better opportunities to get to know their athletes and hence understand their thoughts and feelings than coaches in team sports (cf. Salminen & Liukkonen, 1996). Furthermore, the findings revealed that coaches in individual and team sports may be more accurate in their perception of athletes' feelings and thoughts for two interrelated reasons: (a) due to the

smaller group sizes they train, and (b) due to their shared cognitive focus. The findings from the mediational analysis highlighted that shared cognitive focus predicted substantially more variance in coach empathic accuracy than just sport-type alone, explaining over 40% of the variance. This suggests that shared cognitive focus is an important mechanism through which sport-type affects coach empathic accuracy.

Shared cognitive focus is obviously an important factor in coach empathic accuracy; it may also explain why no difference in athlete empathic accuracy was found between team and individual sports. First, coaches in team sports are more likely to interact with the group as a whole than those involved in individual sports, and interactions with any given individual athlete will be limited (Carron et al., 2005; Bloom et al., 1998; Jowett et al., 2005). Second, it is also likely that in team sports, what the coach is saying may not always apply to the whole of the group being addressed. On such occasions, athletes' minds may wander. Stinson and Ickes (1992) found that in situations where an individual was thinking about something other than the current situation, their partner had greater difficulty making accurate inferences about their thoughts and feelings. Hence, as the situation differs for coaches in team sports compared to individual sports, shared cognitive focus may become an influential factor on coaches' empathic accuracy than on athletes' empathic accuracy.

Thomas et al. (1997) have shown that when married couples were focused on the same task their empathic accuracy increased, they also explained that shared cognitive focus was less important when individuals were better able to pick up on contextual information such as verbal and nonverbal cues. The nature of the coach-athlete relationship means that interaction typically involves the coach playing a leadership role in orchestrating the training session. The coach is largely preoccupied with technical instruction or encouragement, strongly focused on the here and now. This focus on the here and now and abundant verbal information is likely to make it easier for athletes to make accurate inferences about what the coach is thinking and feeling even if they do not have a shared cognitive focus. Additionally, athletes usually have one principal coach, whilst coaches have a number of athletes to focus their attention on.

Relationship length in term of years revealed no association with empathic accuracy even when the frequency and length of sessions were controlled for. This conflicts with previous findings that have shown a correlation between relationship length and empathic accuracy (Thomas & Fletcher, 2003). It has been suggested that it

is only in relatively new relationships that the relationship length makes a positive difference to empathic accuracy (Stinson & Ickes, 1992), with newly formed relationships initially showing an increase in empathic accuracy that then decreases as the relationship continues (Thomas & Fletcher, 2003). The closest example in sport is provided by Jowett and Clark-Carter (2006), who found that moderately, developed relationships (6 months to 2 years) displayed higher levels of empathic understanding than those in more established relationships (greater than two years). In this sample, the majority of coaches and athletes were from relationships one and a half to two years long. Thus, future research should examine whether shorter and longer term relationships are significantly different in terms of athletes and coaches' empathic accuracy.

The only contact time variable to show any association with empathic accuracy was the length of the training sessions, and that was for coaches only. One possible explanation is that shorter training sessions, due to time constraints, are more focused on the task at hand (i.e., skill development and performance enhancement), whereas longer sessions allow time to talk, interact, and engage about sport as well as other topics outside sport. Another is that a longer training session is simply reflective of a more intensive task-oriented session with greater amounts of interaction.

Increased time together would afford coaches and athletes greater awareness and personal knowledge of each other, a factor that has been argued to have a positive impact on empathic accuracy (Stinson & Ickes, 1992; Thomas & Fletcher, 2003). It is also possible that coaches who are exposed to additional information about specific athletes from their parents, support staff, and other coaches and athletes may be more likely to make accurate inferences – even in the absence of shared cognitive focus (i.e., individuals are thinking about other things than the current location and events, cf. Stinson & Ickes, 1992). For example, if an athlete is distracted at training due to worries about home life, personal knowledge of that athlete's situation would allow a coach to accurately infer what the athlete was thinking and feeling, and the reason for their distraction. Longitudinal research would significantly enhance our knowledge of the temporal patterning of empathic accuracy.

As was expected, female athletes with male coaches demonstrated much higher empathic accuracy than male athletes with male coaches. Burke (2001) has described the coach-athlete relationship as one where coaches exert authority and power over the athletes. Similarly, Tomlinson (1997) argues the control that male coaches exert when

coaching female athletes is especially strong, describing female athletes as powerless and dependent. While some would argue this view to be extreme, past researchers have argued that in situations where females are placed in positions that reinforce a traditional subordinate gender stereotype, that their empathic accuracy will be higher (Snodgrass, 1985). Male coaches may need to be particularly sensitive to the power they wield over female athletes, and the potential differences between male and female athletes. Future researchers would do well to look at the potentially complicated interaction between coach gender and athlete gender. This would require a more comprehensive sample than was currently available for this study.

Ickes's (2001) paradigm has been used in social psychology research extensively to explore the ideas behind empathic accuracy; however, certain criticisms have been leveled at it. Wilhelm and Perrez (2004) have suggested that the ecological validity of the findings it generates is suspect because (a) the laboratory setting influences the dynamics of the interactions and (b) the relatively short duration of the interactions (e.g., 5 or 10 minutes) does not reflect changes that can occur over time in extended interactions.

The present study expands previous work by addressing such limitations. First, it strengthens the ecological validity of previous work and findings by assessing interactions of a more extended duration in the environment where they naturally occur (e.g., typical training session). Second, it broadens the knowledge base of empathic accuracy research by investigating a dyadic relationship that was not examined previously, namely, the coach-athlete relationship.

The validity of Ickes' (2001) paradigm is well established in the broader social psychological research, yet the validity of the adaptations made in the present study has yet to be established. The paradigm introduced and tested in this article opens up new avenues of investigation in both empathic accuracy and coach-athlete relationship domains. However, the present study's findings must be considered against the backdrop of its limitations. The measurement of empathic accuracy, a moment-to-moment process, is a highly problematic, involved, and time consuming process. The process of recall and inference may raise issues as to the validity of the findings. Participants may not clearly recall what they were thinking and feeling the previous day, and those involved in longer training sessions may have more difficulty in recalling exactly what was going on at any one point in time. Nonetheless, specific steps were taken to minimize this potential confounding effect. Moreover, it is

unknown whether such factors as who initiated the interaction and what type of exchange (e.g., social, instruction, encouragement, punitive), affect coaches and athletes' empathic accuracy. Additionally, we acknowledge that the classification offered here in terms of team versus individual sports is only one way of categorizing sport types. Other categorizations such as combat sports and non-combat sports, indoor and outdoor sports, feminine and masculine, wet and dry sports, may have offered different results. Finally, it is important to note that the correlational and exploratory nature of this investigation does not permit causal inferences to be made. Investigating possible causal relationships between these variables in future will require an experimental or longitudinal design.

Despite the exploratory nature of this investigation, the present study can provide some tentative guidelines for coaches. Coaches need to be aware that athletes will not always be focused on the same things as them, nor will they see things in a similar way. It is therefore important for coaches to establish a focus when interacting with an athlete. Coaches should also encourage feedback from the athletes to ensure that this focus is maintained and to check understanding. This should go beyond simply clarifying understanding in relation to instruction, but should include information regarding how the athlete thinks and feels about what is involved. Coaches and athletes should take time to develop an athletic partnership. This means not exclusively focusing on instruction and sport. Time should be taken outside training sessions, sessions lengthened, or less attempted within the allotted time, to allow for conversation and social interaction. Additional information sources are essential in understanding how an individual.

This is the first study exploring empathic accuracy in the coach-athlete relationship employing an adaptation of Ickes' (2001) methodological paradigm. Subsequently, there is great potential for future research. Researchers should examine the outcomes (e.g., satisfaction and performance) that are linked to empathic accuracy. For example, does coaches' empathic accuracy influence athletes' satisfaction and performance accomplishments? Future researchers should also explore how individual difference characteristics influence empathic accuracy. For example, are more experienced coaches with better training more empathically accurate? Meanwhile, researchers need to focus on contextual factors such as alternative classifications of sport type whilst considering the environment in which they are set.

In summary, the findings of the present study highlight that the dynamics of the interaction between a coach and an athlete play a key role in how well they can perceive each others' thoughts and feelings. They also highlight that coaches and athletes are not accurate in perceiving each others' thoughts and feelings, especially in the context of team sports. Finally, the present study presents a new methodological paradigm that, while well established in social psychology, is an innovative adaptation in the burgeoning research field of coach-athlete interactions and relationships that could be employed in future research to generate valuable insights expanding further our knowledge and understanding in this complex yet exciting area of research.

Chapter 4

Study two: Empathic accuracy, meta-perspective, satisfaction and performance in the coach-athlete relationship

4.1 Abstract

This study investigated the empathic accuracy of sixty coach-athlete dyads, its antecedents (meta-perceptions of relationship) and consequences (subjective performance, and perceptions of satisfaction). An adaptation of Ickes's (2001) unstructured dyadic interaction paradigm was used to assess empathic accuracy whereby coach-athlete dyads were filmed during training. A selection of video clips containing the dyads' interactions during a typical training session were shown to them. The dyad members were asked to report their recollected thoughts and/or feelings while making inferences about what their partner's thought and felt at specific points of interaction. Empathic accuracy was estimated by comparing the dyads' self-reports and inferences. The results of a structural equation model analysis indicated an association between members' meta-perceptions or judgments that their partner is positive about the athletic relationship and increased empathic accuracy. Increased empathic accuracy was in turn associated with higher levels of satisfaction, but for athletes' satisfaction with training and instruction. No links between performance and empathic accuracy were evident. These results are discussed based on issues they raise for theory and measurement.

4.2 Introduction

This thesis has argued for the importance of empathic accuracy in allowing coaches and athletes to achieve the desired outcomes of their relationship. Study 1 has shown that empathic accuracy can be measured in actual training situations, and the factors specific to the coach, the athlete, and their context influence do appear to influence empathic accuracy. The purpose of study 2 then was to address the question: Is empathic accuracy important for coaches and athletes? In doing this it's second purpose was also to continue to address the question: How do factors specific to the coach, the athlete, and their context influence their accuracy?

Researchers have suggested that an underlying factor of empathic accuracy, is the degree to which an individual is motivated to understand another or the degree to which one is willing to be empathic and make accurate inferences about their partner (Funder, 1995). Such motivation is thought, "to be particularly acute to the degree that 'more is at stake' – for example in interactions involving exceptionally important outcomes, or in relationships involving close interdependence..." (Bissonnette, Rusbult, & Kilpatrick, 1997, p. 258). Additionally, Bissonnette and colleagues (1997) explained that dyadic members' needs and goals are better dealt with when there is a strong desire to maintain a relationship because it is then that members' feel compelled to understand each other. It can be argued then that the more positively an individual views their partner and their partner's contribution to the relationship, the more motivated that individual will be to be empathically accurate and to work towards positive relationship outcomes.

The meta-perspective of the coach-athlete relationship. Jowett's (2007) model of the coach-athlete relationship, described in chapter 1, is primarily based upon the interdependence of three constructs, namely, closeness, commitment, and complementarity (Jowett, 2007). A fourth construct of this model, labelled co-orientation, encapsulates how those in the relationship perceive the first three constructs (Jowett, 2007). One of these perspectives, the meta-perspective refers to how coaches and athletes think their partners view the relationship. Meta-perspective is important because research has shown that individuals change their behaviour based on the subjective perception they hold about the perspective held by their interaction partners (meta-perspective) (see De Paulo, Kenny, Hoover, Webb, & Oliver, 1987). Because it is more likely for a partner (e.g., athlete) to alter their behaviour based on how they believe they are perceived (e.g., by the coach) when their partner is a significant other

or when the relationship is a significant one, the meta-perspective has also been viewed as a measure of the interconnection or interdependence between coaches and athletes (see Adie & Jowett, 2008).

The significance of meta-perspectives has been further supported in a series of qualitative research studies (Jowett & Cockerill, 2003; Jowett & Meek, 2000). Findings from this research highlight that coaches and athletes who believe that their partners hold positive views about relationship issues are more successful (e.g., "I felt appreciated by him...", "Without the coach's efforts, I could not have achieved results", "I did the best I could and so did he" extracts from Jowett & Cockerill, 2003). Olympiou, Jowett, and Duda (2005) have also revealed that athletes' meta-perspectives of closeness, commitment and complementarity were positively associated with a number of facets of athletes' satisfaction, including satisfaction with coaches' treatment and satisfaction with individual and team performance. More recently, Adie and Jowett (2008) examined 156 track and field athletes' meta-perspective of the coach-athlete relationship (i.e., how they believed their coaches viewed the athletic relationship) relative to their goal adoption and motivation types. They found that athletes' meta-perspective predicted the adoption of a mastery approach goal (i.e., task or self-referenced goals) which in turn promoted athletes' intrinsic motivation.

The evidence above suggests that a positive meta-perspective of the coach-athlete relationship is associated with a number of personal and interpersonal benefits. As an individual's higher meta-perspective represents a more positive view of their partner and their partner's contribution to the relationship, it can be argued that a higher meta-perspective will be associated with greater motivation to be empathically accurate. One explanation then for the association between a positive meta-perspective of the coach-athlete relationship and personal and interpersonal benefits is an increase in empathic accuracy.

Empathic accuracy. Like meta-perspectives, researchers have found that empathic accuracy is associated with a number of personal and interpersonal benefits, including appropriate social behaviour (Davis, 1983), positive communication (Davis & Oathout, 1992), willingness to compromise (Kilpatrick, Bissonnette & Rusbult, 1999) and relationship satisfaction (Acitelli, Douvan & Veroff, 1993). In sport, researchers have also linked appropriate coaching behaviours to both relationship and sport satisfaction, and to performance (Riemer, 2007). If the theory of emotional intelligence is correct, in that individuals use accurate perceptions of others to manage their own

appropriate social responses (Mayer & Salovey, 1997), then it is at least partially empathic accuracy that allows coaches to correctly select their behaviours, which in turn influence the satisfaction and performance of the athletes. Given the strong associations reported between coaching behaviours and athlete satisfaction and performance (see Riemer, 2007), and if, as suggested, empathic accuracy is one of the mechanisms by which coaches and athletes select appropriate behaviours during training sessions, then it is important to establish links between empathic accuracy and satisfaction and performance.

The present study explored variables that are postulated to affect (meta-perspective of the relationship quality) and variables that are affected by empathic accuracy (satisfaction and performance) by empathic accuracy. It is proposed that coaches and athletes' motivation to maintain a connection with one another is reflected in their meta-perspective (my view of your view of me within the coach-athlete relationship). As discussed earlier, from a theoretical and empirical point of view, positive meta-perceptions imply highly interdependent and invested individuals (i.e., athletes and coaches want and need their relationships). It is possible that positive meta-perceptions act as a motivation to understand each other because these individuals' goal is to enhance and maintain their relationship. Thus the first two hypotheses were formed.

Hypothesis 1. Positive perceptions of a partner's viewpoint (positive meta-perspective) will be positively associated with empathic accuracy.

Hypothesis 2. Positive perceptions of a partner's viewpoint (positive meta-perspective) will be positively associated with satisfaction and performance.

Additionally, empathic has been associated with a number of positive outcomes such as appropriate social behaviour (Davis, 1983) and relationship satisfaction (Acitelli, Douvan & Veroff, 1993). Given that researchers have linked appropriate coaching behaviours with both satisfaction and performance outcomes (Riemer, 2007) it was hypothesized that partners' empathic accuracy will also be associated with satisfaction and performance

Hypothesis 3. Empathic accuracy will be positively associated with satisfaction and performance.

4.3 Method

4.3.1 Participants

One-hundred and twenty coaches ($M_{age} = 31.72$ $SD = \pm 11.25$) and athletes ($M_{age} = 21.48$ $SD = \pm 4.25$), forming 60 independent coach-athlete dyads were recruited from a range of individual sports ($n = 36$: 60%; e.g., gymnastics, athletics, combat sports) and team sports ($n = 24$: 40%; e.g., rugby, football, hockey, cricket). Coach-athlete dyads consisted of both a male coach and a male athlete ($n = 37$: 61.77%), a male coach with a female athlete ($n = 14$: 23.33%), a female coach with a male athlete ($n = 5$: 8.33%), or a female coach and female athlete ($n = 4$: 6.67%). Dyads had been training together for an average of 24.44 months ($SD = \pm 39.40$). Dyads also reported the average amount of sessions per week they trained, including all form of training where they worked together (e.g., technical sessions, fitness, cross training); 1-2 sessions ($n = 37$: 56.9%), 3-4 ($n = 11$: 16.9%), and 5-6 ($n = 12$: 18.5%). Dyads trained for an average of 1.81 ($SD = \pm 0.57$) hours at a time. The performance level of the participating dyads was categorized as follows: regional ($n = 22$: 35%), national ($n = 21$: 36.67%), and international ($n = 17$: 28.33%).

4.3.2 Procedure

The procedure for the modified version of the unstructured dyadic interaction paradigm established in study 1 was followed in this second study. A range of 8 to 12 interactions were used for each participating dyad ($M = 11.23$, $SD = \pm 1.14$)

Empathic Accuracy. Empathic accuracy scores were calculated following the protocols used in study 1 and were corrected using a baseline accuracy score (Ickes et al., 1990). The inter-rater reliability for the original empathic accuracy scores was 0.90 for coaches and 0.81 for athletes, and 0.89 and 0.84 respectively for the baseline accuracy.

Meta-perspective. The meta-perspective of the Coach-Athlete Relationship Questionnaire (Jowett, 2008) was employed. This inventory includes two versions, one for the coach and one for the athlete. It assesses the quality of the coach-athlete relationship from a meta-perspective (i.e., how an individual believes their partner perceives the athletic relationship) across three dimensions. *Meta-Closeness* reflects individuals' affective interdependence and measures expressions of mutual liking, trust, and respect (e.g., 'My coach/athlete likes me'). *Meta-Commitment* reflects individuals' cognitive interdependence and measures expressions of a future together (e.g., 'My

coach/athlete believes that my career is promising with him/her'). Meta-*Complementarity* reflects individuals' behavioral interdependence or co-operative behaviors and measures expressions of responsiveness and friendliness (e.g., 'My coach/athlete is ready to do his/her best'). For this sample, the inter-item reliability for meta-closeness, meta-commitment, and meta-complementarity for the coach sample was, 0.85, 0.84, and 0.82 respectively, whilst for the athlete sample was 0.79, 0.64, and 0.73 respectively. Given high intercorrelations between the subscales, it was decided to aggregate to one single meta-relationship scale for the coach and one single meta-relationship for the athlete. Inter-item reliability for the aggregated scales was 0.93 for the coach and 0.88 for the athlete.

Satisfaction. Coaches' and athletes' facets of satisfaction were assessed using the Athlete Satisfaction Questionnaire (Riemer & Chelladurai, 1998). Two subscales were used to assess athletes and coaches' satisfaction: *Satisfaction with personal treatment* reflects satisfaction with a partner's behaviours that directly affect the individual such as support and positive feedback (e.g., 'I am satisfied with the recognition I receive from my coach/athlete'). *Satisfaction with training and instruction* measures an individual's satisfaction with the training and instruction being provided to the athlete (e.g., 'I am satisfied with the instruction I have received from the coach this season' and 'I am satisfied with the instruction I provided to my athlete this season'). For this sample, inter-item reliability for satisfaction with personal treatment was 0.90 and 0.81 for coaches and athletes respectively. The reliability for the satisfaction with training and instruction was 0.74 and 0.83, for coaches and athletes.

Performance. Athletes' and coaches' subjective view of the athlete's performance was assessed using the *Performance* subscale of the Elite Athlete Self-Description Questionnaire (EASDQ; Marsh, Hey, Johnson, & Perry, 1997). Due to the use of multiple sports in this sample, a more objective measure of performance was not possible. The performance subscale of the EASDQ is a 6-item measurement to which participants respond using a 6-point scale. The EASDQ assesses an athlete's views of their own performance (e.g. "I consistently perform to the level of my ability"). A version was also adapted to assess coaches' views of their athletes' performance (e.g. "My athlete consistently performs to the level of his/her ability").

4.3.5 Analytical Strategy

Data gathered from dyad members often shares either a heightened similarity or dissimilarity to each other compared to data collected from individuals who are not part of the same dyad. Partners can influence each other's perceptions, behaviours or outcomes, and variables measured for both partners (e.g., satisfaction) may have similar sources of variance. This means these paired variables are often nonindependent (Kenny, Kashy, & Cook, 2006). Early researchers often either listed all participants together regardless of dyadic association, resulting in inaccuracies in significance testing, or averaged out the results of dyadic partners, leaving them unable to separately analyze the differences in partners (Kenny, 1995).

Various methods for overcoming these limitations have been advanced in the last 20 years, and these are discussed exhaustively by Kenny, Kashy and Cook (2006). They suggest that when examining this type of data, it is ideal practice to treat it dyadically. This means that rather than having each participant listed as separate units of analysis or averaged out, in unit of analysis each variable must be iterated twice, once for each partner. This data can then be analyzed in a variety of ways. Kenny, Kashy and Cook (2006) suggest that a particularly useful approach is structural equation modelling. Kenny, Kashy and Cook (2006) draw attention to the fact that structural equation modelling allows for the testing of an entire model as opposed to examining individual coefficients, meaning both partners can be examined simultaneously.

Importantly, structural equation modelling allows the examination of correlated errors. Error values in structural equation modelling represent unspecified influences on measured variables (Reddy, 1992). Correlated errors suggest that variables have correlated common influence. This could result from a participant response bias or from a degree of commonality in variables (Reddy, 1992). Additionally, given that paired variables measure the same factor it seems reasonable to assume that they would have common external influences, and so it is expected that these will have correlated errors. Inclusion of correlated errors has been shown to affect the fit indices in structural equation modelling, and so their inclusion provides the most realistic assessment (Reddy, 1992). Hence, the present models were tested in two ways with and without correlated errors terms and with

4.4 Results

4.4.1 Descriptive Results

Table 4.1 presents means, standard deviations, and intercorrelations of the main variables of the study. Nonindependence was evident in this data set due to the significant correlations between coaches and athletes' paired variables (empathic accuracy, meta-perspective, and relationships satisfaction; see Table 4.1).

4.4.2 Structural Equation Modelling Results

In order to explore the association between meta-perspective, empathic accuracy, and perceived outcomes, a model representing their hypothesized associations was proposed based on the theory forwarded above. Given the nonsignificant associations between the subjective performance rating of either the coach or athlete and either of their empathic accuracy scores, only satisfaction variables were used. The coaches' and athletes' meta-perspectives acted as two exogenous variables. An association linked these with the partially endogenous variables of coach and athlete empathic accuracy, which was in turn, associated with the endogenous outcome variables of coach and athlete satisfaction. Associations also directly linked the two exogenous variables, coach and athlete meta-perspective, with the outcome variables of coach and athlete satisfaction. The error terms between coach and athlete variables were correlated, as were the errors between coach variables, and finally between the errors of the athlete variables. The model representing the hypothesized associations between variables was constructed and analyzed using the EQS 7.1 program (Bentler & Wu, 2002). This model was run twice, once for each assessed satisfaction variable. Goodness of fit indices were substantially improved by removing the correlations between the errors of coach variables and between the errors of athlete variables. The final models are depicted in Figures 4.1 and 4.2.

As there is no agreed-upon measure of model fit, standard practice is to report multiple fit indices (Hoyle & Panter, 1995). In this study, the following goodness of fit indices were used; (a) chi-square (χ^2), an absolute fit index; (b) comparative fit index (CFI), an incremental fit indicator; (c) root mean square error (RMSEA), an indicator of error-based fit; and (d) standardized root-mean square residual (SRMR), the standardized difference between the observed covariance and predicted covariance. Non significant χ^2 values, CFI values close to 1.00, RMSEA values under .05, and SRMR of less than .08 are generally considered good indicators of a well fitting model (see Hair, Anderson, Tatham, & Black, 1998; Hoyle & Panter, 1995).

Table 4.1*Bivariate Correlations, Means and Standard Deviations*

	1	2	3	4	5	6	7	8	9	10
Coach										
1. Empathic accuracy	-	.35**	.34**	.28*	.14	.31*	.17	.25	.25	-.23
2. Meta-perspective		-	.57**	.32*	.38**	.21	.37**	.38**	.31*	.06
3. Satisfaction with personal treatment			-	.43**	.31*	.26*	.33**	.47**	.24	-.03
4. Satisfaction with training/instruction				-	.27*	.19	.18	.27*	.32*	.16
5. Subjective performance					-	.24	.31*	.47**	.39**	.28*
Athlete										
6. Empathic accuracy						-	.26*	.25	.40**	-.06
7. Meta-perspective							-	.80**	.54**	.12
8. Satisfaction with personal treatment								-	.65**	.17
9. Satisfaction with training/instruction									-	.18
10. Subjective performance										-
Mean	32.39	5.29	5.51	5.26	4.46	32.95	5.49	5.69	5.83	4.18
Standard deviation	13.11	.77	1.01	.75	.84	15.06	.73	.83	.91	.79

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

Figure 4.1 depicts the described model using coach and athlete satisfaction with personal treatment as the outcome variables. The fit of this model was very satisfactory $\chi^2(6, N = 60), = 6.23, p = .40$; CFI = 1.00; RMSEA = .03; and SRMR = .08. In agreement with the hypothesized associations, the path coefficients between meta-perspective and empathic accuracy, and meta-perspective and satisfaction with personal treatment were significant for both coaches and athletes. However, the path coefficients between empathic accuracy and satisfaction with personal treatment were nonsignificant for both coaches and athletes. The correlations between coach and athlete meta-perspectives and between the errors of satisfaction with personal treatment were significant; the correlation between the errors of coach and athlete empathic accuracy was nonsignificant.

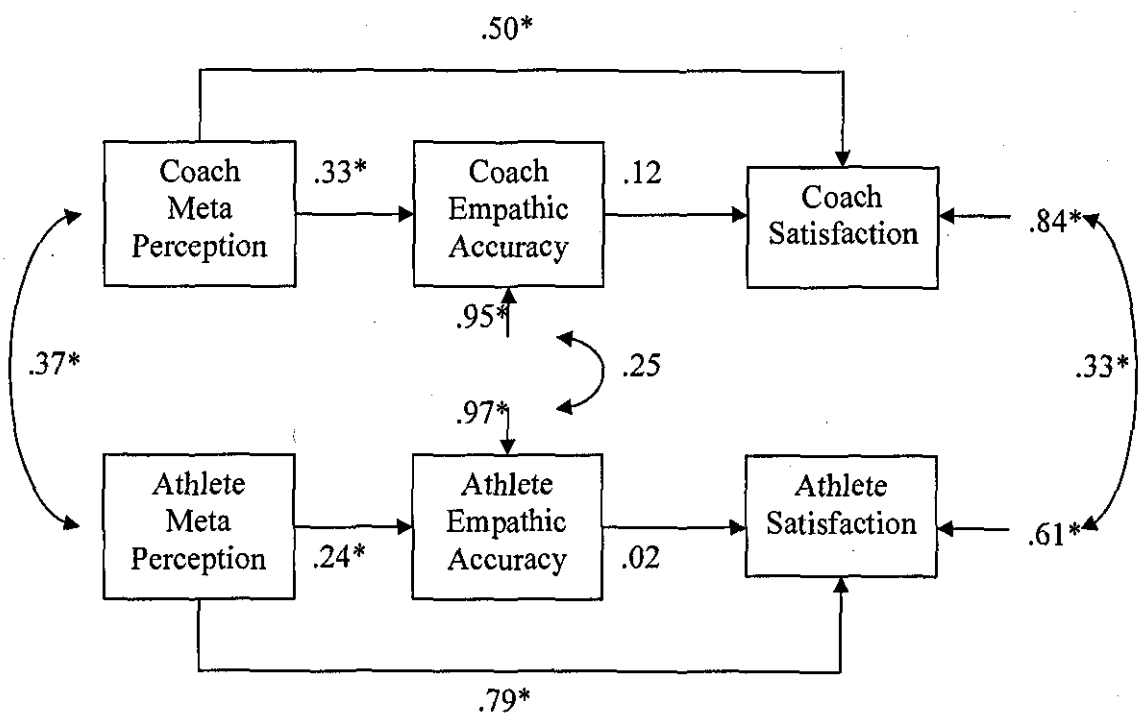


Figure 4.1 – Path Model with Satisfaction with Personal Treatment

* $p < 0.05$

Figure 4.2 depicts the described model using coach and athlete satisfaction with training and instruction as the outcome variables. The fit of this model was very satisfactory $\chi^2(6, N = 60), = 3.08, p = .80$; CFI = 1.00; RMSEA = .00; and SRMR = .06. In agreement with the hypothesized associations, the path coefficients between meta-perspective and empathic accuracy were significant for both coaches and athletes. However, the association between meta-perspective and satisfaction with

training and instruction was only significant for athletes. In addition the association between empathic accuracy and satisfaction with training and instruction was significant for athletes but not for coaches. The correlations between coach and athlete meta-perspectives were significant, but not between the errors of coach and athlete empathic accuracy or the errors of satisfaction with personal treatment.

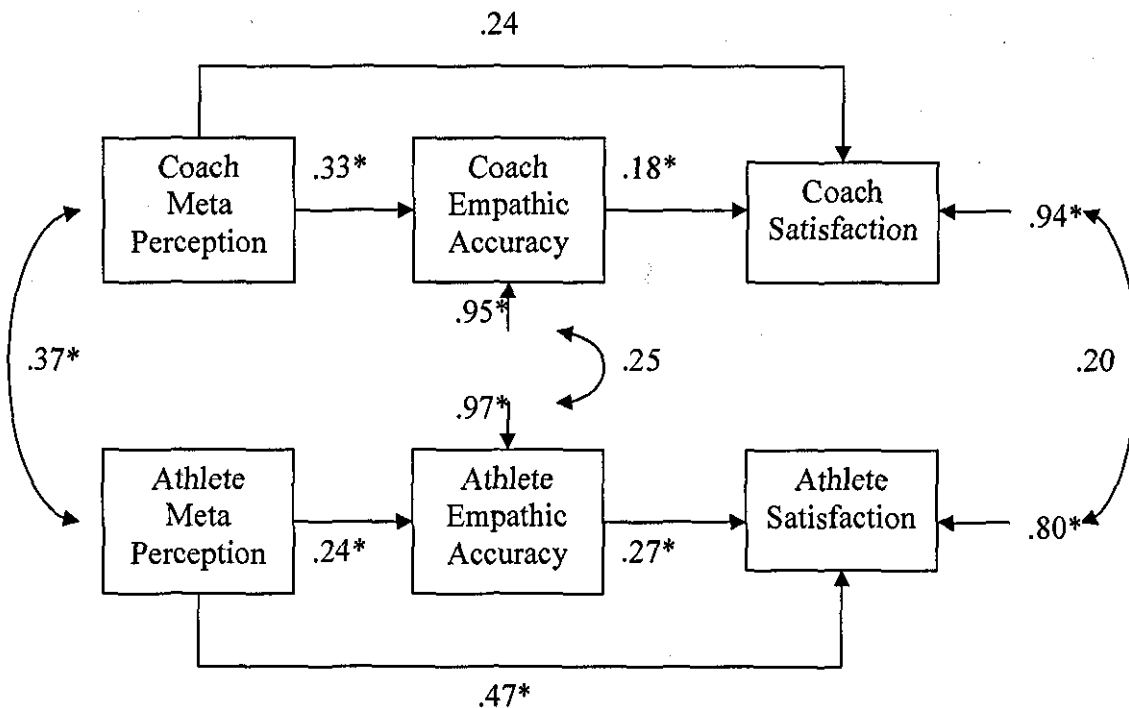


Figure 4.2 – Path Model with Satisfaction with Training and Instruction

* $p < 0.05$

4.5 Discussion

The current study explored variables that are postulated by theory and research to affect (i.e., meta-perspective of the relationship quality) and are affected (i.e., satisfaction with personal treatment, training and instruction, performance) by empathic accuracy. It was proposed that coaches' and athletes' desire or motivation to maintain a connection with one another would be reflected in their meta-perspective (my view of your view of me within the coach-athlete relationship); hence the more positive the meta-perceptions the more motivated coaches and athletes would feel toward understanding their interaction partners. It was also proposed that individuals who hold positive meta-perceptions and are more empathically accurate, are more satisfied; hence empathic accuracy would mediate the association between meta-perceptions of the coach-athlete relationship and satisfaction.

Findings indicated that coaches' and athletes' perceptions of their partners' viewpoint was positively associated with empathic accuracy (i.e., the more positive my view of your view the more accurate my inferences about you). These findings are in support of theoretical and empirical research (Bissonnette et al., 1997; Ickes et al., 1990). As in other types of relationships (see e.g., De Paulo et al., 1987), it may be that coaches and athletes alter their behaviors based on how they think others perceive them and their relationship more generally. Both sport psychology research and relationship psychology research have recorded strong correlations between direct and meta-perceptions (see Jowett & Clark-Carter, 2006; Kenny, 1994). Thus, athletes and coaches who believe that their partner is interconnected, as reflected in their meta-perspective, are likely to think that they themselves are highly invested and that their relationship provides rewards that cannot necessarily be fulfilled elsewhere (cf. Kelley, 1979). As our results support, this intersubjective experience is likely to lead individuals to exert greater effort toward understanding their interaction partner.

Coaches' and athletes' positive perceptions of each others' viewpoint (i.e., meta-perspective) was significantly and positively associated with their perceived satisfaction. This finding is in agreement with previous work (DePaulo et al., 1987), demonstrating that athletes' satisfaction is associated with their perception of their partners' perspective towards them and their relationship. Thus, individuals who feel their partner trusts, likes, and respects them, is committed to them, and works well with them, are more likely to be satisfied. The exception to this was coaches' meta-perspective, which was not significantly associated with their experiences of satisfaction with the training and instruction they provide the athlete. The nonsignificant findings between coaches' meta-perspective and satisfaction with the training and instruction is difficult to explain. It is possible that this finding is associated with the coaches' position as an authority figure in the relationship. Coaches' satisfaction with such instrumental elements of the relationship may not necessarily depend on interpersonal factors; it may be related to intrapersonal factors, for example, how effective they themselves view their coaching to be, how motivated or stressed they feel. This finding warrants further investigation.

In contrast to the hypothesis whereby empathic accuracy was expected to be positively associated with satisfaction, the findings showed that only athletes' empathic accuracy was significantly associated with satisfaction with training. It is possible that higher empathic accuracy will allow them to get more out of training as

athletes could more easily grasp the meaning of their coaches' explanation and instruction. Under such conditions athletes benefit and are hence more satisfied with the training and instruction they receive. Previous research exploring empathy and understanding in romantic relationships and friendships have highlighted the inconsistency of findings when empathic accuracy is linked with positive relationship outcomes. Whilst studies have found links between marital adjustment and relationship quality, and the ability to understand the attitudes and self-perceptions of partners (Sillars & Scott, 1983), several other studies have argued that increased understanding and empathic accuracy may also in some situations lead to increased conflict and dissatisfaction (e.g., Sillars, 1985). Thus, the link between empathic accuracy and relationship outcomes (e.g., satisfaction) is a complicated one and thus warrants concerted attention from researchers.

4.5.1 An alternative interpretation

This study postulated that coaches' and athletes' positive meta-perceptions would reflect a desire to maintain and promote their relationship. It was argued that the more motivated coaches and athletes were the more empathically accurate they would be, and the more satisfaction they would demonstrate. This rationalisation was only partially supported by the findings, with only a weak association between empathic accuracy and an athlete's satisfaction with training and instruction. It is therefore important to consider other possible interpretations of these findings. It may be that meta-perspectives are not solely antecedents of empathic accuracy, but are instead an outcome of increased accuracy.

The mechanisms by which empathic accuracy could influence meta-perspectives are two-fold. First, increased empathic accuracy could allow coaches and athletes to more effectively interact with each other by allowing them to select the most effective behaviours (Mayer & Salovey, 1997). This improvement in social interaction may then be reflected in both coaches and athletes holding a more positive perspective of that relationship and their partner's contribution to it. Second, it may simply be that increased empathic accuracy gives coaches and athletes a greater insight into each other's behaviours and motivations (Losoya & Eisenberg, 1997). This may then give them a more positive appreciation of the efforts and contributions their partner is makes.

If this interpretation of these findings were true, then it would mean that meta-perspectives mediate the relationship between empathic accuracy and positive

relationship outcomes such as satisfaction. In reality it is likely that both interpretations are partially correct. That is, meta-perspectives are both an antecedent and an outcome of empathic accuracy. Increased empathic accuracy results in a more positive meta-perspective, and a more positive meta-perspective increases the motivation to understand a partner. It is also likely that empathic accuracy has both a direct and a mediated influence on relationship outcomes. Increased empathic accuracy may allow coaches and athletes to more effectively interact with this effective interaction leading directly to positive outcomes such as satisfaction (Mayer & Salovey, 1997). Additionally, empathic accuracy may influence coaches' and athletes' perceptions of their relationship, which in turn would lead to other positive outcomes such as intrinsic motivation, mastery goal orientation, and satisfaction (Adie & Jowett, 2008).

4.5.2 Additional considerations

The meta-perspective of coaches and athletes were significantly correlated, as were the errors of satisfaction with personal treatment. This suggests that each of these paired variables have additional unspecified common influences acting upon them, these influences may include dyadic variables such as relationship duration (see Thomas & Fletcher, 2003). Relationship duration has been found to be a moderating variable in several studies (e.g., Jowett & Clark-Carter, 2006), hence this variable may need to be considered in future research.

While coaches' and athletes' subjective view of the athlete's performance was significantly correlated with each other, lending some validity to the measure, they were not significantly associated with empathic accuracy or meta perceptions. The only exception was the coach's subjective view of the athlete's performance, which was significantly associated with both the coach's and athlete's meta perspective. If the coach views the athlete as putting in maximum effort, of being committed and complementary, then he is more likely to be happy with the athlete's performance, and vice versa. Additionally if the athlete knows the coach is happy with their performance, then they are more likely to believe the coach views other aspects of them and their relationship in a positive fashion.

The lack of association between coaches' and athletes' subjective view of the athlete's performance and empathic accuracy may be the result of several factors. Objectively measuring performance across different sports types is difficult, and therefore researchers are often required to use subjective measures. Additionally the

link between empathic accuracy, effective interaction in training, and performance is likely a complicated one. The number of potential influences and confounding variables is problematic. However, given the importance placed on these links by coaches and athletes (e.g., Jowett & Cockerill, 2003), it remains a significant focus of interest. Possible future investigations may wish to concentrate on either a single sport or group of sports where objective performance measures such as personal bests are more easily assessed (e.g., athletics).

4.5.3 Coach-athlete relationships

The role of empathic accuracy within the coach-athlete relationship is not yet a well-understood construct, and the vast majority of research in this area draws on relationships outside of the sport domain. It is therefore important to consider the differences between these relationships and the relationship that exists between a coach and an athlete.

In the coach-athlete relationship the coach has an implicit authority over the athlete that does not exist in romantic relationships. Authority and power differences have been shown to both increase and decrease empathy in relationships depending on the situation (Snodgrass, 1985, 1992). Additionally, while athletes normally have only one coach, coaches will work with many athletes. These may help explain the nonsignificant findings between coach empathic accuracy and coach satisfaction. First, satisfaction with personal treatment, coaches' power over athletes may mean this is not strongly associated with their empathic accuracy. Their inherent authority may allow them to enforce behaviours in the athlete without the need to understand the athlete; this would not be true for the athlete who instead would need to anticipate the coach's behaviours. Second, coaches will be providing training to a range of athletes, and their satisfaction with the training they provide may not be dependent on understanding any one athlete. This may be particularly evident in team settings where the same training will be provided to a group of athletes working as a squad.

The coach-athlete relationship also differs in that it is a professional relationship with set desired outcomes (e.g., performance) and contact time between partners may be limited compared to friendships or romantic relationships (much like business or pedagogical relationships). Study 1 has shown that contact time in the form of the length of the training sessions is a significant factor in coaches empathic accuracy, yet found other contact time variables such as frequency of training to be non-significant. Establishing a connection between empathic accuracy, effective

relationships, and performance would also be a significant advancement, but raises the difficult question of assessing and objectively measuring performance.

4.5.4 Modified unstructured dyadic interaction paradigm for sport

The modified unstructured dyadic interaction paradigm for sport is essentially a new methodology. Thus, establishing its predictive and convergent validity would strengthen the confidence placed on the findings it generates. For pragmatic reasons, coaches were allowed to select their own training session and athlete so this may have introduced a degree of positive bias (i.e., coaches selecting either sessions or athletes with whom they would appear more able). Another potential limitation is the cross-sectional nature of the obtained data as each dyad was assessed and observed on a single occasion (i.e., a single training session). Obtaining data from dyads during a number of training sessions and over a period of time would provide a more precise representation of a dyad's average empathic accuracy. Moreover, the correlational nature of the present study does not allow causal inferences. Establishing causal relationships between these variables would be beneficial for theory building and intervention research and thus future research will require experimental and longitudinal designs. Finally, generalization of the findings is limited to the specific characteristics of the sample employed in this study.

Nonetheless, this modified unstructured dyadic interaction paradigm for sport provides an approach to the study of empathy within the coach-athlete interpersonal dynamics. The modified unstructured dyadic interaction paradigm for sport is more ecologically valid as it assesses interaction segments across an entire training session in the environment where these interactions naturally occur (i.e., the sport field) as opposed to a laboratory setting (cf. Ickes, 2001). Although, this study provides further support for the validity of the paradigm's modifications, more research is needed with varied athletic samples and sport contexts.

4.5.5 Conclusion

The present study provides support for the importance of coaches and athletes holding positive meta-perceptions about the quality of the athletic relationship. Positive meta-perceptions appear to promote empathic understanding and satisfaction. The findings of this study contribute to the ever-growing relationship literature in sport that highlights the importance of creating a positive and constructive interpersonal environment between coaches and athletes (e.g., Jowett & Chaundy, 2004; LaVoi, 2007; Poczwadowski, Barrott, & Peregoy, 2002). From a practical

viewpoint, it would seem that coaches and athletes would do well to interact beyond the technical instructions dictated by the sport. The development and maintenance of a strong-rooted athletic partnership has been shown to reside in the type (e.g., dialogue, goal setting, openness), volume (e.g., how much), and frequency (e.g., how often) of communication (see e.g., Rhind & Jowett, 2008). Thus, coaches' and athletes' open channels of communication is likely to promote a strong interpersonal bond.

In summary, the results of this study offer an insight into the role and significance of empathic accuracy in the coach-athlete relationship. Meta-perceptions appear to be important for individuals' empathic accuracy but also for satisfaction. The findings of the present study suggest that coaches' and athletes' meta-perceptions of each others' viewpoint about the quality of the athletic relationship plays a key "motivational" role in how well they understand one another or how accurately they make inferences about each others' thoughts and feelings. Reflecting on these findings and its potential practical implications, future research that aims to uncover important antecedent and consequent variables of empathic accuracy is warranted.

Chapter 5

Study three: Feedback of information, individual and personality differences in the empathic accuracy of sport coaches

5.1 Abstract

This study investigated changes in the empathic accuracy of sport coaches in relation to feedback of information about the athletes' thoughts and feelings. Coaches' individual and personality differences were also considered. Sixty badminton coaches were randomly assigned to either an experimental or a control group. All coaches watched a video of a female athlete's technical training session with her coach. At designated segments of the video all coaches were asked to make inferences about what the athlete's thoughts and feelings had been. Coaches in the experimental group were given corrective feedback on the athlete's thoughts and feelings following the coach making an inference about that athlete. Results showed that both groups' empathic accuracy improved over the course of watching the video; however, the experimental group improved significantly more. It was found that coaches' individual characteristics of experience and imagination were significantly associated with empathic accuracy for the control group only. These results are discussed based on issues they raise for theory and practice.

5.2 Introduction

While this thesis has argued for the importance of empathic accuracy, and has shown in studies 1 and 2 how it may be associated with factors specific to the coach, the athlete, and their context, another important issue remains to be addressed. As previously stated, Griffith (1925) has argued for the importance of being able to communicate back to coaches and athletes principles and guidelines which allow them to improve. It can be argued that there is little point in understanding concepts if we cannot then use this information. This study therefore addressed the question: Can we alter the level of accuracy of coaches' moment-to-moment perceptions of their athletes? Additionally, it's second purpose was also to continue to address the question of how factors specific to the coach, the athlete, and their context influence their accuracy by exploring a variety of individual factors specific to coaches.

Ickes et al. (1990) have argued that an individual's ability to accurately infer the psychological state of another, to be empathically accurate, increases with the amount of information available on which to base this judgment (Ickes et al., 1990). Thus, it is possible that an individual's ability to accurately understand the psychological state of another increases over the course of an interaction with that individual. According to Thomas and Fletcher (1997), there are at least two reasons for this. First, the volume of immediate information increases as the interaction progresses and the perceiver has more time to observe the target and establish their current psychological state. An individual may not notice or may discount a verbal or nonverbal message the first time it occurs during an interaction, but if it is repeated may be more likely to use it to help construct any inferences about the target. Second, as the interaction progresses perceivers gain access to feedback, they may ask questions or alter their behaviour to provoke changes in the target, all to gather more information on which to base judgments about the target's psychological state (Ickes, Marangoni, & Garcia, 1997).

These ideas were explored by Marangoni et al. (1995) who had participants view video recordings of counselling sessions and then make inferences about the depicted patient's psychological state at fixed intervals. In order to simulate feedback, half of the participants were given information about the recorded target's thoughts and feelings throughout the recording. It was found that for all participants, the accuracy of inferences made towards the end of watching a recording was greater than those made at its beginning. This supports the idea that exposure increased the

volume of immediate information available and hence increased the accuracy of inferences. This increase in accuracy was found to be significantly higher in those participants who were also given feedback through the recording, suggesting that they also used this feedback to modify their later inferences. Based upon these ideas the first two hypotheses were formulated.

Hypothesis 1. Coaches' empathic accuracy will be significantly higher in the second half of observing a coaching session than the first half.

Hypothesis 2. Coaches who receive corrective feedback will improve significantly more than those not receiving feedback.

It has also been shown in previous research that individuals' assessment of their own empathic accuracy ability has little or no connection to their actual ability (Ickes et al. 1990; Marangoni et al., 1995). A variety of reasons have been forwarded to explain this. A lack of self-awareness was been proposed alongside a lack of feedback about the target (Ickes et al., 1990). Marangoni et al. (1995) found that participants, trainee counsellors, were unaware of their own empathic accuracy even when provided with feedback. In sport research, coaches have also been found to display a lack of self-awareness about their own coaching behaviours (see Smith & Smoll, 2007). Based on these findings a third hypothesis was formed.

Hypothesis 3. Coaches' pre and post-experimental rating of their own empathic accuracy will not be significantly associated with their actual empathic accuracy scores.

There is also evidence to indicate that certain individuals are better judges or more empathically accurate than others (Ickes, 1997; Marangoni et al., 1995). Yet, while considerable research has examined possible individual differences and their associations with empathy (see Davis & Kraus, 1997), this research has almost exclusively been focused on friendships and romantic partnerships. One area not previously examined that may be of potential interest in such relationships as the coach-athlete relationship, is the experience (e.g., years involvement) and training (e.g., qualifications) that an individual has. Coaches who have been coaching for longer and more frequently are more likely to have a closer understanding of their sport, its requirements and demands. Moreover, employed coaches are required to have acquired professional qualifications and to continue with professional development via training courses. Thus, it is possible that coaches with coaching

qualifications and greater experience will demonstrate increased empathic accuracy. Subsequently, the fourth hypothesis was formulated.

Hypothesis 4. Coaches who hold higher coaching qualification, who have been coaching for longer, and who have a higher average amount of training hours per week will demonstrate increased empathic accuracy.

It has been proposed that the differences between individuals' empathic accuracy may be due to individual differences (Marangoni et al., 1995). Such differences may be rooted in an individual's personality especially as these pertain to the ability to interact on a social level. Associations between personality and empathic accuracy have yet to be explored, with much of the previous research focusing on links between personality and alternative conceptualizations of empathy. For example, del Barrio, Aluja, and Garcia (2004) investigated the associations between the 5-factor personality model (i.e., extraversion, agreeableness, conscientiousness, emotional stability, and imagination) and self-reported empathy. They found that empathy positively correlated with agreeableness, extraversion, conscientiousness, and imagination, but the regression analyses showed that relationships of the last three with empathy were negligible. In a meta-analysis, Davis and Kraus (1997) found that intellectual functioning (i.e., general knowledge, mental alertness, and attention) was one individual difference that predicted self-reported empathy. Hence, the final hypothesis explored the extent to which certain personality characteristics (as defined by the 5-factor personality model) are associated with increased empathic accuracy.

Hypothesis 5. Coaches' personality characteristics will be positively associated with their reported level of empathic accuracy.

5.3 Method

5.3.1 Participants

Sixty badminton coaches (42 male, 18 female, $M_{age} = 28.62$, $SD = \pm 11.36$) were recruited. Coaches had been involved in training athletes for an average of 7.15 years ($SD = \pm 5.81$), with an average of 5.19 hours of coaching per week ($SD = \pm 4.81$). The United Kingdom uses a five-level continued professional development framework for coaching qualifications, with each sport providing appropriate training

at each level for their coaches. The level of coaching certification for the participating coaches was: Level 1 ($n = 20$: 33.3%), Level 2 ($n = 25$: 41.7%), Level 3 ($n = 10$: 16.7%), Level 4 ($n = 2$: 3.3%). Three of the coaches (5%) did not hold an official coaching certification in badminton. Coaches categorized their performance level as follows: regional ($n = 38$: 63.3%), national ($n = 19$: 31.7%), and international ($n = 3$: 5%).

5.3.2 Procedure

Coaches were approached using a variety of means including telephone, letter, and email (see Appendix III). Participants were invited to take part in an investigation examining how feedback improved coaches understanding of athletes during training sessions. A description of the study's main aims was supplied, as was information related to confidentiality and the voluntary nature of the study. The University's Ethical Advisory Committee granted ethical approval before data collection was undertaken.

Coaches supplied informed consent before participating in the study. Subsequently, they were assigned to one of two groups of thirty participants: experimental (feedback) and control (no feedback). Group assignment was blocked by performance level and experience to keep the two groups as similar as possible. For example, the first Olympic coach would be placed in group 1, the second Olympic coach in group 2, the next in group 1, and so on. Mutually convenient dates and times for data collection was then organized with the coaches. Data were collected either in small group or individual sessions. Before beginning, coaches were asked to self-rate their level of perceived empathy or understanding. Coaches were then asked to watch a previously prepared video-recording of a training session between a single badminton coach and his female athlete. This video was divided into ten segments, each separated by an 80-second pause. All participants were asked during each of the ten pauses in the video-recording to infer and write down what they believed the athlete in the video had been thinking and feeling at that moment in time. Each coach recorded their thoughts and feelings using a standardised coding sheet, similar to the one used by Ickes and colleagues (Ickes, 2001; Ickes et al., 1990; see Appendix II).

The coding sheet was made up of ten numbered sections, representing the video-recorded segments. Each numbered section required the coach to record: (a) the general feelings they thought the athlete had been experiencing, and (b) the specific

thoughts they thought the athlete had been having. Coaches in the experimental group viewed the same video-recording as the control group. However, the video-recording of the coaches in the experimental group had been further edited so that immediately following the 80-second pause the next 45-second section also contained information regarding how the athlete actually thought and felt (i.e., corrective feedback). On completion of the whole video-recording, coaches re-rated their own perceived empathy or understanding and completed a personality inventory as well as questions pertaining to demographic information (see Appendix III).

5.3.3 Instruments

Preparation of stimulus videotape. A volunteer coach-athlete dyad allowed the video-recording of a typical technical training session. The filming of this training session followed the same procedures as used in studies 1 and 2. The video-recording of the session (approximately 20 minutes in length) was uploaded to a computer. Later that day, the athlete was invited to review the recording of her training session. The athlete was asked to stop the recording whenever she distinctly remembered what she had been thinking and feeling at the point depicted in the video-recording. The athlete was asked to be completely honest, and to give as much detail as possible, avoiding vague or ambiguous statements, and not to create new thoughts and feelings. The athlete's thoughts and feelings were recorded. Both the coach and athlete gave their permission for the video-recording to be viewed by other coaches, and the athlete gave her permission for her thought and feeling data to be accessed by coaches involved in the study. The collected thought and feeling data were the objective-criterion against which coaches' empathic accuracy was assessed.

Two sets of video-recordings were prepared. The first video-recording contained the footage of the coach and the athlete training. The footage contained ten separate segments reflecting the points at which the athlete experienced specific feelings and thoughts, separated by a period of 80 seconds of blank video-recording. This blank footage included the message "Please write down what you think the athlete was thinking and feeling now". This video-recording was approximately 33-minutes long and was used with the control group. This video-recording was also used with the experimental group with one important modification: following each blank section of footage whereby the coaches were asked to report their judgment of the athlete's feelings and thoughts (empathic accuracy), when the video-recording of the training session resumed, the athlete's actual thoughts and feelings were

prominently displayed in text at the bottom of the screen for 45 seconds. The aim was to supply coaches in the experimental group with corrective feedback as this derived from the athlete herself.

Empathic accuracy. Aggregated empathic accuracy scores were calculated according to the procedures used in studies 1 and 2, as developed by Ickes and colleagues (Ickes et al., 1990). However, in this study, three scores were calculated for each coach; empathic accuracy for the first 5 inferences (time 1), the second 5 inferences (time 2), and an overall empathic accuracy score of all 10 inferences. Inter-rater reliability for this sample was 0.89.

Self-awareness. Immediately prior to watching the video coaches were asked to rate on a 1 to 10 scale, indicating increased percentage of accuracy, how accurate they would be when asked to make inferences about the thoughts and feelings of the athlete depicted in the video-recording. At the conclusion of this video-recording, coaches were asked again to rate on a 1 to 10 scale, how accurate they believed they had been in inferring the athlete's thoughts and feelings.

Personality. Personality was assessed using the International Personality Item Pool (IPIP; Goldberg et al., 2006). Participants responded using a 1-5 scale, anchored at 1 "very inaccurate" and 5 "very accurate" to indicate the degree to which a series of 50 statements described them. The measurement assesses five personality dimensions, each consisting of 10 items; extraversion (e.g., "I feel comfortable around people"), agreeableness (e.g., "I take time out for others"), conscientiousness (e.g., "I pay attention to details"), emotional stability (e.g., "I worry about things"), and imagination (e.g., "I have a vivid imagination"). Inter-item reliability was 0.88, 0.85, 0.87, 0.87, and 0.84 respectively.

Individual differences in experience and training. Coaches were asked to supply information regarding the highest UK Coaching Certificate level or equivalent they had obtained, how many years they had been involved in badminton coaching, and the average amount of coaching hours they undertook each week.

5.4 Results

Table 5.1 presents the means and standard deviations for all of the variables measured in the present study. Values are given for the control and experimental groups, and the sample as a whole.

Hypothesis 1 & 2. To explore if coaches' empathic accuracy improved in relation to feedback of information, a 2x2 statistical model consisting of one within-subjects repeated measures factor for exposure (first half/time 1 vs. second half/time 2) and one between-subjects factor for feedback (feedback vs. no feedback) was tested. The analysis revealed significant main effects for both exposure $F(1, 58) = 7.47, p < .01$, and feedback, $F(1, 58) = 325.71, p < .01$. Additionally, a significant feedback by exposure interaction was evident, $F(1, 58) = 60.36, p < .01$. As can be seen visually in Figure 5.1, the empathic accuracy for both experimental and control groups improved from time 1 to time 2, but the experimental group (feedback) had a significantly greater increase.

Table 5.1

Means and standard deviations for control and experimental groups, and total sample

	Control		Experimental		Total	
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>
Empathic accuracy (time 1)	22.78	17.68	22.99	11.76	22.89	14.89
Empathic accuracy (time 2)	37.22	18.34	59.00	16.61	48.11	20.53
Overall empathic accuracy	30.00	17.61	41.00	12.74	35.50	16.21
Pre-test estimation	38.00	17.89	38.00	16.69	38.00	17.15
Post-test estimation	48.00	20.41	47.00	12.07	47.50	16.63
Age	28.97	13.59	28.27	8/81	28.62	11.36
Experience	7.73	6.87	6.57	4.56	7.15	5.81
Coaching hours per week	5.28	5.60	5.10	3.96	5.19	4.81
Extraversion	3.36	.72	3.42	.69	3.39	.70
Agreeableness	3.83	.69	3.84	.58	3.84	.64
Conscientiousness	3.59	.59	3.43	.80	3.51	.70
Stability	3.49	.66	3.34	.58	3.42	.62
Imagination	3.56	.55	3.37	.70	3.47	.64

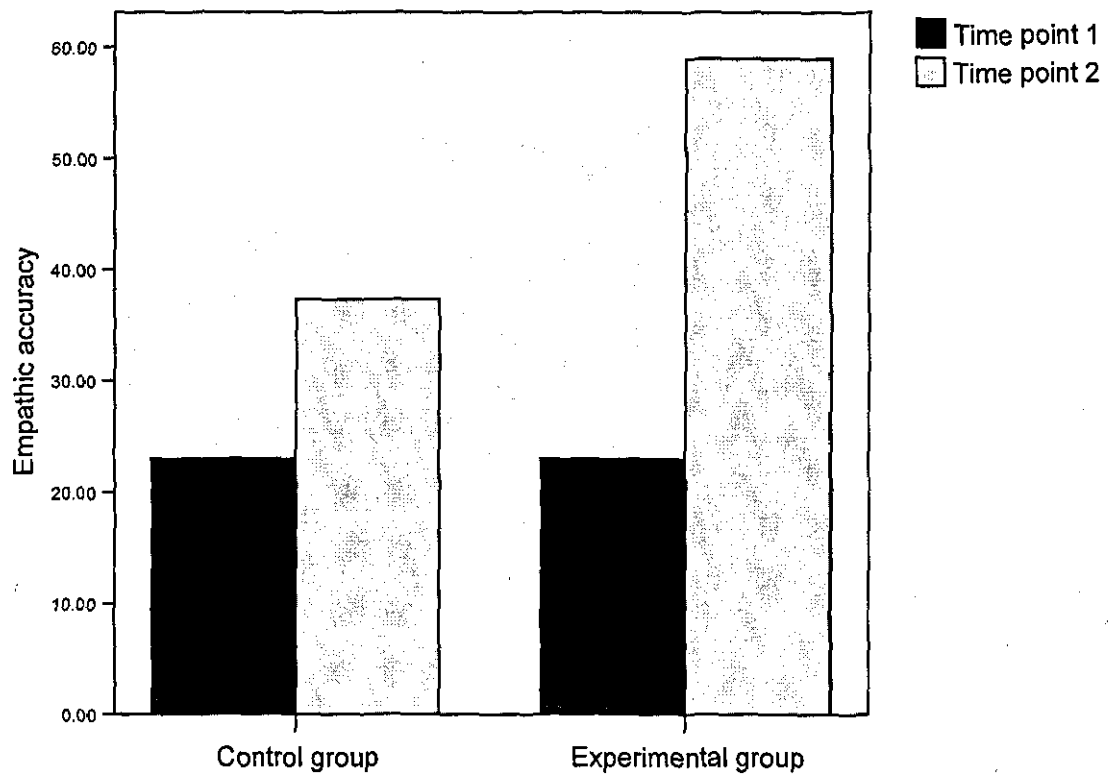


Figure 5.1 – Empathic accuracy scores for feedback vs. no feedback

Hypothesis 3. To test if coaches' pre and post-experimental rating of their own perceived empathic accuracy was associated with their actual empathic accuracy, bivariate correlations were examined between pre and post-experimental ratings and the overall empathic accuracy for both the control and experimental group (see Table 5.2). All associations were non-significant with the exception of that between the post-experimental rating and overall empathic accuracy for the experimental group, $r = .37, p < .05$.

Hypothesis 4 & 5. To explore whether individual differences and personality characteristics were responsible for the variations in empathic accuracy, bivariate correlations were examined for coaches in both the control and experimental group (see Table 5.2). Only the associations between coaching experience in years, coaching hours per week, and imagination, with overall empathic accuracy were significant, and for the control group only. Coaching experience was negatively associated with overall empathic accuracy, $r = -.40, p < .05$, hours per week was also negatively associated with overall empathic accuracy, $r = -.42, p < .05$, while imagination was positively associated with overall empathic accuracy, $r = .45, p < .05$.

Table 5.2*Bivariate correlations between overall empathic accuracy and antecedents*

	Overall empathic accuracy	
	Control	Experimental
Pre-experimental rating	-.22	.20
Post-experimental rating	-.04	.37*
Coaching experience (years)	-.40*	-.07
Coaching hours per week	-.42*	.25
UK Qualification level	-.19	.12
Extraversion	-.05	.15
Agreeableness	-.25	-.04
Conscientiousness	.09	.00
Emotional Stability	-.21	.11
Imagination	.45*	.26

** $p < .05$*

5.5 Discussion

The purpose of the current study was to investigate coaches' empathic accuracy in an experimental setting employing the standard stimulus paradigm (Marangoni et al., 1995). Using this paradigm, it sought to answer whether feedback of information or corrective feedback, individual differences, and personality characteristics influence coaches' level of empathic accuracy. The findings indicated that for all coaches, empathic accuracy regarding the target athlete's feelings and thoughts significantly increased with continued exposure to the video-recording of the coaching session, supporting our first hypothesis (see Figure 1). This finding suggests that as a coach observes an athlete they gain access to an increasing volume of information about that athlete. This is consistent with the findings of Marangoni et al. (1995) who found that the empathic accuracy of participants viewing clinical counselling sessions increased in line with the amount of time the target patient was observed. Moreover, in the first study of this thesis indicated that coach-athlete dyads who had longer training sessions exhibited higher levels of empathic accuracy when asked to infer each other's thoughts and feelings. It is thus possible that empathic accuracy is dependent on the amount of time the dyad spends with one another.

Although time appears to be an important factor in coaches' empathic accuracy and understanding, it is unknown from this study whether coaches in short-versus long-term coach-athlete relationships would exhibit greater levels of empathic accuracy. Limited research suggests that short-term coach-athlete relationships are more empathic than long-term relationships (see e.g., Jowett & Clark-Carter, 2006). Research studies that investigate personal relationships have found that in long-term romantic relationships, greater familiarity with a partner actually leads to individuals attending less to verbal and nonverbal cues and making greater assumptions about them leading to decreased empathic accuracy (Kilpatrick, Bissonnette, & Rusbult, 2002; Thomas, Fletcher, & Lange, 1997). This area of research has significant practical implications, thus more research is warranted.

Results also indicated a significant improvement in coaches' empathic accuracy due to receiving corrective feedback. This suggests that not only did providing feedback to coaches improve their empathic accuracy, but that it also increased the rate at which their empathic accuracy improved due to exposure to the athlete. It is thus possible that coaches were using this accumulated feedback to understand the target athlete's subsequent verbal and non-verbal behaviours. Therefore, it appears that not only increased time but also increased feedback of information is important to coaches' empathic accuracy and understanding. For a coach to accurately ascertain an athlete's current mood and to accurately establish the current trend in his/her athlete's thoughts and feelings, the coach may require the athlete to supply relevant information during the course of a training session. Although feedback was simulated by displaying text on the screen as opposed to actual verbal feedback obtained whilst training with an athlete, the influence of that feedback on empathic accuracy in the present study suggests that coaches asking the right questions and receiving useful feedback from their athletes will be more likely to accurately understand their athletes.

Communication has long been acknowledged as a key dimension of effective coaching (Vealey, 2005; LaVoi, 2007). It is through the process of communication that coaches impart knowledge, set the tone of the training session, and the interpersonal climate whilst athletes provide feedback about their current psychological state, thoughts, and feelings. Communication appears to be one of the most important processes from which coaches (and their athletes) acquire important information that can subsequently lead to coaches' empathic accuracy. Based on the

findings of this study, it is possible to suggest that communication transactions that aim to acquire feedback from the athlete may be more crucial just before the commencement of a training session simply because at that point coaches begin with little or no information about their athletes' psychological state (e.g., moods, trends in his/her thoughts and feelings).

The third hypothesis was supported by the finding that coaches' assessment of their perceived empathic accuracy ability had no significant association with their actual empathic accuracy ability. A notable exception to this was a significant association between the overall empathic accuracy for the experimental (feedback) group and their post-experimental assessment of their own ability. This is consistent with the suggestion that individuals are unable to accurately rate their own empathic accuracy because of a lack of feedback about their target (Ickes et al., 1990). In this experiment it seems that coaches were able to use the corrective feedback provided to better ascertain how successful they had been. Yet this finding differs from that of Marangoni et al. (1995) who found that even post-experiment participants were unable to accurately judge their own abilities. This may be because the participants of Marangoni et al. (1995) were all counselling students, while those of the current study were practicing coaches. The participants in the present study may have been more involved and interested in their empathic accuracy as it was directly associated with their own coaching ability. They may have seen this experiment as a way of either reflecting on their own coaching or useful in developing these abilities. As such, they may have paid greater attention to not only how the feedback related to the inferences they were making, but also how well they were performing overall.

This improvement in the self-awareness of coaches about their own abilities may be an important finding. Previous research has indicated that coaches are unaware of the behaviours they manifest while coaching young athletes in sport teams (see Smith & Smoll, 2007). In addition, Jowett and Clark-Carter (2007) have found that coaches were significantly less empathic than their athletes in terms of how affectively close the coach-athlete relationship had been. In the first study of this thesis it was found that coaches display a large degree of error in their inferences about their athletes' feelings and thoughts during a typical training session. Collectively, these findings suggest that the majority of the time coaches are unaware of what their athletes are thinking and feeling. Nonetheless, the findings of this study suggest that corrective feedback is likely to improve coaches' self-awareness of their

empathic accuracy and actual levels of their empathic accuracy. It thus seems logical to suggest that coaches who are more aware of themselves and of others (i.e., athletes) would be better equipped to provide better coaching and bring about positive outcomes (e.g., satisfaction, performance).

Contrary to the intuitive thinking of the fourth hypothesis, coaches' experience and training were found to have a mixed association with actual empathic accuracy. The length of time in years they had spent coaching, and the amount of coaching hours they completed on average each week was significantly associated with empathic accuracy, but only for the control group (no feedback). Additionally, these associations were negative, suggesting that experienced coaches actually performed worse than inexperienced coaches. While no previous research has examined such individual differences in relation to coaches' empathic accuracy, it is possible that coaches who are experienced believe that they "have seen it all"; this confidence may lead them to making wrong assumptions simply because they do not pay the attention to the available information. This is in agreement with Ickes (1993) suggestion that while an individual may have a degree of insight into a person or situation (gained through knowledge or experience), this insight may not generalize to other people or situations. That is, while a coach may have greater experience, this knowledge may not be directly transferable without careful consideration of the specifics of the current situation. This explanation is further supported by the lack of significant associations for the experimental group (feedback) and the interaction effect of exposure and feedback. When supplied with accurate corrective feedback coaches are immediately able to check their accuracy. Those making false assumptions are alerted to this and may begin to attend more closely to the available information, putting in more effort into making accurate inferences about the thoughts and feelings of that athlete.

Only partial support was provided for the fifth hypothesis whereby imagination was the only personality characteristic that was significantly associated with empathic accuracy; this association was only reported for the control group (no feedback). While previous research has been ambiguous as to the influence of personality factors (del Barrio, Aluja, & Garcia, 2004; Davis & Kraus, 1997) on empathic accuracy, this finding supports Davis and Kraus's (1997) assertion of the impact of intellectual functioning. Imagination represents openness to intellectual experiences and a tendency to look beyond face values. Imagination may influence

empathic accuracy in one of two ways. It may be that imaginative individuals' ability to more easily grasp abstract ideas makes it easier for them to place themselves in another's viewpoint and see things from that perspective. Alternatively, it may be that they find it easier to express what they believe the athlete was experiencing, resulting in an increase in empathic accuracy score simply because they were better at articulating their responses.

However, similar to coaching experience, the association between empathic accuracy and imagination was not evident in the experimental group (feedback). These findings suggest that the potential impact of individual differences and personality characteristics are reduced in the presence of useful feedback. Whilst these factors appear to be less significant, what becomes central is coaches' (and athletes') communication as a medium from which information is exchanged. It highlights the importance of coaches being effective communicators who have the capacity to negotiate, direct, support and withdraw important information that would allow them to interact and react effectively to their athletes.

From a practical point of view the findings of this study suggest that coaches need to be attentive to the verbal and non-verbal cues given by their athletes, and not assume that because an athlete, situation or context is similar to one previously encountered, that athletes will react in the same or similar fashion as before. This is not to say that previous knowledge and experience is not useful, especially in shaping a coach's reactions to a situation, but instead a warning against making assumptions or falling into habitual behaviours. The evident additive effect of corrective feedback show that coaches should encourage useful and relevant feedback from the athletes, and use this information to help establish the athletes' mood and current psychological state, as well as asking for information directly related to the sport and training context. Moreover, coaches may wish to obtain feedback from their athletes as a means to check their own understanding of the athlete.

The results of this study provide some useful insights into how empathic accuracy is influenced by corrective feedback. Yet these findings must be viewed against the limitations of this study. While the experimental design allows for direct comparison of coaches, it raises ecological issues. Coaches and athletes form *interdependent relationships in real life*, and as such they have a high degree of interaction and reliance upon each other (Jowett, 2007). This likely plays an important role in the concept of empathic accuracy that is not accounted for when

using a standard stimulus paradigm. Moreover, coaches only performed the task once with a single target athlete. Obtaining data over several observations and across several targets may provide a more precise representation of a coach's average empathic accuracy. Additionally, the generalization of the findings may be problematic beyond the specific characteristics of the sample employed in this study, namely, badminton coaches who work one-on-one with athletes.

Future studies need to continue to explore empathic accuracy in coaching and in the coach-athlete relationship. While the present study offers an insight into how individual factors, feedback, and exposure influence the empathic accuracy of coaches, it is unclear how familiarity (e.g., quality of the relationship) between a coach and an athlete would further influence this. Further, future researchers need to continue to explore the possible antecedents and outcomes of empathic accuracy with regard to coaches and athletes, and how these differ or are similar in nature to other relationship types (e.g., romantic, friendships, therapeutic), providing not only an insight into the coach-athlete relationship but also empathic accuracy as a whole. Additionally, this method provides an ideal situation for self-reflection and personal development, and has the potential to be used as an assessment and training tool. This approach offers a reliable objective criterion against which to judge empathic accuracy (Marangoni et al., 1995), making it an ideal method for assessing coaches. Thus, further work investigating the standard stimulus paradigm is required to examine its merits as an intervention program or as an educational tool that promotes self-reflection and improves self-awareness amongst coaches.

Chapter 6

General discussion

The purpose of this thesis was to investigate empathy in the coach-athlete relationship. Empathy was described as the skill of perceiving and interpreting verbal and nonverbal cues and information. This information is then used to decode others' thoughts, feelings, intentions and characteristics (Losoya & Eisenberg, 2001). In this project of work empathy was viewed as an outcome, the accuracy of the inference made about the other (Davis, 1994). The skill of accurately perceiving others is thought to play a pivotal role in interacting and responding in an appropriate manner. This in turn leads to positive outcomes and effective peer, personal, and professional relations (Ciarrochi, Forgas, & Mayer, 2001). Specifically this project of research addressed the questions:

- (a) Can empathic accuracy be measured in an actual training situation?
- (b) How do factors specific to the coach, the athlete, and their context influence their accuracy?
- (c) Is empathic accuracy important for coaches and athletes?
- (d) Can we alter the level of accuracy of coaches' moment-to-moment perceptions of their athletes?

The next section summarises the three studies that make up this project of research (see table 6.1) and how they have addressed these questions. The proceeding sections will then discuss the research paradigms used, the limitations of this project of research, implications for both theory and practice, and the directions that future research in this area needs to take.

Table 6.1 - Summary of studies

	Study 1	Study 2	Study 3
Aims	<ul style="list-style-type: none"> • Support validity of new measure of empathic accuracy in training setting • Strengthen ecological validity of empathic accuracy research • Explore the influence of the sport-type and the length of relationship as antecedents of empathic accuracy 	<ul style="list-style-type: none"> • Further support validity of measure of empathic accuracy in training setting • Strengthen ecological validity of empathic accuracy research • Explore the influence of coach and athlete empathic accuracy on satisfaction and performance, and how accuracy is effected by meta perceptions 	<ul style="list-style-type: none"> • Investigate influence of exposure to athlete on coach empathic accuracy • Explore effect of feedback on coach empathic accuracy • Examine individual factors specific to a coach that can predict empathic accuracy
Design	40 coach-athlete dyads in a cross sectional modification of the dyadic interaction paradigm (training setting)	60 coach-athlete dyads in a cross sectional modification of the dyadic interaction paradigm (training setting)	60 coaches in a quasi-experimental 2x2 design using the standard stimulus paradigm
Measures	<ul style="list-style-type: none"> • Empathic/baseline accuracy • Shared cognitive focus • Training group size • Duration of Relationship • Contact time (days spent training, length of sessions) 	<ul style="list-style-type: none"> • Empathic/baseline accuracy • Modified Athlete Satisfaction Questionnaire • Modified <i>Overall Performance</i> subscale of the Elite Athlete Self-Description Questionnaire • Meta version of the Coach-Athlete Relationship Questionnaire 	<ul style="list-style-type: none"> • Empathic accuracy • Self-awareness of accuracy • Coaching experience • Coaching level • Average coaching hours • International Personality Item Pool
Findings	<ul style="list-style-type: none"> • Coaches in individual sports have higher empathic accuracy than in team sports • Shared cognitive focus mediates the influence of sport-type on empathic accuracy • Coaches with longer sessions display higher accuracy • Female athletes have higher accuracy than males when working with male coaches 	<ul style="list-style-type: none"> • Positive meta perceptions associated with increased empathic accuracy • Increased accuracy associated with increased athlete satisfaction with training 	<ul style="list-style-type: none"> • Increased exposure and feedback increased empathic accuracy • Imagination and experience (years and average training) were associated with increased accuracy

6.1 Summary of studies

Study one: Empathic accuracy in coach-athlete dyads who participate in team and individual sports

The aim of study one was to implement a methodology for assessing empathic accuracy in an actual training context, and to provide validation by assessing correlates of empathy. Additionally, it also explored some of the most prominent features of the sports training context including sports type, training group size, and the length of relationship and duration of training sessions. Eighty coaches and athletes forming 40 coach-athlete independent dyads were recruited from a range of team ($n = 21$), and individual sports ($n = 19$). An adaptation of Ickes's (2001) unstructured dyadic interaction paradigm was used to assess the empathic accuracy of these dyads. Each dyad was videoed during a typical training session. Participants then viewed selected video footage that displayed discrete interactions that had naturally occurred during that session. Dyad members reported what they remembered thinking and feeling while making inferences about what their partners thought and felt at each point. Empathic accuracy was estimated by comparing self-reports and inferences. The results indicated that accuracy for coaches in individual sports was higher than coaches in team sports. Shared cognitive focus also differed between team and individual sports, and mediated the effect of sport-type on coaches' empathic accuracy. Moreover, coaches whose training sessions were longer demonstrated increased empathic accuracy. No differences were found for athletes for sport-type or shared focus. However, female athletes were significantly more accurate than male athletes when working with a male coach. The results were congruent with previous empathic accuracy research and theory, and provided evidence not only for the validity of this form of assessment and also supported the argument that the dynamics of the interaction between a coach and an athlete play a key role in how accurately they are able to perceive and understand each other.

Study two: Empathic accuracy, meta-perspective, satisfaction and performance in the coach-athlete relationship

Study two built on the findings of study one by once again applying the adaptation of Ickes's (2001) unstructured dyadic interaction paradigm. The purpose was (a) provide further validity for this measure by continuing to examine potential antecedents of coaches' and athletes' empathic accuracy, and (b) provide support for continued research by drawing links

between empathic accuracy and coaches' and athletes' perceptions of performance and satisfaction. One-hundred and twenty coaches and athletes forming 60 independent coach-athlete dyads were recruited from a range of sports. Empathic accuracy was measured exactly as in study one. While no links between performance and empathic accuracy were evident, the results of a structural equation model analysis indicated an association between members' meta-perceptions and increased empathic accuracy. Increased empathic accuracy was in turn associated with higher levels of satisfaction with training for athletes. Although the association between empathic accuracy and positive outcomes was poor, the strong association of empathic accuracy and meta-perspective shows that continued research in this area is worthwhile.

Study three: Feedback of information, individual and personality differences in the empathic accuracy of sport coaches

The third and final study investigated changes in the empathic accuracy of sport coaches in relation to feedback of information. The purpose of this study was to investigate how the accuracy of their inferences could be improved by altering the quality of that feedback. This reasoning behind this was to establish if empathic accuracy could be altered within a training context and to examine some of the factors that could be influenced in order to achieve this. Individual and personality differences were also considered. An adaptation of the empathic accuracy standard stimulus method (Marangoni, Garcia, Ickes, & Teng, 1995) was applied. Sixty badminton coaches (male $n = 42$ male, female $n = 18$) were recruited and split evenly into an experimental and a control group. All coaches were asked to watch a previously prepared video of an athlete's technical training session with her coach. At designated segments of the video all of the coaches were asked to make inferences about what the athlete's thoughts and feelings had been. Coaches in the experimental group were given corrective feedback on the athlete's thoughts and feelings following their inference. Results showed that both groups' empathic accuracy improved over the course of watching the video; however, the experimental group improved significantly more. It was also found that coaches' individual characteristics of experience and imagination were significantly associated with empathic accuracy but for the control group only. This suggested that while individual differences were important in empathic accuracy, these differences were minimally influential in the presence of quality feedback about

the athlete. This feedback could be manipulated, and when supplied significantly improved empathic accuracy.

Returning to the original aims of this thesis then, we can see that question (a) has been addressed by studies one and two, which have shown that empathic accuracy can be measured in an actual real training session. All three studies have incorporated elements of question (b), showing how factors specific to the coach, the athlete, and their context influence their accuracy. Study one focused primarily on the shared factors of the coach and the athlete (e.g., sport-type, relationship duration) showing that those coaches in individual sports were more accurate than those in team sports, and coaches with longer training sessions were more accurate overall. Additionally, study one showed that female athletes were more accurate than male athletes when working with male coaches. Study three on the other hand explored individual factors specific to the coach, and showed that more experienced coaches and those with greater levels of imagination could be more accurate. While study two examined how the coach and athlete perceived each other, showing that more positive perceptions led to increased empathic accuracy. Study two specifically addressed question (c), while empathic accuracy was important for athletes in that it improved their satisfaction with the training and instruction, overall the direct links between empathic accuracy, and, performance and satisfaction were poor. Finally, study three answered question (d) showing that by influencing the quality of the feedback that coaches were receiving it was possible to improve their empathic accuracy,

6.2 Methodological implications

One of the most valuable contributions made by this research is the use, adaptation and application of Ickes and colleagues' paradigms to sport, both the unstructured dyadic interaction and standard stimulus paradigms. The work of Ickes and colleagues has contributed greatly to our understanding of empathic accuracy in different relationships, mainly friendships and romantic (e.g., Thomas & Fletcher, 2003) and counsellor-client relationships (Marangoni et al., 1995). Whilst it has been purported that these same paradigms can be used with the same success to measure empathic accuracy in other types of relationships (Ickes, 2001), empathic accuracy remained an unexplored yet potentially important part of the process of coaching and the interaction between coaches and athletes.

Subsequently, this research employed adapted versions of these paradigms to explore empathy within coach-athlete interactions and relationships. With a valid method of assessing empathy researchers can be confident that their results are dependable. While the validity of Ickes' (2001) paradigm is well established in the broader social psychological research, the validity of the adaptations made to the paradigms presented in this thesis was not yet established, yet the results of the three studies presented suggest that they are reliable. The measurement of empathic accuracy in coach-athlete training sessions, a moment-to-moment process, is a highly complex, involved, and time consuming process. It is based on the three steps; video recording a training session, editing this footage, and having coaches and athletes review it. While its use has been guided by a need to maintain its validity, it has been necessary to balance this against the pragmatic concerns of the context in which it was applied. Two key issues then are validity and reliability. In this section, the discussion focuses on how these issues relate to the adaptations that have been made to these paradigms.

The first step in establishing the validity of a measure is to examine its face validity, defined as the degree to which a measure appears both credible and logical as a means of assessment (Thomas & Nelson, 2001). Ickes and colleagues paradigms are based on the direct comparison of an observer's inferences to a target's self-reports, and would seem the most credible way of assessing their accuracy. However, significant deviations from the original paradigms are evident in three places.

The first adaptation comes from moving the video-recording out of the laboratory and into real life events and in this case the training setting. This modification was made to address the concerns of Wilhelm and Perrez (2004) in regards to the laboratory setting influencing the dynamics of interactions between participants. Shifting the setting into a real life context significantly increases the ecological validity of the paradigm.

As real training sessions were being used, it was important that a session be selected where both the coach and athlete were available and that both could give up time to review the footage within 24-hours of that training session. For these reasons, coaches were allowed to select their own training session and the athlete they worked with. This increased the chances of having the coach and athlete available at the same time and both able to give up free time after the training session. It is possible that this may have introduced a degree of positive bias (i.e.,

coaches selecting either sessions or athletes with whom they would appear more able). When questioned about their choice, coaches had based athlete selection on a range of criteria (e.g., new athletes they wanted to develop a rapport with, older athletes they wished to analyse their relationship with, difficult athletes so the coach could analyse their own coaching, or most often simply the athlete who was most likely to be available), suggesting that while numerous biases in selection existed amongst coaches, they were not aligned across the entire sample. Future researchers may wish to randomly select participants from the athletes that coaches work with or consider other athlete selection criteria.

The second adaptation is the selection and editing of the video-recording of each dyad's training session. This modification was necessary due to the first adaptation of filming actual training sessions. This was necessary as training sessions varied in length (from 20 minutes up to 4 hours) and were most often far longer than the brief discussions used in previous empathic accuracy research. It was not practical to show entire recordings of very long training sessions to coaches and athletes. Additionally interactions were often sporadic, brief, and spaced out throughout the session with large periods of time when the coach was neither observing nor interacting with the athlete.

Identified interactions were defined as being those points where the coach and athlete interacted to address a single topic or issue. For example, a coach and athlete may have talked continuously for several minutes, first about a drill and then about a future competition, this would be divided into two interactions.

Using interactions sampled from across an entire training session also addressed the second concern raised by Wilhelm and Perrez (2004) that previous empathic accuracy research had been limited to relatively short interactions (e.g., 5 or 10 minutes). It is therefore related to an increase in the ecological validity of this paradigm but one that is traded off against a decrease in control over the environment in which it is used.

To insure an even distribution samples were taken using a simple formula based on the natural structure of a training session: 20% were selected from the first third of the footage (usually the warm up), 50% from the middle (main training), and 30% from the final section (usually the cool down and conclusion). This is important in providing a representative sample across a whole training session. Altering the proportion of sample taken from dyad to dyad

would influence the measure of their empathic accuracy as this accuracy may be higher or lower at different points in the session (e.g., study three showed that coaches empathic accuracy increased the longer the observed an athlete). Where videoed interactions were taken, the clips included footage before and after the actual interaction to help the coaches and athletes place it in the correct context when recalling what their thoughts and feelings had been. Due to being filmed in an actual training environment conditions for filming were varied and often far from the laboratory ideal, as such interactions were rejected if sound quality was poor enough to make dialogue unclear or the view of the coach or athlete was obscured. This may be considered a limitation of the paradigm and the context in which it was employed. Potentially this may be addressed in future research by having multiple cameras and/or a microphone on both the coach and the athlete. This must however be balanced against giving coaches and athletes more information in the video on which to base their inferences than they would actually have had in the real situation (e.g., the coach being able to listen to the recording of the athlete muttering under his/her breathe even though the coach could not hear it during the actual training session).

The third adaptation to Ickes' method was directly related to the second, in that the editing of the video resulted in a delay between the actually training session and the review of video footage and introduced long gaps between completing a training session and the coaches and athletes reviewing it. This is less a purposeful modification as a necessary concession. The process of recall and inference may raise issues as to the validity of the findings. Specifically, it may be that coaches and athletes do not clearly recall what they were thinking and feeling the previous day, and those involved in longer training sessions may have more difficulty in recalling exactly what was going on at any one point in time. Additionally Ickes (2001) raised concerns about the reliability of the target participants' self-reports. Inaccuracy in these could create a false impression of the observer's own accuracy. This may be particularly problematic considering the increased the time between video-recording and review of video footage.

Specific steps need to be taken to minimize the potential confounding effect of recall. The time between filming, editing, and review of the video footage needs to be kept to an absolute minimum. In the studies that make up this thesis this delay was kept to a maximum of 24-hours; filming, editing, and review often took place all within the same day, or with reviewing the morning of day after training. Additionally, coaches and athletes were asked to

only record what they clearly remembered experiencing during the training session and not to create new thoughts and feelings. It is also worth noting that both coaches and athlete were told that their partner would not be allowed to see their responses, in order to reduce any positive report bias.

Ickes, Stinson, Bissonnette, and Garcia (1990) have also raised the concern that partners may be able to accurately infer the contents of each others thoughts and feelings simply by making a lucky guess that is not based upon any relevant information. Ickes et al. (1990) argue that individuals can make inferences based either on (a) the immediately available information sources, (b) identifying the general theme of the target's thoughts and feelings and make an educated guess based upon relevant knowledge structures, or (c) guess work. Ickes et al. (1990) argued that while the first two of these reasons represent a degree of inferential ability the third does not. Therefore, it is necessary when calculating empathic accuracy to estimate and correct for accurate inferences based purely upon chance. This is achieved by randomly pairing up self-reports and inferences, scoring these as normal, and subtracting the score from the original empathic accuracy score to give a refined value that has been corrected for the influence of chance. It should be noted however that this does not really control for guessing, instead it actually controls for how easy it would be to be accurate through guessing. It is therefore essential to use this approach when using the dyadic interaction paradigm, as each set of stimuli is unique to the participant. It is not required for standard stimulus as all individuals watch the same video. Using the corrective procedure suggested by Ickes et al. (1990) would seem to make this paradigm more valid at face value, as it is more likely to measure actual inferential ability.

Face validity is in itself not enough to validate an assessment tool. Predictive validity the extent to which a measure predicts scores on some criterion measure, is often considered a far more stringent assessment of validity (Thomas & Nelson, 2001). This is often the degree to which the measure predicts another variable to which it is hypothetically associated. Studies one, two, and three provide evidence in the form of predictive validity for this measure of empathic accuracy. All three studies draw upon previous empathy research in the formation of their hypotheses and in the majority of situations these associations and hypotheses have been upheld and are in line with past research. While a discussion of these similarities can be found in

each individual study, particular reference to study three is worthwhile, the results of which were almost an identical replication of Marangoni et al.'s (1995) study with counselling students. Another form of validity is convergent validity, the degree to which the assessment tool is correlated with other similar measures or variables (Thomas & Nelson, 2001). It has been suggested that empathic accuracy has little or no connection to self-reported ability (Ickes, 2001); as such it is difficult to assess convergent validity in this way. However, the findings of study three that show that post-experiment self-reports of coaches provided with feedback were associated with empathic accuracy provide a small amount of additional evidence for the validity of this measure.

The most common assessment of reliability is inter-item or in this case inter-rater reliability (Thomas & Nelson, 2001). This is the degree to which different raters give reliable scores to the same set of data, and therefore refers to the internal consistency of those raters. Raters independently assess the similarity of each pairing of inference and self-report on a scale of 0-2. If raters are consistently and accurately rating the similarity between these pairings then they each should be giving similar scores to each pairing – that is, each rater should agree with the others. Inter-rater reliability is determined by tabulating these ratings; one row is allocated to each comparison, and one column allocated for each rater. Cronbach's alpha is then calculated in a similar fashion as psychometric scale validation; raters are equivalent to scale items, and comparisons are equivalent to respondents. An acceptable cut-off point for Cronbach's alpha value is acknowledged as being equal or greater than 0.7 (Cronbach, 1951). Each study in this thesis has shown a high degree of reliability in this way, with alpha scores ranging from 0.81 to 0.89.

This paradigm is a clear example of addressing one limitation only to introduce another. Through addressing Wilhelm and Perrez's (2004) concerns related to the ecological validity of Ickes' (2001) assessments of empathic accuracy, it introduces a number of concerns related to the environment in which it is used (e.g., length of training sessions, sporadic interactions, delay between filming and reviewing). This should not however discourage researchers from making modifications. As discussed, each of these concerns can be controlled or minimised. Each method, assessment, or measurement tool has its own set of distinct limitations, but when taken as a whole they increase our body of knowledge by compensating for each others' restrictions

and short-falls. The results generated from these lend support to its validity. Although there is a lot of further work involved in assessing the utility of these paradigms, especially in regards to establishing their reliability, based on the results the three studies produced the author of this current thesis is confident in the merits of the adaptations made to this research tool.

6.3 Limitations of the programme of research

The results of this series of studies and the paradigms employed provide a useful insight and process for the exploration of empathic accuracy in the coach-athlete relationship. However, before the contribution of the programme can be assessed, its findings must be considered against the back drop of its limitations. While the limitations of the research paradigms employed have been highlighted above, and the limitations specific to each study have been discussed in each chapter, this section summarises these and considers the project of research as a whole.

The limitation of this project of research is the cross-sectional nature of studies one and two, with each dyad assessed and observed on only a single occasion. Limiting observations to single training session per coach-athlete dyad has meant that the cross-situational and cross-temporal validity of the measures used could not be assessed. Additionally, an averaged rating of empathic accuracy across several sessions may have provided a more general representation of an individual's empathic accuracy in training. While obtaining data from dyads during a number of training sessions and over a period of time would have provided a better representation of their empathic accuracy and provided more evidence for the reliability of this measure, it would have negatively impacted upon the size of the sample that could be obtained.

The choice of a design for studies one and two meant that they were limited to correlational analyses, which means that direct causal inferences could not be made. Casual inferences are the suggestion that one factor brings about another and are important when exploring the processes involved in any psychological concept. Cross-sectional designs only allow researchers to show that changes in one variable are evident at the same time as changes in another, and not that one causes the other. While logic and theory can allow researchers to make suggestions regarding cause and effect from the results of a cross-sectional study, these associations can not be explicitly proven.

As the first step in this project of research, study one was primarily limited in the extent and range of its sample. One of the questions addressed by study one was how the interaction between coaches' and athletes' gender would influence their empathic accuracy. However, the number of female coaches recruited was limited, especially female coaches working with male athletes. It was therefore only possible to compare male and female athletes working with male coaches. The classification of sports used (i.e., team versus individual sports) is also a very broad way of categorizing sport types. Different categories of sport exist within these (e.g., combat sports and non-combat sports, indoor and outdoor sports, feminine and masculine, and wet and dry sports) and some categories may exist with both team and individual sports. It may be that the differing contexts and dynamics involved in these may influence the degree of empathic accuracy present. This being the case this may have influenced any results. For example, it was hypothesised that those involved in individual sports would display higher empathic accuracy. However, martial arts is classified as an individual sport, and it could be argued that the autocratic coaching often seen in combat or other dangerous sports (Cassidy, Jones & Potrac, 2004) may actually decreased empathic accuracy because of reduced two-way interactions and discussion.

While study two recruited a larger sample, this led to problems in addressing the hypothesis linking empathic accuracy to performance. As the sample drew upon multiple sports, a comprehensive objective measure of performance was not possible. This meant a subjective measure had to be used. Additionally, performance in team sports is the result of a group effort. In team sports performance may also be influenced by the opposing side. Hence, any subjective measure of performance, even when the questions directly relate to the athletes' individual performance, is likely to be influenced by perceptions regarding these factors (e.g., a player in a team is unlikely to rate their performance highly if they have lost every game, even if their own performance and skill has actually improved). A purely objective measure of performance is needed, and this requires the recruitment of a very narrow sample that was not possible in the project of research.

The dyadic nature of the data collected in studies one and two also make the investigation of individual differences difficult, as each coach or athlete is viewing different stimuli. This, and

the difficulties in inferring causality, were addressed in study three through the use of a quasi-experimental design and the recruitment of coaches from a single sport.

This experiment is described as quasi-experimental as participants were not randomly assigned to experiment and control groups. Nor were either the participants or researcher blind to the experimental condition to which participants were assigned. While this design and sample does allow for direct comparison of coaches, it also creates ecological limitations. First, coaches and athletes form interdependent relationships in real life, and as such they have a high degree of interaction and reliance upon each other. The result of studies one and two shows this plays an important role in coaches and athletes empathic accuracy. When using a standard stimulus design, these influences are not considered. This is both a limitation and strength – while it means these factors are controlled for, it means that any findings have less ecological validity. Second, generalization of the findings may be problematic beyond the specific characteristics of the sample employed. While limiting the sample in study three to a single sport, badminton, allows for direct comparison between them, it does mean that generalising findings to different sports is difficult. This is again both strength and a limitation of this design. However, the two designs (i.e., cross-sectional, multi sport / experimental, single sport) complement each other well in this programme of research.

6.4 Advancements in theory

In this section, the discussion aims to link the findings of studies conducted with theories outlined in the literature review and highlight the unique contribution this thesis makes to both sport psychology and social psychology generally.

6.4.1 Sport, coaching, and empathy

Empathy in the coaching process. A key component of many coaching models is the idea of systematically observing the athlete, monitoring and correcting their techniques, strategies, and physical skills (e.g., Fairs, 1987; Lyle, 2002). However, a more humanistic approach stresses the individuality of athletes and the need to adapt to them, emphasising the uniqueness of the individual and the need to understand them if training is to be both effective and successful (Cross, 1991). While attending closely to athletes' physical and technical development is extremely important, a coach must also be aware of what the athlete is thinking

and feeling. The athlete's psychological state is a major factor in how well they attend to the tasks given to them. Hence, a coach's awareness of their athletes' psychological states will play a key role effectiveness and efficiency of the coaching process. Additionally, empathic accuracy was also shown to be associated with positive meta-perceptions other factors which are relevant to both performance and skill improvement (Adie & Jowett, 2008). Observation of athletes then goes beyond a simple observation of their abilities, but should also encompass monitoring of the athletes' thoughts, feelings, beliefs, and motivations. Coaching process models then need to consider in more depth exactly what it is that is being observed, and how these observations are related to processes such as assessment, goal forming, implementation, and reassessment.

The inclusion of ideas from Côté, Salmela, Trudel, Baria, and Russell's (1995) Mental Model would go a long way towards expanding other coaching process models. Focusing on how observation aids in the generation of the coach's mental model of the athlete. There was a large degree of general inaccuracy demonstrated by coaches involved in this programme of research (coaches' accuracy ranged from 28-33% when working with their own athlete in studies one and two) and a lack of awareness of their own empathic ability shown in study three. This suggests that coaches do not construct accurate mental models of the athlete. More attention is needed on exactly how these mental models are constructed. The findings from study one suggest that they are at least to some degree based upon an assumption of a shared cognitive focus, while study three suggest they are significantly based on the quality of the feedback received from the athlete. Additionally, study two would seem to suggest that both the mental model of the athlete (encapsulated as a meta perspective) and empathic accuracy were strongly associated with each other.

Empathy in the coach leadership models. Leadership in coaching is concerned with the behavioural process of influencing both individuals and groups (Barrow, 1977). One of the main postulates of the Multidimensional Model of Leadership (Chelladurai, 1993) is the idea that the behaviours an athlete prefers from their coach, and the most efficacious behaviour that a coach could use, are both linked to the athlete's individual characteristics, the coaches' individual characteristics, and situational factors (see fig 1.3). In terms of athlete's individual characteristics, research has primarily focused on broad differences such as gender, but less stable and individual differences such as the athletes' psychological state are also considered

important (Rierner, 2007). This means that a coach's understanding of their athlete's psychological state is vital. Hence, the empathic accuracy of the coach is important in aiding the coach in not only understanding what behaviours an athlete would prefer, but also which behaviours would be most effective. Additionally, coaches' individual characteristics are also directly related to the actual behaviour manifested by the coach. One of these characteristics then must be their empathic accuracy, their skill at making accurate inferences about their athlete. Studies one and two have found that coaches display a large degree of error in their inferences about their athletes' thoughts and feelings. This would then theoretically lead to them selecting less efficacious behaviours. Situational factors are the third set of variables thought to influence coaches' behaviours. Studies one and three have both shown that coaches' empathic accuracy is influenced by a variety of situational factors (e.g., group size, sport-type). It may be then that empathic accuracy is a mediator between certain situational factors and coaches' behaviours.

The Mediational Model of Coach Leadership (Smith, Smoll, & Curtis, 1978) explicitly states that the athlete's experience of sport depends on how the athlete perceives the manifested behaviours of the coach, and those athletes' experiences are monitored by the coach, which in turn influences the coaches' behaviour. While the dimensions of both these models are reasonable well researched, it is the arrows linking these dimensions (see fig 1.4), representing the processes involved, that are less well understood. This thesis has begun to explore how coaches actually understand their athletes, and how they are perceived in return. It can be argued that empathy and empathic accuracy are part of the processes by which the athlete perceives the coach and their behaviours, and by which the coach perceives the athlete's experiences of their sport. This thesis then has begun to explore these processes and the factors that influence them. The same factors that have been shown to influence empathic accuracy (e.g., feedback of information, sport-context, interpersonal perceptions etc.) will impact on how the athlete perceives their coach and will therefore influence their experiences of their sport, including their satisfaction and performance. An argument that is at least partially supported by the finding of study two linking empathic accuracy to athletes' satisfaction with the training and instruction they receive. The findings of this thesis then have begun to examine empathic accuracy; a factor

that it can be strongly argued plays a key role in the selection of coaching behaviours and in athletes' perceptions and experiences of these.

Empathy in coach-athlete relationship models. Recently developed coach-athlete relationship models are based on the interdependence that exists between a coach and an athlete (Jowett, 2007). Jowett and Poczwardowski (2007) have highlighted that the conceptual basis of these models share a great deal in common with each other. For example, the Wylleman, (Wylleman, 2000), Poczwardowski (Poczwardowski, Henschen, & Barott, 2002), and Jowett (Jowett, 2007) models all place a similar emphasis on the reciprocity of behaviours and attitudes between the coach and athlete. Additionally, Poczwardowski et al.'s (2002) and Jowett's (2007) models both emphasise the ideas of shared meanings, commonality and interpersonal perception. Additionally, Jowett and Poczwardowski (2007) have proposed an integrated conceptual model that stresses the importance of interpersonal communication as antecedent and consequent of relationship constructs.

It is arguable that, of all the theories that describe coach-athlete interaction this programme of research has done the most to advance relationship theories. Study one has shown the importance of a shared cognitive focus during coach and athlete interaction in the understanding that exists between them, while study two has underlined the importance of a positive meta perception in the accurate understanding of a partner, and in generating successful relationship outcomes. Further, study three has emphasised the importance of effective feedback of information in allowing coaches to understand their athletes' psychological states, which may in turn influence the effectiveness with which they are able to work together. Communication then is a common thread that links these findings together. Communication is an important antecedent of empathy just as it is also seen as an important antecedent of relationship quality (Jowett & Poczwardowski, 2007). It can also be argued that while communication is an antecedent of empathic accuracy, accurate empathic inferences will also facilitate further communication between a coach and an athlete, and therefore plays an important part in the quality of the coach-athlete relationship. Empathy and empathic accuracy then can be seen as important to, but distinct from, the quality of the coach-athlete relationship.

6.4.2 Empathy and empathic accuracy

While it is evident that this thesis has contributed to researchers' understanding of how coaches and athletes perceive each other, one of its aims was to use this knowledge to expand researchers' understanding of the concept of empathy as a whole.

The Theory of Mind (Leslie, Friedman, & German, 2004) states that people are cognitive beings, that individuals' experience a range of psychological states and conditions, and that while distinct, these experiences often have similarities. From this, researchers have concluded that taking on others' perspectives is done through the use of knowledge schema related to general, specific, and situational levels of knowledge.

The findings of study one directly relate to this idea, showing that when individuals share a common cognitive focus (i.e., they are thinking about the same thing, having the same situational knowledge and focus) they are more accurate in their perceptions of each other's psychological state. While not a new finding, this does support previous work in other relationship types (e.g., Stinson & Ickes, 1992; Thomas & Fletcher, 2003). What study one uniquely contributes is the idea that this shared focus decreases depending on the dynamics of the interaction. Previous research has exclusively focused on one-to-one interaction with no others present. Filming coaches and athletes in their natural setting meant that often coaches were working with a number of athletes at the same time. When working with teams, these coaches often worked with small groups rather than individuals, and this seems to have impeded the focus they shared with any one athlete, and so diminish the usefulness of their situational knowledge. This argument is further supported by Jowett and Clark-Carter (2006) who stated that "coaches are more likely to interact with their athletes in a team setting... which results in higher levels of assumed similarity, perceptual error or bias"(p. 23). The findings of study one showed that in these situations the empathic accuracy of coaches decreased but that of athletes did not. This may be due to the fact that while coaches have to focus on the whole group, athletes within that group still only have one coach to focus on.

Contrary to previous research findings (e.g., Jowett & Clark-Carter, 2006; Kilpatrick, Bissonnette & Rusbult, 2002) relationship duration, which is thought to influence the knowledge individuals have to draw upon and the way in which they use it, was not found in study one to be an influential factor in empathic accuracy. However, study one did show that the longer the

typical training session was, the more empathically accurate the coach was. One explanation is that shorter training sessions are constrained by time and are more focused on the task at hand whereas longer sessions allow more time to talk, about sport as well as other topics. Study one makes an important contribution to this as it considers relationship duration not simply in terms of gross years but in terms of actual contact time. This may be an important factor especially in professional relationships where daily contact time may vary as a function of context, experience, or professional level.

In study three, coaches' experience was found to play a role in their accuracy. This may be directly related to the idea of application of knowledge schema learned from previous experiences. However it was shown that coaching experience, as well as the imagination, which was also shown to be an influence on empathic accuracy, was non-significant in the presence of sufficient contextual and immediately available information. This may go some way to explaining past researchers' rather ambiguous findings in regards to individual factors. Davis and Kraus (1997) highlighted in their meta-analysis that where individual factors were shown to have an influence it was very small. It may be that in those studies that did not find that individual factors influence empathic accuracy there was simply too much information available to the observer, and that this obscured any effect individual differences had.

Funder's (1995) Realistic Accuracy Model states that accurate empathic inferences are dependent on the availability of relevant behavioural cues, and the ability of the perceiver to detect and appropriately use these cues. Study three then further contributes to this theory. It showed that not only did exposure to increasing information positively influence coaches' accuracy, but feedback about the accuracy of their interpretation of this information further increased their accuracy. This again agrees with previous findings (Marangoni et al., 1995). Study two revealed that positively held meta-perceptions of a partner potentially acted as motivation to use the available information to form accurate inferences. From a motivational angle then, higher positive perceptions of a partner's viewpoint would lead to increased efforts to accurately understand them. However, Jowett and Clark-Carter (2006) have also suggested that coaches and athletes may avoid accurate but unpleasant perceptions regarding the quality of their relationship in favour of inaccurate but more reassuring perceptions. Previous research in romantic relationships has also shown that partners will sometimes make inaccurate inferences

about unpleasant information. Simpson, Ickes and Blackstone (1995) found that this was particularly evident in relationships that displayed high closeness or insecurity. The meta-perceptions assessed in study two included elements of closeness, commitment, and complementarity (see Jowett & Clark-Carter, 2006). Therefore while a higher meta-perception likely indicated a large degree of closeness it also indicated a higher level of coaches' and athletes' belief that their partner was committed and attempting to work in a complementary way with them. Coaches and athletes who believe their partner is highly committed to them and is doing their best to work well with will attempt to reciprocate this behaviour (Wylleman, 2000) which, it could be argued, would in turn lead to increased empathic accuracy.

This project of research has provided additional support for what are thought to be key elements in the actually empathic process, validating them in another relationship type. Additionally, it has uniquely contributed to this literature in a number of ways (a) it used a natural context, looking beyond isolated dyadic interaction and exploring those dyads in group settings, (b) it explored relationship duration in a unique way by more exactly measuring contact time between partners, and (c) showed that immediately available information can confound the influence of individual factors. It has made a significant contribution to the larger body of literature concerning empathy and empathic accuracy, broadening our knowledge of both how coaches and athletes perceive and understand each other, and increasing our understanding of empathy and empathic accuracy.

6.5 Implications for practice

One theme that emerges is that of communication. Effective communication is acknowledged as a key dimension of coaching and the foundation to building and maintaining relationships (LaVoi, 2007). It is the process by which coaches impart knowledge and set the tone of the training session and interpersonal climate, whilst athletes provide feedback about their current progress and psychological state, and through which they both establish common ground, goals, and objectives (Vealey, 2005; LaVoi, 2007). The findings of all three studies suggest that communication, particularly in regards to the quality of feedback and the dynamics of how coaches and athletes interact (i.e., one-on-one vs. one-on-group), is one of the most important processes from which coaches and their athletes acquire information that can

subsequently lead to their empathic accuracy. It is possible to suggest that communication is an important factor by which partners acquire knowledge of each other.

The findings of study one suggest that communication may be particularly important in sport contexts that limit the amount of available information. An example of this would be in team sports where the coach must work with groups, or when individual coaches need to work with large amounts of athletes and so are limited in the time they can spend with each. In these situations, coaches need to be aware that athletes will not always be focused on the same things as them, nor will they see things in a similar way. This means that a coach cannot rely on their own thoughts or feelings to aid in their inferences. Nor will the coach be able to observe and monitor the athlete throughout the training session. Information on the athlete will therefore be limited. This means that clear and specific communication with the athlete will be the coach's best source of information for making accurate inferences when interacting with the athlete.

These ideas also relate to the findings of study three. These findings suggest that feedback of information may be crucial just before the commencement of a training session simply because at that point individuals begin with little or no information about each others' current psychological state (e.g., moods, trends in his/her thoughts and feelings, recent experiences) as they have yet to have had time to observe each other. This feedback will also be vital in any other situation where the coach or athlete have little information about each other, for example in large groups where one-to-one time is limited.

Knowledge is the second important theme that emerges; knowledge is highly interrelated with communication, it is either information gained through immediate communication during a training session or that obtained through previous communication or association between the coach and athlete. One potential source of this knowledge then comes from prior knowledge acquired through the relationship the coach and athlete have with each other. It has been suggested that as the level of association between two people increases their knowledge and understanding of each other likewise increases (Fletcher, 2002). This was only partially supported by study one that showed that coaches with longer training sessions displayed increased accuracy. Additionally, the quality of the relationship between the coach and the athlete also seems to play a role in how accurate they are. Study two suggests that those who view their relationship in a more positive way display more empathic accuracy, perhaps because

they are more motivated to know and understand each other. This project of research then contributes to the established importance of creating a positive and constructive interpersonal environment between coaches and athletes (e.g., Jowett & Chaundy, 2004; LaVoi, 2007).

From a practical viewpoint, practitioners and coaches would do well to encourage the development of a high quality athletic partnership. Study two has shown the importance of perceived levels of relationship quality defined as closeness, commitment, and complementarity. Additionally the development and maintenance of a coach-athlete relationship has been shown to reside in the type (e.g., dialogue, goal setting, openness), volume (e.g., how much), and frequency (e.g., how often) of communication (e.g., Rhind & Jowett, 2008). Thus, open channels of communication are likely to promote a strong interpersonal bond. It can be suggested that it may be important for coaches get to know the athlete, and interact beyond simple technical instruction, taking time to develop the relationship in a way that brings them closer together. This may mean taking time outside training sessions, lengthening those sessions, or attempting to do less within the allotted time to allow for conversation and social interaction within them. It is also important when facilitating communication between coaches and athletes to consider the established and perhaps inherent dynamics of interaction due to the type of sport or training involved. Consideration must be given to any changes in these dynamics that may improve mutual-understanding, such as working on-on-one or with smaller groups, and weigh it against the benefits these dynamics have in other areas. For example, in teams sports, working with athletes as groups may help establish synergy and cohesion that would be lost if more one-to-one work was undertaken.

A third related theme to emerge is that of a lack of knowledge. Previous research has indicated that coaches are unaware of the behaviours they manifest while coaching young athletes in sport teams (Smith & Smoll, 2007), while Jowett and Clark-Carter (2006) found that coaches were significantly less empathic than their athletes in terms of how affectively close their relationship was. Study three has shown that coaches are mostly unaware of their own capacity or lack of skill to understand their athlete, and experienced coaches actually performed worse than inexperienced coaches. Additionally, studies one and two have found that coaches and athletes display a large degree of error in their inferences about each others' feelings and thoughts during a typical training session. Collectively these findings suggest that the majority

of the time individuals, particularly coaches, are unaware of what their partner is thinking and feeling. This may be due to a lack of knowledge or more likely that this knowledge is not being used. It was suggested in study three that more experienced coaches may believe that they "have seen it all" and this confidence may lead them to making wrong assumptions. Additionally those individuals who are unaware of their own capacity or who receive little or no feedback about it may simply assume they understand their partner correctly (Ickes, 1993).

Thus coaches need to be more attentive to the verbal and non-verbal cues given by their athletes. They must not assume that because an athlete, situation or context is similar to one previously encountered, that athletes will react in the same or similar fashion as before. This does not mean that experience and prior knowledge are not useful to a coach in aiding their understanding of an athlete. However, coaches must be aware of the limitations of such knowledge and that similar situations are not necessarily the same. The evident additive effect of corrective feedback shown in study three suggests that coaches should encourage useful and relevant feedback from the athletes. They can then use this information to help establish the athletes' mood and current psychological trend, as well to check their own understanding.

Findings regarding improvement of self-awareness in the experimental group of study three also show this paradigm provides an ideal situation for continued personal development. This paradigm offers a reliable objective criterion against which to judge empathic accuracy (Marangoni et al., 1995), making it an ideal method for assessing coaches. Additionally it allows coaches to observe and compare how well they believe they are doing with how well they actually are. This provides coaches with an ideal situation for self-reflection on their own abilities. In terms of practical application, a set of standardised tapes could be prepared, reflecting a range of situations, including different training session types (e.g., technical, fitness) and interactions (e.g., friendly, conflict, instruction). These could be used alongside other self-reflection methods such as reflective diaries, and videoing of coaches' own training sessions.

It seems logical to suggest that coaches and athletes who are more aware of themselves and of each other will be better equipped to provide and respond to coaching and bring about positive outcomes. Coaches and athletes should be encouraged to give time over to actively considering themselves and each other, both during training sessions and without. Not only

would this improve their self-awareness but could also lead to improvements in their understanding of themselves and each other, and an increase in their empathic accuracy.

In summary, coaches and athletes need to establish high quality partnerships. Not only will this increase their knowledge of each other over time by facilitating communication, but will also provide them with a stronger motivation to understand and work closely together. Opportunities to enhance communication by altering the dynamics of the training session such as encouraging more feedback, asking more questions, engaging in dialogue during training sessions, or taking time outside of training sessions, should go beyond simple technical instruction. Additionally, a degree of self and other awareness that is at the heart of empathy and understanding needs to be promoted. Coaches and athletes should be encouraged to (a) actively attempt to understand each other (b) self-reflect on their own thoughts, feelings, and behaviours (c) look for ways in which to improve their relationship and communication with each other such as by being more social and interpersonal. For example coaches could make a point to ask for feedback, not only would this make more information on athletes' thoughts and feelings available to the coach, but it may also increase shared cognitive focus as the coach focuses the athlete on the topic at hand, as well as allowing the coach to check his own understanding of the athlete.

6.6 Future research

Various future directions for enquiry have been mentioned throughout this project of research. The majority of these recommendations have been driven by the results of this thesis and its limitations. Replication of findings, multiple observations, increased samples size, and samples drawn from within different sports and populations would all be worthwhile and would provide further support for the validity of the measures used.

Investigation of the reliability of the paradigms used also needs to be continued. While their inter-rater reliability has been established, this is not the only form of reliability. Other important forms of reliability include cross-situational, cross-target, and cross-temporal reliability; each concerned with how reliable the assessment is across differing situations or time (Thomas & Nelson, 2001). In the case of the dyadic interaction paradigm this could be accomplished by assessing empathic accuracy across several training sessions with the same

athlete. For standard stimulus, a coach or an athlete's accuracy could be looked at across several targets to see how consistent they are compared to other observers.

In this thesis these paradigms have primarily been used in cross-sectional designs such as those used in studies one and two. While these are ideal in the initial stages of any investigation they are limited by the fact that they are carried out at only a single time point. This being the case, it is impossible to infer causality as they can give no indication of the sequence of events. However, as study three shows, this work can be built upon by adapting and applying these paradigms to different research designs.

6.6.1 Designs

Future researchers have two directions in which they can go in their exploration of empathic accuracy. They can either look at empathic accuracy in more depth over single sessions, or explore how it changes over larger time durations such as a competitive season. In order to investigate these, different designs will need to be employed, such as the quasi-experimental design utilised in study three.

Looking at single sessions in more depth may shed light on a number of interesting questions. It may be of particular relevance given the findings of study one that showed dyads who typically had longer training sessions displayed higher levels of empathic accuracy. For example, it is not yet known whether such factors as who initiated the interaction and what type of exchange (e.g., social, instruction, encouragement, punitive), affect coaches' and athletes' empathic accuracy. This also remains a large unknown in the broader field of social psychology (e.g., Buysse & Ickes 1999). Linking this research with the expansive body of work that has already explored coach behaviours (e.g., Kahan, 1999) may also shed light not only on empathic accuracy but in other areas of coaching. Establishing links between how empathic accuracy directly effects the behaviours manifested and the effectiveness of the work carried out in a training session would greatly expand not only our understanding of coach-athlete interaction, but also empathy as a whole.

Experimental research designs are ideally suited to these types of questions. This could be approached in a variety of ways but may most effectively be tackled by using a confederate. This would ideally be the coach who could be used to manipulate the situation, which could be assessed by monitoring the athletes' responses. This has the advantage that a single coach could

be used with multiple athletes, or the same coach could be used over multiple sessions. Other possibilities include preparing a variety of standardised tapes, reflecting a range of situations, including different training session types (e.g., technical, fitness) and interactions (e.g., friendly, conflict, instruction). These could then be used in a standardised experimental design similar to study three.

Another research avenue is to focus on how empathy changes over time using a longitudinal design. This has the advantage of allowing researchers to look at empathic accuracy over an extended duration, establishing links between empathic accuracy and long-term goals such as improvements in performance, sport commitment, or changes over time in such factors as relationship quality, coaching efficacy, and team cohesion. Longitudinal designs would also allow researchers to explore possible interventions and training methods for improving coach and athlete empathy. Given the interdependent nature of coach-athlete relationships, and the highly time consuming nature of assessing empathic accuracy, perhaps the most suitable approach for interventions and longitudinal research would be single-subject designs. Single-subject designs focus on repeated measures of participants across time. They typically include baseline, intervention, and post-treatment phases, and as such are ideal for evaluating interventions. Each participant, or likely in this setting each dyad, can act as their own control. Additionally, this approach is thought to be particularly useful for observing minute differences that may be lost in a non-significant group effect, making it ideal for high level performers whose improvement may be minute (Hanton & Jones, 1999).

6.6.2 Outcomes

Perhaps one of the most interesting areas for future research is to establish further links between empathic accuracy and the desired outcomes of the coach and athlete. While links with satisfaction have been shown for athletes in study two, a large number of unknowns are yet to be explored. Interviews with coaches and athletes have suggested that they believe empathy is strongly associated with positive outcomes such as satisfaction and performance (Jowett & Cockerill, 2003) and the maintenance of their relationship with each other (Rhind & Jowett, 2008). However, objectively establishing this links between these is far from easy. Study two has illustrated the importance of carefully considering which outcomes may be associated with empathic accuracy, how these differ between coaches and athletes, and the exact mechanism by

which these may occur. It may benefit future researchers then to expand upon these studies with specific focus on empathy and how it relates to different outcomes for the coach and the athlete. Perhaps one of the most widely held outcomes of importance is the performance of the athlete in actual competition. Performance itself is very difficult to measure directly, especially in mixed sport samples. Researchers may find it easier then to establish links between empathy and other factors potentially associated with performance. These include intrapersonal factors like self-efficacy (Moritz, Feltz, Fahrbach, & Mack, 2000) and anxiety (Kleine, 1990), and interpersonal factors such as team cohesion (Mullen & Copper, 1994). They may also wish to examine how increased empathic accuracy influences environmental factors such as the motivational climate, and the quality of the relationship that exists between the coach and their athletes. Those wishing to objectively assess performance need to avoid sports where performance is (a) more subjective (e.g., display sports such as ice-skating and gymnastics), (b) individual performance is difficult to assess (e.g., team sports), or (c) where performance can only be measured in comparison to an opponent (e.g., invasion or combat sports), as these are unsuitable and problematic. Ideally the criterion for performance needs to be objectively assessed and self-compared. A good example may be athletic events as these involve objective measurements such as time and distance, and athletes can compare their performance against personal bests. Single-subject designs would be ideal for this as any changes in performance at high levels, while very important, will likely be small.

6.6.3 Influencing factors

As well as outcomes, further research needs to continue to address possible antecedents of empathic accuracy. Of particular importance are exploring key individual factors that could potentially be influenced to increase empathic accuracy such as coaching style, personal expectations, and motivations. How a coach approaches instructing an athlete may effect the amount of communication (e.g., an authoritarian coach may listen less to feedback). While the expectations of a coach or an athlete may bias their inferences towards perceiving what they anticipate they should be seeing. Motivation would also play a key role. A coach is less likely to be accurate at perceiving those things he/she thinks are unimportant as he/she will not be motivated to do so. This does not necessarily mean those things are unimportant, and the coach's lack of motivation and hence inaccuracy could hinder the coaching process and hence

the athletes development. These factors could then be incorporated into interventions, training, and education. As such, this area of research may be most efficiently targeted at coaches. Any effective intervention would be most likely to be implemented in coach training and education as this has the potential to have the most far reaching effect as coaches will work with a number of athletes. Interventions targeted at athletes or specific coach-athlete dyads would have a limited scope and may be more effectively restricted to higher performance level athletes.

Additional research addressing the interaction between coach and athlete gender, age, and culture may also be beneficial. Research has shown gender expectations can cause women to be more accurate in their perceptions (Ickes, Gesn, & Graham, 2000). Culture and ethnicity has been shown to influence how athletes perceive their coaches, with athletes working with coaches of different ethnicities reporting that they didn't think their coach understood them as well (Jowett & Frost, 2007). If ethnicity provides a barrier, greatly differing ages may also impede empathy. Different age, gender, or culture may make it harder for individuals to perceive another's' viewpoint because of a differing frame of reference. Research in this area may shed light on ways to overcome potential barriers or provide guidelines on coaching in youth and community outreach coaching programmes.

The effectiveness of current coach education and training techniques could also be evaluated in regards to their understanding of athletes by incorporating a measure of empathic accuracy into various stages of their training and assessing any changes. Study three has shown the potential impact of feedback. The next stage would be to design an intervention to change the way coaches acquire feedback (e.g., asking more questions, asking specific questions related to thoughts and feelings, more reflective listening) and to then assess how these changes influence and hopefully improve their empathic accuracy. As previously mentioned, the standard stimulus paradigm employed in study three may also provide an ideal tool for self-reflection and personal development, potentially being used as an assessment and training tool. This method offers a reliable objective criterion against which to judge empathic accuracy (Marangoni et al., 1995), making it an ideal method for assessing coaches. Thus, further work examining its merits and potential use as an intervention programme would seem worthwhile.

6.6.4 *Beyond the coach-athlete relationship*

The coach-athlete is not the only relationship in which coaches and athletes are involved; interactions with support staff, team-mates, family, friends, officials, and fellow competitors may also influence them (Cote, 1999; Jowett & Cockerill, 2002; Weiss, Smith, & Theeboom, 1996). Researchers have suggested that each of these relationships can play an important role in the experience of sport. Empathic accuracy will therefore be equally as important in these relationships as it is in the coach-athlete relationship.

Empathic accuracy between athletes, coaches and support staff may be useful in facilitating training. As well as working closely together, coaches and athletes may work with a range of support staff. These may include specialist coaches (e.g., strength and conditioning), physiotherapists, doctors, psychologists, and physiologists. Each has something unique to contribute and will approach things from their own perspective. An accurate understanding amongst them then may help facilitate cooperation and the delicate balancing act of pulling together the efforts of these supporting personnel.

Gaining an insight into the thoughts and feelings of competitors may give an athlete an added edge. Knowledge about an opponent could give an insight into their strategies and tactics, or their limitations and weaknesses. This could include immediately prior to competition when many athletes attempt to 'psych' each other out with overt confidence or posturing. It could also occur during competition either over a prolonged period as athletes attempt to work out each others game plan, or in a split second when an athlete decides if they should push an advantage or opening.

Researchers may in particular wish to examine how well significant others such as romantic partners, friends, and family understand the athlete and their relationship with their sport, and how this in turn influences the support and assistance they provide. For example, Jowett and Timson-Katchis (2005) have found that parents play a key role in young athletes' lives and their relationship with their coach.

The empathy and mutual understanding that exists between teammates may also be a fruitful area of exploration, with shared mental models and team cohesion believed to be closely associated with performance (Mullen & Copper, 1994; Mohammed, Klimoski, & Rentsch, 2000). The concept of empathic accuracy may be particularly important in dyadic sports such as

kayaking, paired climbing, and racket doubles, where performance relies on both partners working quickly and efficiently in tandem with each other. For example, Jackson, Beauchamp, and Knapp (2007) have shown that in tennis doubles, athletes' efficacy beliefs about their performance were interdependent. Assessing empathic accuracy in the actual competitive and performance environment of these sports would seem important, and may shed light on the potential links between empathy and performance. Dyadic sports may be particularly ideal for investigating these links, allowing similar paradigms to those employed in this thesis to be used without the added complications of numerous group members.

6.7 A model for empathic accuracy in sport

While the findings of this programme of research have advanced our understanding of empathic accuracy in sport it is evident from the previous section that there is much work that remains to be done. Chapter 2 has shown the difficulties that have previously arisen in empathy research due to differing definitions and ideas related to empathy. If researchers are to continue to explore empathic accuracy in sport they will benefit from a focused model of empathic accuracy, consistent with current literature, which can provide a guide for further investigation.

Figure 6.1 illustrates a proposed model of the antecedents and outcomes of empathic accuracy. On the far left of the model are the main categories of the antecedents of empathic accuracy (Observer, relationship, and target; Thomas & Fletcher, 2003). These antecedents in turn, consistent with the Relative Accuracy Model (Funder, 1995), are associated with the amount of information available and the observer's motivation to use that information, which determines the level of empathic accuracy. In the next part of the model, empathic accuracy is linked with positive outcomes through two mechanisms. The first, empathic accuracy, consistent with the theories of emotional intelligence (Mayer & Salovey, 1997), allows the selection of more effective behaviours in social interactions which lead to the achievement of desired outcomes. Second, empathic accuracy leads to the observer holding a more positive view of their partner and their relationship, consistent with the idea that empathic accuracy leads to insights and appreciation of others (Losoya & Eisenberg, 1997), and that this then leads to positive outcomes. Finally, perceptions of the relationship are also associated with actual relationship factors (Jowett, 2007).

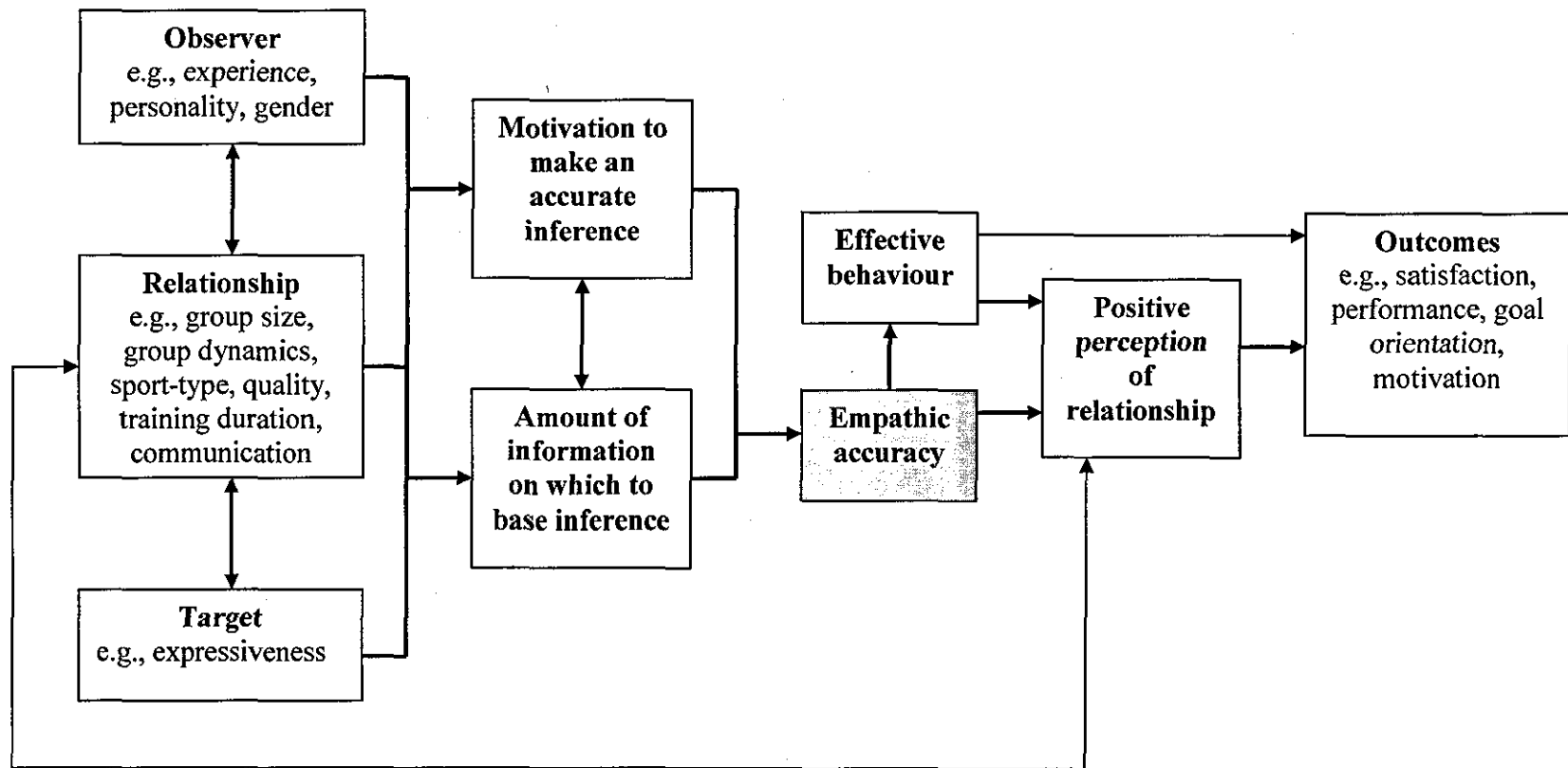


Fig 6.1 – A model of empathic accuracy

Antecedents. Antecedents can be divided into three broad categories, observer, target, and relationship variables (Thomas & Fletcher, 2003). Observer variables refer to the individual differences that influence the degree to which an individual can make accurate inferences (e.g., knowledge, motivation). Target variables are individual factors of the observed individual that influence how hard it is to make accurate inferences about them (e.g., expressiveness). Relationship variables refer to the association between the observer making the inference, and the target being observed (e.g., relationship-type, duration of relationship, interaction type). In this model it is also proposed that observer and target variables are associated with relationship variables. This means that individual differences in the observer and the target influence their relationship and how they interact, and vice versa. For example, a coach with an autocratic style may possibly have less two-way communication with an athlete, or an athlete with a close relationship with their coach may be more outgoing or expressive with that coach.

This interdependence of coaches and athletes, and their relationship, has been supported by the work of Jowett and colleagues in a series of studies (e.g., Jowett, 2003; Jowett & Frost, 2007; Jowett & Cockerill, 2003; Jowett & Meek, 2000). The model also proposes that relationship variables are associated with coaches' and athletes' perceptions of that relationship. This association has been supported by Jowett and colleagues who have shown associations between how coaches and athlete perceive their relationship and factors such as the length of that relationship (Jowett & Clark-Carter, 2006) and coaching behaviours (Jowett & Chaundy, 2004).

Antecedents and information. The links between the three categories of antecedents and the amount of information available and the observer's motivation to use that information have been well supported in social psychology. Marangoni et al. (1995) has shown that both differences in the observer and the target (e.g., expressiveness) can influence the amount of information extracted by the observer watching the target. Additionally, Ickes et al. (1990) has shown that individual factors of the observer and their relationship with the target (e.g., perceived similarities), which are in turn affected by individual factors of the target (e.g., attractiveness), also influence an observer's motivation to be accurate.

In this programme, study 1 has shown that the dynamics of how coaches and athletes interact (e.g., on-on-one vs. on-on-group) influences their degree of shared cognitive focus and hence the information they have available (Thomas & Fletcher,

2003). Study 1 has also shown that coaches with longer training sessions demonstrate greater empathic accuracy, arguable because they had access to more information about the athlete. Additionally, study 1 has shown a difference in the empathic accuracy of male and female athletes working with male coaches, a gender issue which has been linked with the motivation to be accurate in other social contexts (Ickes, Gesn, & Graham, 2000). The findings of study 2 also indicate that positive perceptions of a relationship are associated with empathic accuracy. It may be that these positive perceptions increase coaches and athletes wiliness and motivation to work well together, and that this improved interaction led to increased accuracy.

Motivation, information, and empathic accuracy. The links between motivation, availability of knowledge, and empathic accuracy are also well supported in social psychology. Giving observers increased information related to the target of their inferences has been show to directly influence accuracy (Marangoni et al., 1995; Weiss, 1979), while factors that are thought to increase an observer's knowledge, such as relationship association (Thomas and Fletcher, 2003), have also been associated with empathic accuracy. Increased motivation and empathic accuracy have been associated in studies looking at the influence of individual factors such as gender and extrinsic factors such as paying observers to be more accurate (Ickes, Gesn, & Graham, 2000), and relationship factors like authority (Snodgrass, Hecht, & Ploutz-Snyder, 1998), as well as factors that cause lack of interest such as extensive relationship duration (Kilpatric, Bissonnette & Rusbult, 2002).

In this programme, as described above, studies 1 and 2 have shown a relationship between factors thought to influence knowledge (e.g., session duration and shared focus) and motivation (e.g., athlete gender, positive relationship perceptions.) and empathic accuracy. Additionally, study 3 has shown that the more coaches were exposed to an athlete the greater the coaches' empathic accuracy, arguable because they accumulate more information over time. Furthermore, study 3 has shown that directly manipulating the amount of information coaches got via feedback also influenced the accuracy of their inferences.

Empathic accuracy and positive outcomes. The proposed model (see figure 6.1) postulates two possible mechanisms linking empathic accuracy with outcomes. The first suggests that the link between empathic accuracy and outcomes is mediated by effective behaviour. A variety of studies have linked empathic accuracy with positive behaviours such as effective communication (Davis & Oathout, 1992), comprising

(Kilpatrick, Bissonnette & Rusbult, 1999), and conflict management (Davis & Kraus, 1997), as well as links between empathic accuracy and outcomes like relationship satisfaction and well being (Kilpatrick, Bissonnette & Rusbult, 1999; Sillars et al., 1990). However, this mechanism was not substantiated by the findings of this programme of research. Study 2 showed only a direct link between athletes' empathic accuracy and their satisfaction with the training and instruction they received. While the evidence described above would suggest that effective behaviour is an important mediator between empathic accuracy and outcomes, for those outcomes assessed in study 2 it did not appear to be the primary mechanism.

Another potential mediator between empathic accuracy and outcomes is the perception the observer holds of the target and their relationship with them. Davis (1994) has suggested that empathy leads to affective outcomes such as positive feelings and that this in turn can lead to positive interpersonal outcomes. Additionally, Losoya and Eisenberg (1997) have suggested that empathic accuracy leads to an insight and appreciation of others that in turn may result in more positive feelings towards that individual and their actions (e.g., satisfaction with how they act towards you). Study 2 of this programme of research strongly supports this mechanism. Empathic accuracy was significantly linked with positive meta-perspectives for both coaches and athletes. Additionally, with the exception of coaches' satisfaction with training and coaches' meta-perspectives, meta-perspectives were significantly associated with satisfaction. This substantiates the argument that positive perceptions mediate the relationship between empathic accuracy and outcomes such as satisfaction.

Despite the stronger evidence for the second of the two mechanisms described above it is likely that both play a role in achieving outcomes such as satisfaction, motivation, and performance. The importance of each remains to be explored for different outcomes and should be a primary focus of future research efforts.

This proposed model of empathic accuracy is useful in that it provides a framework for conceptualising empathic accuracy and for analysing its relationships with other variables. However, this model is limited and should be used as a guide rather than a prescription. Some elements of the model, such as the links between empathic accuracy and positive outcomes, are only partially supported by evidence or may be open to alternative interpretations. While proposed as a research guide, researchers should be cautious in its use and interpretation. It should be used as an aid

in framing future research questions and a scaffold on which to build as our understanding of empathic accuracy in sport and other domains increases.

6.8 Concluding remarks

In conclusion, the main contributions of this project of research can be summed up as follows. First, it has shown that empathy as conceptualised as empathic accuracy can be assessed in actual real life situations, in the case of this work, coach-athlete training sessions. It therefore provides a paradigm for continued exploration of a variety of vital components of successful and effective coach-athlete interaction and relationships. With a reliable and valid method of assessing empathy researchers can be confident that their results are dependable. Additionally the methods employed open up interesting possibilities for coach development and self-reflection. Second, it has shown that the dynamics and individual factors unique to the interaction between a coach and an athlete have an influential effect on empathic accuracy. They play a key role in how accurately coaches and athletes are able to understand each other. Finally then, it has shown that not only does a degree of empathic accuracy exist between a coach and an athlete, and that this can be assessed, but also that this level of accuracy can be influenced by external manipulation.

Psychology is the systematic study of people; its aims are to measure, explain, predict, and alter their thoughts, feelings, and behaviours. This project of research has begun to address these aims in the field of empathic accuracy in coach-athlete relationships. It has shown that (a) empathic accuracy can be measured in training sessions, (b) through the assessment of characteristics of the coach, the athlete, and their environment, we can explain and begin to predict their levels of accuracy, and (c) by manipulating feedback we can improve coaches' accuracy. It should be remembered that this is only the very beginning of these investigations, and while this project of research has made an important contribution there remains much work to be done. Reflecting on this work we can see the importance for future researchers to continue to uncover antecedents and consequences of empathic accuracy, but also to establish ways to improve coaches' and athletes' accuracy and their own awareness of their ability to understand each other.

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Appendix 1

Studies one and two materials

Coach and athlete self-report forms

Coach and athlete inference forms

Athlete questionnaires form

Coach questionnaires form

Informed consent form

Coach/Self-report Date: _____ Number: _____

No.		
0	Feeling: <i>I was concerned and worried</i> Thoughts: <i>I was thinking about the athlete's ankle. He'd strained it last week. I was thinking the session would be too much</i>	+ 0 -
1	Feeling: Thoughts:	+ 0 -
2	Feeling: Thoughts:	+ 0 -
3	Feeling: Thoughts:	+ 0 -
4	Feeling: Thoughts:	+ 0 -
5	Feeling: Thoughts:	+ 0 -
6	Feeling: Thoughts:	+ 0 -

No.		
7	Feeling: Thoughts:	+ 0 -
8	Feeling: Thoughts:	+ 0 -
9	Feeling: Thoughts:	+ 0 -
10	Feeling: Thoughts:	+ 0 -
11	Feeling: Thoughts:	+ 0 -
12	Feeling: Thoughts:	+ 0 -

Athlete/Self-report Date: _____ Number: _____

No.		
0	Feeling: <i>I was concerned and worried</i> Thoughts: <i>I was thinking about my ankle. I'd strained it the other week. I was thinking the training would be too much</i>	+ 0 -
1	Feeling: Thoughts:	+ 0 -
2	Feeling: Thoughts:	+ 0 -
3	Feeling: Thoughts:	+ 0 -
4	Feeling: Thoughts:	+ 0 -
5	Feeling: Thoughts:	+ 0 -
6	Feeling: Thoughts:	+ 0 -

No.		
7	Feeling:	+
	Thoughts:	0 -
8	Feeling:	+
	Thoughts:	0 -
9	Feeling:	+
	Thoughts:	0 -
10	Feeling:	+
	Thoughts:	0 -
11	Feeling:	+
	Thoughts:	0 -
12	Feeling:	+
	Thoughts:	0 -

Coach/Inference

Date: _____ Number: _____

No.		
0	Feeling: <i>He was upset/worried</i> Thoughts: <i>He was thinking about the training drill and that he was never going to get any better</i>	+ 0 -
1	Feeling: Thoughts:	+ 0 -
2	Feeling: Thoughts:	+ 0 -
3	Feeling: Thoughts:	+ 0 -
4	Feeling: Thoughts:	+ 0 -
5	Feeling: Thoughts:	+ 0 -
6	Feeling: Thoughts:	+ 0 -

No.		
7	Feeling: Thoughts:	+ 0 -
8	Feeling: Thoughts:	+ 0 -
9	Feeling: Thoughts:	+ 0 -
10	Feeling: Thoughts:	+ 0 -
11	Feeling: Thoughts:	+ 0 -
12	Feeling: Thoughts:	+ 0 -

Athlete/Inference Date: _____ Number: _____

No.		
0	Feeling: <i>He was worried and concerned</i> Thoughts: <i>He was thinking about my ankle that I'd strained last week, and about what drills to give me</i>	+ 0 -
1	Feeling: Thoughts:	+ 0 -
2	Feeling: Thoughts:	+ 0 -
3	Feeling: Thoughts:	+ 0 -
4	Feeling: Thoughts:	+ 0 -
5	Feeling: Thoughts:	+ 0 -
6	Feeling: Thoughts:	+ 0 -

No.		
7	Feeling: Thoughts:	+ 0 -
8	Feeling: Thoughts:	+ 0 -
9	Feeling: Thoughts:	+ 0 -
10	Feeling: Thoughts:	+ 0 -
11	Feeling: Thoughts:	+ 0 -
12	Feeling: Thoughts:	+ 0 -

Athlete Response Sheet

This questionnaire aims to measure the nature of the coach-athlete relationship. Please read carefully the statements below and circle the answer that indicates whether you agree or disagree. There are no right or wrong answers. Please respond to the statements as honestly as possible.

		Not at all		Moderately			Very much	
		1	2	3	4	5	6	7
1	When I am coached by my coach I am responsive to his/her efforts	1	2	3	4	5	6	7
2	I trust my coach	1	2	3	4	5	6	7
3	I am committed to my coach	1	2	3	4	5	6	7
4	When I am coached by my coach I feel at ease	1	2	3	4	5	6	7
5	I like my coach	1	2	3	4	5	6	7
6	I appreciate the sacrifices my coach has experienced in order to improve my performance	1	2	3	4	5	6	7
7	When I am coached by my coach I am ready to do my best	1	2	3	4	5	6	7
8	My sport career is promising with my coach	1	2	3	4	5	6	7
9	When I am coached by my coach I adopt a friendly stance	1	2	3	4	5	6	7
10	I respect my coach	1	2	3	4	5	6	7
11	I am close to my coach	1	2	3	4	5	6	7

		Not at all		Moderately			Very much	
		1	2	3	4	5	6	7
1	My coach is responsive to my efforts when he/she coaches me	1	2	3	4	5	6	7
2	My coach trusts me	1	2	3	4	5	6	7
3	My coach is committed to me	1	2	3	4	5	6	7
4	My coach feels at ease when he/she coaches me	1	2	3	4	5	6	7
5	My coach likes me	1	2	3	4	5	6	7
6	My coach is appreciative of the sacrifices I have experienced in order to improve my performance	1	2	3	4	5	6	7
7	My coach is ready to do his/her best when he/she coaches me	1	2	3	4	5	6	7
8	My coach believes that my sport career is promising with him/her	1	2	3	4	5	6	7
9	My coach adopts a friendly stance when he/she coaches me	1	2	3	4	5	6	7
10	My coach respects me	1	2	3	4	5	6	7
11	My coach is close to me	1	2	3	4	5	6	7

To what extent do the following statements describe your performance in competition

		False	Mostly False	More false than true	More true than false	Mostly True	True
1	I consistently perform to the level of my ability	1	2	3	4	5	6
2	My performance is particularly good for important competitions	1	2	3	4	5	6
3	My performance consistently meets my goals or expectations	1	2	3	4	5	6
4	I am consistently able to give my best overall performance	1	2	3	4	5	6
5	I excel in this sport because I am able to give a peak performance when necessary	1	2	3	4	5	6
6	I am consistently able to "pull it all together" when performing in this sport	1	2	3	4	5	6

To what extent are you satisfied with the following elements of your performance and your relationship with your coach

		Not at all		Moderately			Very much	
		1	2	3	4	5	6	7
1	The degree to which I have reached my performance goals during the season	1	2	3	4	5	6	7
2	The recognition I receive from my coach	1	2	3	4	5	6	7
3	The training I received from the coach during the season	1	2	3	4	5	6	7
4	The friendliness of the coach towards me	1	2	3	4	5	6	7
5	The improvement in my performance over the previous season	1	2	3	4	5	6	7
6	The instruction I have received from the coach this season	1	2	3	4	5	6	7
7	The coach's teaching of the tactics and techniques of my position	1	2	3	4	5	6	7
8	The improvement in my skill level	1	2	3	4	5	6	7
9	The level of appreciation my coach shows when I do well	1	2	3	4	5	6	7
10	My coach's loyalty towards me	1	2	3	4	5	6	7
11	The extent to which the coach is behind me	1	2	3	4	5	6	7

Gender: Male / Female

Age: _____

Ethnic origin: _____

Sport: _____

Competitive experience: _____ (years)

Length of relationship with coach: _____

In general, how many days per week do you train under the supervision of your coach?

In general, how many hours does a single training session last?

Is it likely for you have two or more training sessions a day? YES / NO

Currently, are you attending double training sessions a day? YES / NO

What is the performance level that you train and compete?

University ☐ / County ☐ / Regional ☐ / National ☐ / International ☐ / Olympic ☐

What is the highest level you have competed at?

University ☐ / County ☐ / Regional ☐ / National ☐ / International ☐ / Olympic ☐

What is the highest level you believe you will compete at in your sport career?

University ☐ / County ☐ / Regional ☐ / National ☐ / International ☐ / Olympic ☐

How would you rate your performance last season?

BAD

POOR

AVERAGE

GOOD

EXCELLENT

What do you think your performance will be like in the upcoming season?

BAD

POOR

AVERAGE

GOOD

EXCELLENT

What is the next major sporting event you are preparing for?

Coach Response Sheet

This questionnaire aims to measure the nature of the coach-athlete relationship. Please read carefully the statements below and circle the answer that indicates whether you agree or disagree. There are no right or wrong answers. Please respond to the statements as honestly as possible.

		Not at all		Moderately			Very much	
		1	2	3	4	5	6	7
1	When I coach my athlete, I am responsive to his/her efforts	1	2	3	4	5	6	7
2	I trust my athlete	1	2	3	4	5	6	7
3	I am committed to my athlete	1	2	3	4	5	6	7
4	When I coach my athlete, I feel at ease	1	2	3	4	5	6	7
5	I like my athlete	1	2	3	4	5	6	7
6	I appreciate the sacrifices my athlete has experienced in order to improve his/her performance	1	2	3	4	5	6	7
7	When I coach my athlete, I am ready to do my best	1	2	3	4	5	6	7
8	My athlete's sport career is promising with me	1	2	3	4	5	6	7
9	When I coach my athlete, I adopt a friendly stance	1	2	3	4	5	6	7
10	I respect my athlete	1	2	3	4	5	6	7
11	I am close to my athlete	1	2	3	4	5	6	7

		Not at all		Moderately			Very much	
1	My athlete is responsive to my efforts when I coach him/her	1	2	3	4	5	6	7
2	My athlete trusts me	1	2	3	4	5	6	7
3	My athlete is committed to me	1	2	3	4	5	6	7
4	My athlete feels at ease when I coach him/her	1	2	3	4	5	6	7
5	My athlete likes me	1	2	3	4	5	6	7
6	My athlete is appreciative of the sacrifices I have experienced in order to improve his/her performance	1	2	3	4	5	6	7
7	My athlete is ready to do his/her best when I coach him/her	1	2	3	4	5	6	7
8	My athlete believes that his/her sport career is promising with me	1	2	3	4	5	6	7
9	My athlete adopts a friendly stance when I coach him/her	1	2	3	4	5	6	7
10	My athlete respects me	1	2	3	4	5	6	7
11	My athlete is close to me	1	2	3	4	5	6	7

To what extent do the following statements describe your athlete's performance during competition

		False	Mostly False	More false than true	More true than false	Mostly True	True
1	My athlete consistently performs to the level of his/her ability	1	2	3	4	5	6
2	My athlete's performance is particularly good for important competitions	1	2	3	4	5	6
3	My athlete's performance consistently meets my goals or expectations	1	2	3	4	5	6
4	My athlete is consistently able to give his/her best overall performance	1	2	3	4	5	6
5	My athlete excels in this sport because he/she is able to give a peak performance when necessary	1	2	3	4	5	6
6	My athlete is consistently able to "pull it all together" when performing in this sport	1	2	3	4	5	6

To what extent are you satisfied with the following elements of your performance and your relationship with your athlete

		Not at all		Moderately			Very much	
		1	2	3	4	5	6	7
1	The degree to which my athlete has reached his/her performance goals during the season	1	2	3	4	5	6	7
2	The recognition I receive from my athlete	1	2	3	4	5	6	7
3	The training I provided to my athlete during the season	1	2	3	4	5	6	7
4	The friendliness of the athlete towards me	1	2	3	4	5	6	7
5	The improvement in my athlete's performance over the previous season	1	2	3	4	5	6	7
6	The instruction I provided to my athlete this season	1	2	3	4	5	6	7
7	My teaching of the tactics and techniques of my athlete's position	1	2	3	4	5	6	7
8	The improvement in my athlete's skill level	1	2	3	4	5	6	7
9	The level of appreciation my athlete shows when he/she does well	1	2	3	4	5	6	7
10	My athlete's loyalty towards me	1	2	3	4	5	6	7
11	The extent to which the athlete is behind me	1	2	3	4	5	6	7

Gender: Male / Female

Age: _____

Ethnic origin: _____

Sport: _____

Coaching experience: _____ (years)

Length of relationship with athlete: _____

In general, how many days per week does the athlete come to you for training?

In general, how many hours does a single training session with your athlete last?

Is it likely for your athlete to attend two or more training sessions a day? YES / NO

Currently, is your athlete attending double training sessions a day? YES / NO

What is the performance level that you coach your athlete?

University ☐ / County ☐ / Regional ☐ / National ☐ / International ☐ / Olympic ☐

What is the highest level you have coached at?

University ☐ / County ☐ / Regional ☐ / National ☐ / International ☐ / Olympic ☐

What is the highest level you believe your athlete will compete in their sport career?

University ☐ / County ☐ / Regional ☐ / National ☐ / International ☐ / Olympic ☐

How would you rate your athlete's performance last season?

BAD	POOR	AVERAGE	GOOD	EXCELLENT
-----	------	---------	------	-----------

What do you think your athlete's performance will be like in the upcoming season?

BAD	POOR	AVERAGE	GOOD	EXCELLENT
-----	------	---------	------	-----------

What is the next major sporting event your athlete is preparing for?

Coach-athlete interaction

INFORMED CONSENT FORM

The purpose and details of this study have been explained to me. I understand that this study is designed to further scientific knowledge and that the Loughborough University Ethical Advisory Committee has approved all procedures.

I have read and understood all information provided and this consent form.

I have had an opportunity to ask questions about my participation.

I understand that I am under no obligation to take part in the study.

I understand that I have the right to withdraw from this study at any stage for any reason, and that I will not be required to explain my reasons for withdrawing.

I understand that all the information I provide will be treated in strict confidence.

I agree to participate in this study.

Your name

Your signature

Signature of investigator

Date

Appendix II

Study three materials

Informed consent form

Coach questionnaire form

Coach Inferences of Athlete Thoughts & Feelings During Training

You are about to watch a short video of a training session between a male coach (age 42) and a female player (age 23). They have been training together for 9 months, 4-5 times a week, for an average of 2 hours. The player has been playing badminton competitively for almost 12 years and has competed at a very high standard in the United Kingdom. Much of their training for the last 3 months has been exclusively one-on-one training focusing on technical aspects of play. In the player's words "We've been doing this a lot, going over and over the same stuff".

INFORMED CONSENT

The purpose and details of this study have been explained to me. I understand that this study is designed to further scientific knowledge and that all procedures have been approved by the Loughborough University Ethical Advisory Committee.

I have understood all information provided and this consent form.

I have had an opportunity to ask questions about my participation.

I understand that I am under no obligation to take part in the study.

I understand that I have the right to withdraw from this study at any stage for any reason, and that I will not be required to explain my reasons for withdrawing.

I understand that all the information I provide will be treated in strict confidence.

I agree to participate in this study.

Your name: _____

Your signature: _____

Date: _____

Signature of investigator: _____

Personal Information

Gender: Male / Female

Age: _____

Ethnic origin: _____

How many years have you been coaching: _____

How many hours on average do you coach for per week: _____

What is your coaching qualification level: None / 1 / 2 / 3 / 4 / 5

Do you have any other notable coaching qualifications, if so, what:

What is the highest performance level at which you coach:

University ☐ / Regional ☐ / National ☐ / International ☐ / Olympic ☐

How accurate do you think you will be at inferring the thoughts/feelings of the player in the video:

10% - 20 - 30 - 40 - 50 - 60 - 70 - 80 - 90 - 100%

No.		
E.G	Feeling: <i>He was upset/worried</i> Thoughts: <i>He was thinking about the training drill and that he was never going to get any better</i>	
1	Feelings: Thoughts:	
2	Feelings: Thoughts:	
3	Feelings: Thoughts:	
4	Feelings: Thoughts:	
5	Feelings: Thoughts:	

No.		
6	Feelings: Thoughts:	
7	Feelings: Thoughts:	
8	Feelings: Thoughts:	
9	Feelings: Thoughts:	
10	Feelings: Thoughts:	

Now you have finished, how accurate do you think you were:

10% - 20 - 30 - 40 - 50 - 60 - 70 - 80 - 90 - 100%

Please use the rating scale to describe how accurately each statement describes you. Describe yourself as you generally are now, not as you wish to be in the future. Describe yourself as you honestly see yourself.

		Very inaccurate		Neither inaccurate nor accurate		Very accurate
1	I am the life of the party	1	2	3	4	5
2	I feel little concern for others	1	2	3	4	5
3	I am always prepared	1	2	3	4	5
4	I get stressed out easily	1	2	3	4	5
5	I have a rich vocabulary	1	2	3	4	5
6	I don't talk a lot	1	2	3	4	5
7	I am interested in people	1	2	3	4	5
8	I leave my belongings around	1	2	3	4	5
9	I am relaxed most of the time	1	2	3	4	5
10	I have difficulty understanding abstract ideas	1	2	3	4	5
11	I feel comfortable around people	1	2	3	4	5
12	I insult people	1	2	3	4	5
13	I pay attention to details	1	2	3	4	5
14	I worry about things	1	2	3	4	5
15	I have a vivid imagination	1	2	3	4	5
16	I keep in the background	1	2	3	4	5
17	I sympathize with others' feelings	1	2	3	4	5
18	I make a mess of things	1	2	3	4	5
19	I seldom feel blue	1	2	3	4	5
20	I am interested in abstract ideas	1	2	3	4	5
21	I start conversations	1	2	3	4	5
22	I am not interested in other peoples' problems	1	2	3	4	5
23	I get chores done right away	1	2	3	4	5
24	I am easily disturbed	1	2	3	4	5
25	I have excellent ideas	1	2	3	4	5

		Very inaccurate		Neither inaccurate nor accurate		Very accurate
26	I have little to say	1	2	3	4	5
27	I have a soft heart	1	2	3	4	5
28	I often forget to put things back in their proper place	1	2	3	4	5
29	I get upset easily	1	2	3	4	5
30	I do not have a good imagination	1	2	3	4	5
31	I talk to lots of different people at parties	1	2	3	4	5
32	I am not really interested in others	1	2	3	4	5
33	I like order	1	2	3	4	5
34	I change my mood a lot	1	2	3	4	5
35	I am quick to understand things	1	2	3	4	5
36	I don't like to draw attention to myself	1	2	3	4	5
37	I take time out for others	1	2	3	4	5
38	I shirk my duties	1	2	3	4	5
39	I have frequent mood swings	1	2	3	4	5
40	I use difficult words	1	2	3	4	5
41	I don't mind being the centre of attention	1	2	3	4	5
42	I feel others' emotions	1	2	3	4	5
43	I follow a schedule	1	2	3	4	5
44	I get irritated easily	1	2	3	4	5
45	I spend time reflecting on things	1	2	3	4	5
46	I am quiet around strangers	1	2	3	4	5
47	I make people feel at ease	1	2	3	4	5
48	I am exacting in my work	1	2	3	4	5
49	I often feel blue	1	2	3	4	5
50	I am full of ideas	1	2	3	4	5

Appendix III

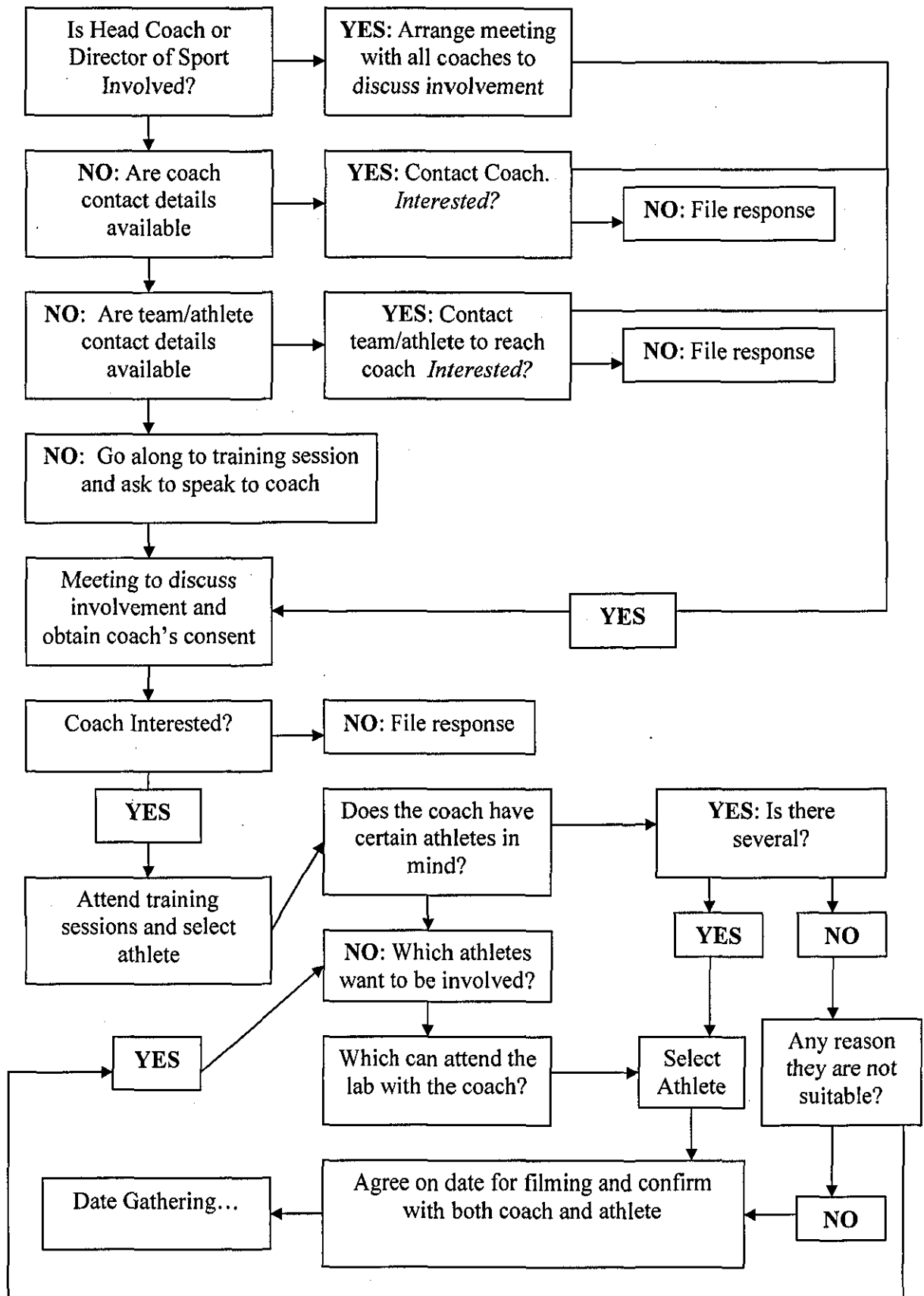
Recruitment materials and strategy

Recruitment flowchart

Recruitment letter

Appointment card for follow up session

Recruitment flowchart



Dear ...

As an essential part of my PhD at Loughborough University, I am conducting research under the supervision of Dr. Sophia Jowett into the effectiveness of coach-athlete interactions during training. The aim of this study is threefold:

- To explore how coaches and athletes perceive and understand each other.
- To understand how the quality of the coach-athlete relationship impacts upon their interaction during training.
- To study how the sporting relationship and mutual understanding influence performance and satisfaction.

This research involves video-recording a typical training session between a coach and either a single athlete or a team/squad of athletes. The coach and a single athlete from that training session would then be requested to spend approximately an hour in the sport social laboratory (preferably the day after the video recording). There they would review key moments from their training session, giving independent and confidential feedback. In this way, each and every participant will be making a valuable, sizeable, and much appreciated contribution to understanding the interpersonal dynamics between coaches and athletes. It is anticipated that the findings of this research will have significant value for coaches and coaching.

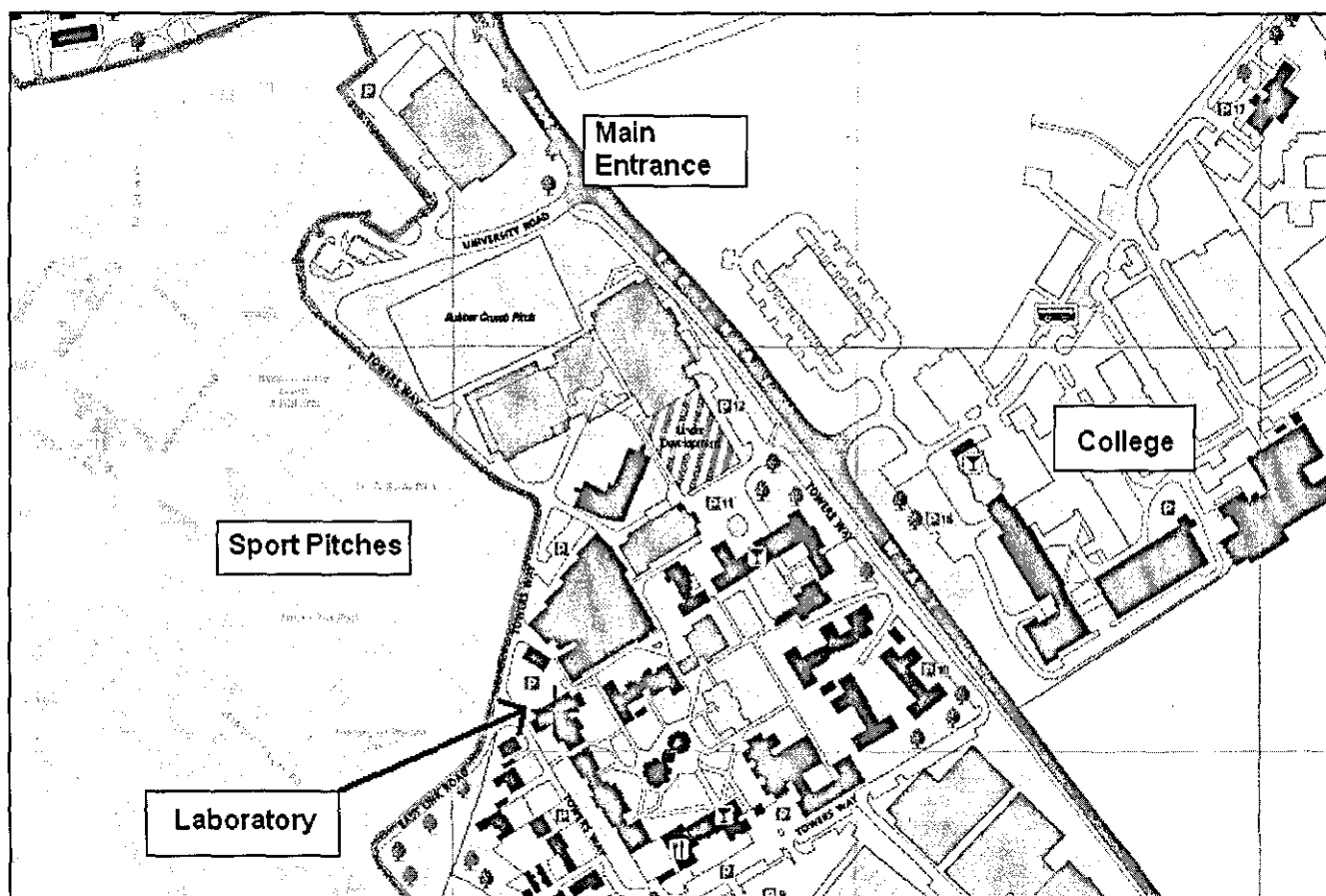
Moreover, the involvement of coaches and athletes provides them with a valuable opportunity to self-reflect on a variety of issues including how they interact with each other and the influence this has on them. All participants will be given feedback about the quality of their coach-athlete relationship and will be kept informed about the findings of this research as it progresses.

I appreciate that both coaches and athletes have hectic schedules and don't often keep 'office hours' and I am therefore happy to fit into your schedule whenever you have the time. Ideally the next stage is for us to arrange a brief meeting. This can be a one-to-one meeting or if you prefer I could attend one of your training sessions.

I hope you will be interested in participating. If you have any questions don't hesitate to contact me (01509 22 8450 or R.Lorimer@lboro.ac.uk).

Yours sincerely,

Ross Lorimer



Laboratory Appointment Card

Date: _____ **Time:** _____

This is a reminder of the time and day that you have agreed to attend the laboratory to complete your participation in this study.

Directions:

The Sport Psychology Laboratory is located in the East Park of Loughborough University in the John Cooper Building, the room is clearly signposted. The building is directly opposite the Rugby and Cricket grounds in the centre of this area of the University, on the side nearest to the main road - Epinal Way. This area can be reached through a variety of pedestrian entrances on Epinal way and via the main University entrance beside the Student Union. An easy to spot land mark is the student tower block 'Towers', located behind the laboratory building.

If you get lost just call the laboratory for directions: **01509 228450**

Appendix IV

Examples of self-report and inference data

Example individual sport (High Jump)

Example team sport (American Football)

Example individual sport (High Jump)

Coach empathy – example individual sport (High Jump)

1	F: Good, knows what is going to happen for the session T: looking forward to the session with me [coach] and going to enjoy Positive	F: Anticipation, slight excitement T: I was thinking about how my jumping would be on that day if I could improve my run up finally Neutral	
2	F: Thinking it is too high, going to have to really try and jump higher T: He [athlete] thought he was going to hit the bar or fail the jump Negative	F: Confused, nervous about the height, upcoming failure T: As it was unexpected twist I was at first thinking that the bar was an unachievable height and that I would never make it, but then surprised Negative	
3	F: That seems to make sense with the way I should jump T: Something new, shouldn't be too difficult to do Neutral	F: Concentration, focused on upcoming jump T: I was thinking about what I should change the next time I would jump to clear the height Positive	
4	F: A bit taken back by [coach's] pushy way of what to do and brushing down excuse T: Never realised it was not something I should not be doing Negative	F: Good about clearing the jump, slight confusion T: I was not quite sure about if my body would move it out itself Negative	
5	F: Felt much better, lighter, faster, a new feeling of running T: Oh! It did work, that felt good, less effort, more power, more efficient Positive	F: Failure at first, enlightened T: I felt what I was doing it wrong and what I needed to change and it was reinforced by my coach anticipating next jump Positive	
6	F: Felt good in giving coach what was going to do as was ready T: Knew what I had to do and understood objective for this jump Neutral	F: Focused on jump, thoughtful T: I was thinking about what I needed to change and how I should concentrate on certain things during my jump. Wondering if it would change my jumps Neutral	
7	F: Slightly frustrated, didn't happen how it should, like additional comments T: Oh that is a good idea, I never really thought I should think for myself Positive	F: Success, confused, looking for answer T: I felt success but at the same time I knew that I was doing something wrong. I was a bit confused about	

		what the problem was and I did not receive an answer from the coach Negative	
8	F: Felt great on run, frustrated on take off, happy but now shocked, surprised that [coach] took me past comfort zone T: Neutral; and shocked at moving run up back Negative	F: Success, enjoyment, limits of my body T: I could not handle the new speed of the run up but was pleasantly surprised that the coach said I could go faster as I cleared the jump easily, I was debating how fast I could run Positive	
9	F: Confused, the jump come so quick. Coach was pushing further to new areas T: No! Not again, but I am happy with this run and jump Negative	F: Thoughtful, unclear, happy, amusement T: I felt something was not perfectly right and I felt slightly amused by my coach saying I should move further back as I thought I was going fast enough already Positive	
10	F: Like the run, put on the spot by question, new feeling to jump T: I want to keep at this speed, don't change it again! Not again! Negative	F: Questioned T: I felt like I could not handle the new speed of my run up, but the coach made me think about it a lot more and I realised that I probably gave myself lower rating than I should Positive	
11	F: Loved the run up, feel comfortable, more like jumping, agree with me! T: That feels better, fluent, new dimension of speed and power, feel good Positive	F: Unsatisfied, anticipating next jump T: I was thinking about my next jump which I could improve by information coach gave me, as I realised what I was not doing when I was jumping, slightly not happy with the way UI had been jumping before Positive	
12	F: Felt I have improved on run, worried about jumping, need reassurance, that all will be fine T: High and low feeling, learnt one area but have another to master! Positive	F: Happy, slightly worried T: I was happy that I has a good session and I improved my run up, but I was also not sure if I could handle the new speed and I was already thinking about the next training session. My knees were in some pain, but overall I had a good training session Positive	

Athlete empathy – example individual sport (High Jump)

1	<p>F: Slightly pressured about time, worried about others [other group] T: Telling everyone what they should do, in a rush, wants everyone to hurry up and get prepared for a training session Negative</p>	<p>F: Good preparation for group, interactive, set objective T: In a good mood, setting the tone for the session, looking forward to achieving targets Positive</p>	
2	<p>F: Satisfied T: Thinking about what athletes should remember, what exactly they need to watch for, happy he [coach] could teach them [athletes] through a situation Positive</p>	<p>F: Set clarity by setting a target higher than his expectation, happy to prove point T: In total control of how I can prove he can apply move arm swing Positive</p>	
3	<p>F: Unsatisfied, impatient T: Thinking about teaching athletes something they keep forgetting even though they are reminded each week, wasting time because of this Negative</p>	<p>F: Give clear concise example of what I expect showing right and wrong way T: Okay, repeated this before and needed to give clarity move in-depth to all Positive</p>	
4	<p>F: Moderately satisfied T: The athletes should not worry about anything else apart from what I tell him, thinks about it too much rather than doing it Neutral</p>	<p>F: great that I spotted him looking down, reduce gap that could grow T: Neutral, must give him as much focus on other areas to improve performance Neutral</p>	
5	<p>F: Satisfied, enthusiastic, motivated T: Happy that the athlete was doing something right but still needs to improve on some areas, going the right path Positive</p>	<p>F: Felt very good on pushing my instructions through to him, achieve objective T: Very good, great, but okay on take off as he didn't follow it through with speed Positive</p>	
6	<p>F: Anticipating, focused T: Thinking about what athlete should do but thinking if he will do it or not, thinking about other jumpers and what I need to tell them Neutral</p>	<p>F: Asking [athlete] what he is going to do so I know he will carry out my instructions T: Need to know that we are on the same wavelength, felt okay, what is expected of me Neutral</p>	
7	<p>F: Happy, surprised, unsatisfied, tired of repeating T: Coach was surprised that athlete did not know what was wrong and does not want to repeat everything, therefore</p>	<p>F: getting feedback, getting him to think for himself and I must not reply on my instructions without feeling T: Good in pushing on the other side of the coin, giving him another</p>	

	telling the athlete to work it out himself next time Negative	dimension Positive	
8	F: Happy, amused, faith in jumper/athlete T: The athlete jumped well and did what I taught him, amused by athlete's reaction, motivating athlete Positive	F: Great! Meet objectives as he gave clear signs of losing balanced coordination on take off T: really good mood, well happy, as I knew we were on course to achieve the speed and attack of run up Positive	
9	F: Amused T: Amused by sudden improved jump but was not so impressed by athlete's wrong answer, telling athlete because he will no figure it out himself Neutral	F: Great, getting better and closer, improving athlete, edging closer and better with each jump T: Excellent, happier, all falling into place like going over hurdles Positive	
10	F: Unsatisfied, surprised, satisfied T: Athlete isn't performing too good, give himself a low score but at least knows what he is doing wrong to some extent, happy about what has been taught to athlete Positive	F: I am thinking like athletes to know what he is doing and not doing! T: In total control of athlete's physical ability and now moving deeper in his mind, feels fab Positive	
11	F: Concerned T: Concerned about motivation of athlete, worrying about still not performing the way the athlete should do Negative	F: Achieved run up objective, now moving on to next requirement T: As I expected from athlete, just adding a bit each time, love his feedback better than my delivery almost Neutral	
12	F: Thoughtful, satisfied, unconcerned T: Athletes know what they did wrong and what they should improve on, not concerned about next training session as run ups were better Positive	F: Listen, show I care, in total control, excellent session in all aspects T: Loved the session, give clarity of what I will do next, love it! Positive	

Shared Focus – example individual sport (High Jump)

1	<p>F: Good preparation for group, interactive, set objective</p> <p>T: In a good mood, setting the tone for the session, looking forward to achieving targets</p> <p>Positive</p>	<p>F: Anticipation, slight excitement</p> <p>T: I was thinking about how my jumping would be on that day if I could improve my run up finally</p> <p>Neutral</p>	
2	<p>F: Set clarity by setting a target higher than his expectation, happy to prove point</p> <p>T: In total control of how I can prove he can apply move arm swing</p> <p>Positive</p>	<p>F: Confused, nervous about the height, upcoming failure</p> <p>T: As it was unexpected twist I was at first thinking that the bar was an unachievable height and that I would never make it, but then surprised</p> <p>Negative</p>	
3	<p>F: Give clear concise example of what I expect showing right and wrong way</p> <p>T: Okay, repeated this before and needed to give clarity move in-depth to all</p> <p>Positive</p>	<p>F: Focused on upcoming jump</p> <p>T: I was thinking about what I should change the next time I would jump to clear the height</p> <p>Positive</p>	
4	<p>F: Great that I spotted him looking down, reduce gap that could grow</p> <p>T: Neutral, must give him as much focus on other areas to improve performance</p> <p>Neutral</p>	<p>F: Good about clearing the jump, slight confusion</p> <p>T: I was not quite sure about if my body would move it out itself</p> <p>Negative</p>	
5	<p>F: Felt very good on pushing my instructions through to him, achieve objective</p> <p>T: Very good, great, but okay on take off as he didn't follow it through with speed</p> <p>Positive</p>	<p>F: Failure at first, enlightened</p> <p>T: I felt what I was doing it wrong and what I needed to change and it was reinforced by my coach anticipating next jump</p> <p>Positive</p>	
6	<p>F: Asking [athlete] what he is going to do so I know he will carry out my instructions</p> <p>T: Need to know that we are on the same wavelength, felt okay, what is expected of me</p> <p>Neutral</p>	<p>F: Focused on jump, thoughtful</p> <p>T: I was thinking about what I needed to change and how I should concentrate on certain things during my jump. Wondering if it would change my jumps</p> <p>Neutral</p>	
7	<p>F: getting feedback, getting him to think for himself and I must not reply on my instructions without feeling</p> <p>T: Good in pushing on the other side of the coin, giving him another dimension</p> <p>Positive</p>	<p>F: Success, confused, looking for answer</p> <p>T: I felt success but at the same time I knew that I was doing something wrong. I was a bit confused about what the problem was and I did not receive an answer from the coach</p> <p>Negative</p>	

8	<p>F: Great! Meet objectives as he gave clear signs of losing balanced coordination on take off</p> <p>T: really good mood, well happy, as I knew we were on course to achieve the speed and attack of run up</p> <p>Positive</p>	<p>F: Success, enjoyment, limits of my body</p> <p>T: I could not handle the new speed of the run up but was pleasantly surprised that the coach said I could go faster as I cleared the jump easily, I was debating how fast I could run</p> <p>Positive</p>	
9	<p>F: Great, getting better and closer, improving athlete, edging closer and better with each jump</p> <p>T: Excellent, happier, all falling into place like going over hurdles</p> <p>Positive</p>	<p>F: Thoughtful, unclear, happy, amusement</p> <p>T: I felt something was not perfectly right and I felt slightly amused by my coach saying I should move further back as I thought I was going fast enough already</p> <p>Positive</p>	
10	<p>F: I am thinking like athletes to know what he is doing and not doing!</p> <p>T: In total control of athlete's physical ability and now moving deeper in his mind, feels fab</p> <p>Positive</p>	<p>F: Questioned</p> <p>T: I felt like I could not handle the new speed of my run up, but the coach made me think about it a lot more and I realised that I probably gave myself lower rating than I should</p> <p>Positive</p>	
11	<p>F: Achieved run up objective, now moving on to next requirement</p> <p>T: As I expected from athlete, just adding a bit each time, love his feedback better than my delivery almost</p> <p>Neutral</p>	<p>F: Unsatisfied, anticipating next jump</p> <p>T: I was thinking about my next jump which I could improve by information coach gave me, as I realised what I was not doing when I was jumping, slightly not happy with the way UI had been jumping before</p> <p>Positive</p>	
12	<p>F: Listen, show I care, in total control, excellent session in all aspects</p> <p>T: Loved the session, give clarity of what I will do next, love it!</p> <p>Positive</p>	<p>F: Happy, slightly worried</p> <p>T: I was happy that I has a good session and I improved my run up, but I was also not sure if I could handle the new speed and I was already thinking about the next training session. My knees were in some pain, but overall I had a good training session</p> <p>Positive</p>	

Coach baseline – example individual sport

1	<p>F: Thinking it is too high, going to have to really try and jump higher T: He [athlete] thought he was going to hit the bar or fail the jump Negative</p>	<p>F: Good about clearing the jump, slight confusion T: I was not quite sure about if my body would move it out itself Negative</p>	
2	<p>F: Like the run, put on the spot by question, new feeling to jump T: I want to keep at this speed, don't change it again! Not again! Negative</p>	<p>F: Thoughtful, unclear, happy, amusement T: I felt something was not perfectly right and I felt slightly amused by my coach saying I should move further back as I thought I was going fast enough already Positive</p>	
3	<p>F: Felt good in giving coach what was going to do as was ready T: Knew what I had to do and understood objective for this jump Neutral</p>	<p>F: Failure at first, enlightened T: I felt what I was doing it wrong and what I needed to change and it was reinforced by my coach anticipating next jump Positive</p>	
4	<p>F: Felt I have improved on run, worried about jumping, need reassurance, that all will be fine T: High and low feeling, learnt one area but have another to master! Positive</p>	<p>F: Unsatisfied, anticipating next jump T: I was thinking about my next jump which I could improve by information coach gave me, as I realised what I was not doing when I was jumping, slightly not happy with the way UI had been jumping before Positive</p>	
5	<p>F: Good, knows what is going to happen for the session T: looking forward to the session with me [coach] and going to enjoy Positive</p>	<p>F: Success, confused, looking for answer T: I felt success but at the same time I knew that I was doing something wrong. I was a bit confused about what the problem was and I did not receive an answer from the coach Negative</p>	
6	<p>F: Felt great on run, frustrated on take off, happy but now shocked, surprised that [coach] took me past comfort zone T: Neutral; and shocked at moving run up back Negative</p>	<p>F: Concentration, focused on upcoming jump T: I was thinking about what I should change the next time I would jump to clear the height Positive</p>	

Athlete baseline – example individual sport (High Jump)

1	<p>F: Anticipating, focused T: Thinking about what athlete should do but thinking if he will do it or not, thinking about other jumpers and what I need to tell them Neutral</p>	<p>F: Felt very good on pushing my instructions through to him, achieve objective T: Very good, great, but okay on take off as he didn't follow it through with speed Positive</p>	
2	<p>F: Thoughtful, satisfied, unconcerned T: Athletes know what they did wrong and what they should improve on, not concerned about next training session as run ups were better Positive</p>	<p>F: I am thinking like athletes to know what he is doing and not doing! T: In total control of athlete's physical ability and now moving deeper in his mind, feels fab Positive</p>	
3	<p>F: Satisfied T: Thinking about what athletes should remember, what exactly they need to watch for, happy he [coach] could teach them [athletes] through a situation Positive</p>	<p>F: Achieved run up objective, now moving on to next requirement T: As I expected from athlete, just adding a bit each time, love his feedback better than my delivery almost Neutral</p>	
4	<p>F: Amused T: Amused by sudden improved jump but was not so impressed by athlete's wrong answer, telling athlete because he will no figure it out himself Neutral</p>	<p>F: Great that I spotted him looking down, reduce gap that could grow T: Neutral, must give him as much focus on other areas to improve performance Neutral</p>	
5	<p>F: Concerned T: Concerned about motivation of athlete, worrying about still not performing the way the athlete should do Negative</p>	<p>F: Listen, show I care, in total control, excellent session in all aspects T: Loved the session, give clarity of what I will do next, love it! Positive</p>	
6	<p>F: Unsatisfied, impatient T: Thinking about teaching athletes something they keep forgetting even though they are reminded each week, wasting time because of this Negative</p>	<p>F: Good preparation for group, interactive, set objective T: In a good mood, setting the tone for the session, looking forward to achieving targets Positive</p>	

Example team sport (American Football)

Coach empathy – example team sport (American Football)

1	F: He was feeling exhausted T: That he'd heard this spiel so many times before he could relax and get his breath back for a second Neutral	F: I was confident as I'd done this drill many times T: Thinking about taking my 'read-step' – (what coach is explaining) Positive	
2	F: Worried about the trial ahead but confident about the drill T: Trying to listen intently Neutral	F: Hot T: I was wondering if I had to read-step the same direction as the shuffle Positive	
3	F: Worried about the trial ahead but confident about the drill T: Trying to listen intently Neutral	F: Confident T: Done this drill before. Slightly surprised someone didn't know what an 'alley' was. Wondered if my shorts were too high! Neutral	
4	F: Exhilarated but then like he was the target for criticism T: "He's picking on me!" Negative	F: Annoyed with myself for not doing the drill properly T: Why didn't I run all the way? Negative	
5	F: Confident T: Thinking that he had executed well Positive	F: New drill. I liked it T: I'm never gonna catch that Positive	
6	F: Concerned about the drill T: Listen intently and blow the other guy away Positive	F: Good T: I'm going to run over that guy (he was small) Positive	
7	F: Happy T: Enjoying casual conversation Positive	F: Slightly concerned that I hadn't planned anything for evening T: I wondered where everyone wants to go to eat! Neutral	
8	F: Neutral T: Thinking about drill Neutral	F: Tired T: I'm rubbish at opening my hips. This is going to be a bad drill Negative	
9	F: Happy, relaxed T: Humorous thoughts of coach messing up when playing Positive	F: Hot tired T: I can touch my hand together. Then I realised how Matt meant and re-tried – I couldn't! Neutral	
10	F: Annoyed at dropping the ball T: Pissed off that he was accused of doing something he didn't Negative	F: Annoyed! T: Why did I try to catch that?! I thought I did put my arms out Negative	

Athlete empathy – example team sport (American Football)

1	F: Hot T: He should be able to do this. Too many linebackers don't take read steps Positive	F: Anxious – beginning of the training session, new players T: I was thinking I had to be coherent as possible without over simplifying it Neutral
2	F: Out of breath, hot T: Why did I wear black today of all days?! Fundamental drill Positive	F: Confident – it was a drill I had run many times before T: The unit as a whole seemed not to be responding as I wanted – non-committed Negative
3	F: Hot T: How has this guy played a season and doesn't know what an 'alley' is? Now, how to explain it. This is a long description Neutral	F: Confident – it was a drill I had run many times before T: I thought that when the other coach expanded on my thoughts I hadn't explained well enough Neutral
4	F: Annoyed/let down T: Come on Rich! We've done this drill many times, stop cutting corners and do it right Negative	F: Pleased with [player's] movement, discipline, and volume T: Throughout the day I was worried about praising the players – favouritism vs. over criticism Positive
5	F: Hot, slightly annoyed T: Wow I overthrew that one. Otherwise nicely done drill Neutral	F: embarrassed! But happy overall T: I defiantly not a QB! The players would be getting more out of this if I was more accurate Positive
6	F: Confident, hot T: Loughborough players should be good at this Positive	F: Empowered T: The players seemed to be really listening and responding Positive
7	F: Hot, thirsty, at ease T: Lets make them bend! I don't want to go to Vice versa! Positive	F: Happy T: I felt like I could relate to the players as friends, particularly Rich. This has been the case throughout the season Positive
8	F: Ok T: Thinking about the drill and how to explain it Positive	F: Concerned T: I was thinking that I introduced this drill too casually and didn't explain it well enough Negative

9	<p>F: Confident</p> <p>T: If I teach them this they'll start catching some balls!</p> <p>Positive</p>	<p>F: Happy – I had picked a particular point and explained it well</p> <p>T: I thought that by relating the fault to my previous performance, players wouldn't feel I was being over-critical</p> <p>Positive</p>	
10	<p>F: Disappointed</p> <p>T: Get your damn hands out there!</p> <p>Negative</p>	<p>F: Embarrassed and felt that Rich was pissed off with me</p> <p>T: I had criticised where it wasn't due and realised as soon as I said it</p> <p>Negative</p>	

Shared Focus – example team sport (American Football)

1	F: Anxious – beginning of the training session, new players T: I was thinking I had to be coherent as possible without over simplifying it Neutral	F: I was confident as I'd done this drill many times T: Thinking about taking my 'read-step' – (what coach is explaining) Positive	
2	F: Confident – it was a drill I had run many times before T: The unit as a whole seemed not to be responding as I wanted – non-committed Negative	F: Hot T: I was wondering if I had to read-step the same direction as the shuffle Positive	
3	F: Confident – it was a drill I had run many times before T: I thought that when the other coach expanded on my thoughts I hadn't explained well enough Neutral	F: Confident T: Done this drill before. Slightly surprised someone didn't know what an 'alley' was. Wondered if my shorts were too high! Neutral	
4	F: Pleased with [player's] movement, discipline, and volume T: Throughout the day I was worried about praising the players – favouritism vs. over criticism Positive	F: Annoyed with myself for not doing the drill properly T: Why didn't I run all the way to the cone? Negative	
5	F: embarrassed! But happy overall T: I defiantly not a QB! The players would be getting more out of this if I was more accurate Positive	F: New drill. I liked it T: I'm never gonna catch that Positive	
6	F: Empowered T: The players seemed to be really listening and responding Positive	F: Good T: I'm going to run over that guy (he was small) Positive	
7	F: Happy T: I felt like I could relate to the players as friends, particularly Rich. This has been the case throughout the season Positive	F: Hot! Out of breath. Slightly concerned that I hadn't planned anything for evening T: I wondered where everyone wants to go to eat! Neutral	
8	F: Concerned T: I was thinking that I introduced this drill too casually and didn't explain it well enough Negative	F: Tired T: I'm rubbish at opening my hips. This is going to be a bad drill Negative	
9	F: Happy – I had picked a particular point and explained it well	F: Hot tired T: I can touch my hand together.	

	T: I thought that by relating the fault to my previous performance, players wouldn't feel I was being over-critical Positive	Then I realised how Matt meant and re-tried – I couldn't! Neutral	
10	F: Embarrassed and felt that Rich was pissed off with me T: I had criticised where it wasn't due and realised as soon as I said it Negative	F: Annoyed! T: Why did I try to catch that?! I thought I did put my arms out Negative	

Coach baseline – example team sport (American Football)

1	F: Exhilarated but then like he was the target for criticism T: "He's picking on me!" "What do I have to do to get recognition?" Negative	F: Tired T: I'm rubbish at opening my hips. This is going to be a bad drill Negative	
2	F: Annoyed at dropping the ball T: Pissed off that he was accused of doing something he didn't Negative	F: I was confident as I'd done this drill many times T: Thinking about taking my 'read-step' – (what coach is explaining) Positive	
3	F: Concerned about the drill T: Listen intently and blow the other guy away Positive	F: Hot tired T: I can touch my hand together. Then I realised how Matt meant and re-tried – I couldn't! Neutral	
4	F: He was feeling exhausted T: That he'd heard this spiel so many times before he could relax and get his breath back for a second Neutral	F: Annoyed with myself for not doing the drill properly T: Why didn't I run all the way to the cone? Negative	
5	F: Worried about the trial ahead but confident about the drill T: Trying to listen intently Neutral	F: Annoyed! T: Why did I try to catch that?! I thought I did put my arms out Negative	
6	F: Happy, relaxed T: Humorous thoughts of coach messing up when playing Positive	F: Confident T: Done this drill before. Slightly surprised someone didn't know what an 'alley' was. Wondered if my shorts were too high! Neutral	

Athlete baseline – example team sport (American Football)

1	F: Hot, slightly annoyed T: Wow I overthrew that one. Otherwise nicely done drill Neutral	F: Happy T: I felt like I could relate to the players as friends, particularly Rich. This has been the case throughout the season Positive	
2	F: Confident T: If I teach them this they'll start catching some balls! Positive	F: Pleased with [player's] movement, discipline, and volume T: Throughout the day I was worried about praising the Lboro players – favouritism vs. over criticism Positive	
3	F: Out of breath, hot T: Why did I wear black today of all days?! Fundamental drill Positive	F: Happy – I had picked a particular point and explained it well T: I thought that by relating the fault to my previous performance, players wouldn't feel I was being over-critical Positive	
4	F: Hot T: How has this guy played a season and doesn't know what an 'alley' is? Now, how to explain it. This is a long description Neutral	F: Embarrassed! But happy overall T: I defiantly not a QB! The players would be getting more out of this if I was more accurate Positive	
5	F: Hot T: Rich should be able to do this. Too many linebackers don't take read steps Positive	F: Confident – it was a drill I had run many times before T: The unit as a whole seemed not to be responding as I wanted – non-committed Negative	
6	F: Annoyed/let down T: Come on Rich! We've done this drill many times, stop cutting corners and do it right Negative	F: Empowered T: The players seemed to be really listening and responding Positive	

Appendix V

SPSS outputs

Study one

Study two

Study three

Study one: Empathic accuracy in coach-athlete dyads
who participate in team and individual sports

Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation
Coach Raw Empathy	40	23.33	72.22	40.8049	13.32413
Coach Baseline	40	.00	22.22	7.9861	6.95334
Coach Refined Empathy	40	4.17	68.06	32.8188	14.22588
Athlete Raw Empathy	40	13.33	70.83	40.8393	11.97354
Athlete Baseline	40	.00	25.00	8.3333	7.62674
Athlete Refined Empathy	40	9.72	55.56	32.5060	12.71948
SharedFocus	40	13.89	63.89	31.8153	11.96629
Number of athletes in training session	40	1	60	11.45	11.204
Duration (months)	40	0	156	18.60	30.336
Days training per week	40	1	6	2.68	1.421
Training session length	40	1.00	3.00	1.8625	.40805
Coach age	40	18	57	29.45	10.170
Athlete Age	40	18	40	21.35	3.867
Valid N (listwise)	40				

Generation of descriptive statistics for entire sample

Group Statistics

	SportType	N	Mean	Std. Deviation	Std. Error Mean
Coach Raw Empathy	Individual Sport	19	46.1098	13.91847	3.19312
	Team Sport	21	36.0053	10.99610	2.39955
Coach Baseline	Individual Sport	19	7.7485	6.84052	1.56932
	Team Sport	21	8.2011	7.21560	1.57457
Coach Refined Empathy	Individual Sport	19	38.3612	12.97241	2.97607
	Team Sport	21	27.8042	13.69642	2.98880
Athlete Raw Empathy	Individual Sport	19	43.6749	11.28209	2.58829
	Team Sport	21	38.2738	12.26607	2.67668
Athlete Baseline	Individual Sport	19	8.1871	7.93674	1.82081
	Team Sport	21	8.4656	7.52958	1.64309
Athlete Refined Empathy	Individual Sport	19	35.4878	12.82722	2.94277
	Team Sport	21	29.8082	12.30076	2.68425
SharedFocus	Individual Sport	19	36.0367	11.38941	2.61291
	Team Sport	21	27.9960	11.41195	2.49029
Number of athletes in training session	Individual Sport	19	8.53	13.146	3.016
	Team Sport	21	14.10	8.590	1.875
Duration (months)	Individual Sport	19	21.68	41.926	9.618
	Team Sport	21	15.81	13.974	3.049
Days training per week	Individual Sport	19	2.68	1.600	.367
	Team Sport	21	2.67	1.278	.279
Training session length	Individual Sport	19	1.9474	.49707	.11404
	Team Sport	21	1.7857	.29881	.06521
Coach age	Individual Sport	19	30.79	13.160	3.019
	Team Sport	21	28.24	6.526	1.424
Athlete Age	Individual Sport	19	21.89	5.098	1.170
	Team Sport	21	20.86	2.287	.499

Generation of descriptive statistics for team and individual sport samples

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
		F	Sig.	t	df	Sig. (2- tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
									Lower	Upper
Coach Raw Empathy	Equal variances assumed	1.549	.221	2.560	38	.015	10.10449	3.94705	2.11410	18.09489
	Equal variances not assumed			2.530	34.242	.016	10.10449	3.99422	1.98937	18.21961
Coach Baseline	Equal variances assumed	.017	.896	-.203	38	.840	-.45252	2.22917	-4.96523	4.06019
	Equal variances not assumed			-.204	37.908	.840	-.45252	2.22307	-4.95326	4.04822
Coach Refined Empathy	Equal variances assumed	.077	.783	2.496	38	.017	10.55701	4.22957	1.99469	19.11934
	Equal variances not assumed			2.503	37.911	.017	10.55701	4.21782	2.01783	19.09619
Athlete Raw Empathy	Equal variances assumed	.086	.770	1.444	38	.157	5.40110	3.73939	-2.16890	12.97110
	Equal variances not assumed			1.451	37.986	.155	5.40110	3.72342	-2.13665	12.93885
Athlete Baseline	Equal variances assumed	.368	.548	-.114	38	.910	-.27847	2.44596	-5.23006	4.67311
	Equal variances not assumed			-.114	37.106	.910	-.27847	2.45257	-5.24737	4.69042
Athlete Refined Empathy	Equal variances assumed	.005	.945	1.429	38	.161	5.67957	3.97454	-2.36647	13.72562
	Equal variances not assumed			1.426	37.223	.162	5.67957	3.98310	-2.38932	13.74846
SharedFocus	Equal variances assumed	.022	.884	2.227	38	.032	8.04065	3.60992	.73276	15.34854
	Equal variances not assumed			2.228	37.618	.032	8.04065	3.60955	.73106	15.35024
Number of athletes in training session	Equal variances assumed	.000	.991	-1.601	38	.118	-5.569	3.479	-12.611	1.473
	Equal variances not assumed			-1.568	30.497	.127	-5.569	3.551	-12.816	1.678

Duration (months)	Equal variances assumed	3.865	.057	.607	38	.548	5.875	9.684	-13.729	25.478
	Equal variances not assumed			.582	21.604	.566	5.875	10.090	-15.073	26.823
Days training per week	Equal variances assumed	1.271	.267	.038	38	.970	.018	.456	-.905	.940
	Equal variances not assumed			.038	34.443	.970	.018	.461	-.919	.954
Training session length	Equal variances assumed	.098	.756	1.261	38	.215	.16165	.12823	-.09794	.42125
	Equal variances not assumed			1.231	28.913	.228	.16165	.13136	-.10704	.43035
Coach age	Equal variances assumed	12.092	.001	.788	38	.435	2.551	3.236	-3.999	9.102
	Equal variances not assumed			.764	25.754	.452	2.551	3.338	-4.313	9.416
Athlete Age	Equal variances assumed	3.330	.076	.844	38	.404	1.038	1.229	-1.450	3.525
	Equal variances not assumed			.816	24.421	.422	1.038	1.272	-1.584	3.660

Hypothesis 1. Coaches and athletes in individual sports will display higher empathic accuracy in comparison to those involved in team sports.

Independent T-test results for all variables

Correlations

		Coach Refined Empathy	Athlete Refined Empathy	SharedFocus	Number of athletes in training session
Coach Refined Empathy	Pearson Correlation	1.000	.214	.626**	-.054
	Sig. (2-tailed)		.185	.000	.741
	N	40.000	40	40	40
Athlete Refined Empathy	Pearson Correlation	.214	1.000	.227	.043
	Sig. (2-tailed)	.185		.158	.793
	N	40	40.000	40	40
SharedFocus	Pearson Correlation	.626**	.227	1.000	-.400*
	Sig. (2-tailed)	.000	.158		.011
	N	40	40	40.000	40
Number of athletes in training session	Pearson Correlation	-.054	.043	-.400*	1.000
	Sig. (2-tailed)	.741	.793	.011	
	N	40	40	40	40.000

** . Correlation is significant at the 0.01 level (2-tailed).

* . Correlation is significant at the 0.05 level (2-tailed).

Hypothesis 2. Empathic accuracy will be positively associated with shared cognitive focus.

Hypothesis 3. Empathic accuracy and shared cognitive focus will decrease as groups increase in size.

Pearson correlations for main variables

Variables Entered/Removed^b

Model	Variables Entered	Variables Removed	Method
1	SportType ^a		Enter

a. All requested variables entered.

b. Dependent Variable: Coach Refined Empathy

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.375 ^a	.141	.118	13.35836

a. Predictors: (Constant), SportType

ANOVA^b

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	1111.719	1	1111.719	6.230	.017 ^a
	Residual	6780.937	38	178.446		
	Total	7892.656	39			

a. Predictors: (Constant), SportType

b. Dependent Variable: Coach Refined Empathy

Coefficients^a

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	48.918	6.787		7.208	.000
	SportType	-10.557	4.230	-.375	-2.496	.017

a. Dependent Variable: Coach Refined Empathy

Hypothesis 4. Shared cognitive focus and group size will mediate the relationship between sport type (i.e. team versus individual) and empathic accuracy.

Linear regressions to first establish associations exist

Variables Entered/Removed^b

Model	Variables Entered	Variables Removed	Method
1	SharedFocus ^a		Enter

a. All requested variables entered.

b. Dependent Variable: Coach Refined Empathy

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.626 ^a	.392	.376	11.23486

a. Predictors: (Constant), SharedFocus

ANOVA^b

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	3096.213	1	3096.213	24.530	.000 ^a
	Residual	4796.443	38	126.222		
	Total	7892.656	39			

a. Predictors: (Constant), SharedFocus

b. Dependent Variable: Coach Refined Empathy

Coefficients^a

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	9.129	5.102		1.789	.082
	SharedFocus	.745	.150	.626	4.953	.000

a. Dependent Variable: Coach Refined Empathy

Variables Entered/Removed^b

Model	Variables Entered	Variables Removed	Method
1	SportType ^a		Enter

a. All requested variables entered.

b. Dependent Variable: SharedFocus

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.340 ^a	.115	.092	11.40128

a. Predictors: (Constant), SportType

ANOVA^b

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	644.904	1	644.904	4.961	.032 ^a
	Residual	4939.586	38	129.989		
	Total	5584.491	39			

a. Predictors: (Constant), SportType

b. Dependent Variable: SharedFocus

Coefficients^a

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	44.077	5.793		7.609	.000
	SportType	-8.041	3.610	-.340	-2.227	.032

a. Dependent Variable: SharedFocus

Variables Entered/Removed^b

Model	Variables Entered	Variables Removed	Method
1	SharedFocus, SportType ^a		Enter

a. All requested variables entered.

b. Dependent Variable: Coach Refined Empathy

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.650 ^a	.422	.391	11.10262

a. Predictors: (Constant), SharedFocus, SportType

ANOVA^b

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	3331.732	2	1665.866	13.514	.000 ^a
	Residual	4560.924	37	123.268		
	Total	7892.656	39			

a. Predictors: (Constant), SharedFocus, SportType

b. Dependent Variable: Coach Refined Empathy

Coefficients^a

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	19.369	8.961		2.161	.037
	SportType	-5.167	3.738	-.184	-1.382	.175
	SharedFocus	.670	.158	.564	4.244	.000

a. Dependent Variable: Coach Refined Empathy

Hypothesis 4. Shared cognitive focus and group size will mediate the relationship between sport type (i.e. team versus individual) and empathic accuracy.

Linear regressions to establish level of mediation

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.556 ^a	.310	.252	12.30310

a. Predictors: (Constant), Training session length, Duration (months), Days training per week

ANOVA^b

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	2443.474	3	814.491	5.381	.004 ^a
	Residual	5449.182	36	151.366		
	Total	7892.656	39			

a. Predictors: (Constant), Training session length, Duration (months), Days training per week

b. Dependent Variable: Coach Refined Empathy

Coefficients^a

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	-3.943	9.391		-.420	.677
	Duration (months)	.013	.066	.027	.193	.848
	Days training per week	.778	1.428	.078	.544	.589
	Training session length	18.494	4.960	.530	3.728	.001

a. Dependent Variable: Coach Refined Empathy

Hypothesis 5. Empathic accuracy will be negatively associated with relationship duration.

Linear regressions to establish associations with coach empathic accuracy

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.300 ^a	.090	.014	12.62720

a. Predictors: (Constant), Training session length, Duration (months), Days training per week

ANOVA^b

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	569.561	3	189.854	1.191	.327 ^a
	Residual	5740.061	36	159.446		
	Total	6309.622	39			

a. Predictors: (Constant), Training session length, Duration (months), Days training per week

b. Dependent Variable: Athlete Refined Empathy

Coefficients^a

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	26.000	9.638		2.698	.011
	Duration (months)	.000	.068	-.001	-.009	.993
	Days training per week	2.712	1.466	.303	1.850	.073
	Training session length	-.396	5.091	-.013	-.078	.938

a. Dependent Variable: Athlete Refined Empathy

Hypothesis 5. Empathic accuracy will be negatively associated with relationship duration.

Linear regressions to establish associations with athlete empathic accuracy

Group Statistics

	Athlete gender	N	Mean	Std. Deviation	Std. Error Mean
Athlete Refined Empathy	Male	24	29.8290	11.00033	2.24543
	Female	9	41.3159	9.93347	3.31116

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
		F	Sig.	t	df	Sig. (2- tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
									Lower	Upper
Athlete Refined Empathy	Equal variances assumed	.653	.425	-2.738	31	.010	-11.48692	4.19603	-20.04479	-2.92905
	Equal variances not assumed			-2.871	15.882	.011	-11.48692	4.00072	-19.97320	-3.00064

Hypothesis 6. Female athletes with male coaches will have significantly higher empathic accuracy than male athletes with male coaches.

Independent T-Tests comparing males with females

Study two: Empathic accuracy, meta-perspective, satisfaction
and performance in the coach-athlete relationship

Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation
Coach Raw Empathy	60	12.50	72.22	39.5431	13.14302
Coach Baseline	60	.00	22.22	7.1574	6.60525
Coach Refined Empathy	60	4.17	68.06	32.3857	13.11073
Coach meta-closeness	60	3.50	7.00	5.2917	.83001
Coach meta-commitment	60	3.00	7.00	5.0778	.95544
Coach meta-complementarity	60	4.25	7.00	5.5042	.74289
Averaged Coach Meta Perspective	60	3.69	7.00	5.2912	.76928
Coach Training and Instruction	60	3.67	7.00	5.2611	.75438
Coach Personal Treatment	60	2.20	7.00	5.5133	1.01003
Coach subjective performance	60	2.00	6.00	4.4556	.84197
Athlete Raw Empathy	60	10.42	71.67	39.9998	14.13858
Athlete Baseline	60	.00	25.00	7.0463	7.25402
Athlete Refined Empathy	60	9.72	71.67	32.9535	15.05704
Athlete meta-closeness	60	2.50	7.00	5.4542	.77636
Athlete meta-commitment	60	2.33	7.00	5.2500	.90328
Athlete meta-complementarity	60	3.50	6.75	5.7667	.76450
Averaged Athlete Meta Perspective	60	2.78	6.58	5.4903	.72781
Athlete Training and Instruction	60	3.67	7.00	5.8278	.90508
Athlete Personal Treatment	60	3.40	7.00	5.6933	.82542
Athlete subjective performance	60	2.17	5.67	4.1833	.79054
Valid N (listwise)	60				

Generation of descriptive statistics for entire sample

Correlations

		Coach meta-closeness	Coach meta-commitment	Coach meta-complementarity
Coach meta-closeness	Pearson Correlation	1.000	.810**	.730**
	Sig. (2-tailed)		.000	.000
	N	60.000	60	60
Coach meta-commitment	Pearson Correlation	.810**	1.000	.696**
	Sig. (2-tailed)	.000		.000
	N	60	60.000	60
Coach meta-complementarity	Pearson Correlation	.730**	.696**	1.000
	Sig. (2-tailed)	.000	.000	
	N	60	60	60.000

** . Correlation is significant at the 0.01 level (2-tailed).

Correlations

		Athlete meta-closeness	Athlete meta-commitment	Athlete meta-complementarity
Athlete meta-closeness	Pearson Correlation	1.000	.738**	.717**
	Sig. (2-tailed)		.000	.000
	N	60.000	60	60
Athlete meta-commitment	Pearson Correlation	.738**	1.000	.636**
	Sig. (2-tailed)	.000		.000
	N	60	60.000	60
Athlete meta-complementarity	Pearson Correlation	.717**	.636**	1.000
	Sig. (2-tailed)	.000	.000	
	N	60	60	60.000

** . Correlation is significant at the 0.01 level (2-tailed).

Pearson correlations showing high inter-subscale associations – subscales then averaged out to form one coach and one athlete meta-perspective factor

Correlations

		Coach Refined Empathy	Coach Meta Perspective	Coach Personal Treatment	Coach Training and Instruction	Coach subjective performance	Athlete Refined Empathy	Athlete Meta Perspective	Athlete Personal Treatment	Athlete Training and Instruction	Athlete subjective performance
Coach	Correlation	1.000	.352**	.337**	.284*	.143	.308*	.171	.246	.247	-.228
Refined	Sig. (2-tailed)		.006	.008	.028	.277	.017	.193	.058	.057	.080
Empathy	N	60.000	60	60	60	60	60	60	60	60	60
Averaged	Pearson										
Coach Meta	Correlation	.352**	1.000	.565**	.320*	.305*	.210	.372**	.380**	.318*	.059
Perspective	Sig. (2-tailed)	.006		.000	.013	.018	.108	.003	.003	.013	.653
	N	60	60.000	60	60	60	60	60	60	60	60
Coach	Correlation	.337**	.565**	1.000	.428**	.314*	.259*	.331**	.473**	.237	-.031
Personal	Sig. (2-tailed)	.008	.000		.001	.014	.046	.010	.000	.069	.812
Treatment	N	60	60	60.000	60	60	60	60	60	60	60
Coach	Correlation	.284*	.320*	.428**	1.000	.268*	.192	.183	.274*	.323*	.158
Training and	Sig. (2-tailed)	.028	.013	.001		.039	.142	.161	.034	.012	.227
Instruction	N	60	60	60	60.000	60	60	60	60	60	60
Coach	Correlation	.143	.305*	.314*	.268*	1.000	.243	.382**	.474**	.394**	.278*
subjective	Sig. (2-tailed)	.277	.018	.014	.039		.061	.003	.000	.002	.031
performance	N	60	60	60	60	60.000	60	60	60	60	60
Athlete	Correlation	.308*	.210	.259*	.192	.243	1.000	.256*	.245	.399**	-.061
Refined	Sig. (2-tailed)	.017	.108	.046	.142	.061		.048	.059	.002	.643

	N	60	60	60	60	60	60.000	60	60	60	60
Averaged	Correlation	.171	.372**	.331**	.183	.382**	.256*	1.000	.804**	.544**	.117
Athlete Meta	Sig. (2-tailed)	.193	.003	.010	.161	.003	.048		.000	.000	.373
Perspective	N	60	60	60	60	60	60	60.000	60	60	60
Athlete	Correlation	.246	.380**	.473**	.274*	.474**	.245	.804**	1.000	.648**	.172
Personal	Sig. (2-tailed)	.058	.003	.000	.034	.000	.059	.000		.000	.190
Treatment	N	60	60	60	60	60	60	60	60.000	60	60
Athlete	Correlation	.247	.318*	.237	.323*	.394**	.399**	.544**	.648**	1.000	.184
Training and	Sig. (2-tailed)	.057	.013	.069	.012	.002	.002	.000	.000		.158
Instruction	N	60	60	60	60	60	60	60	60	60.000	60
Athlete	Correlation	-.228	.059	-.031	.158	.278*	-.061	.117	.172	.184	1.000
subjective	Sig. (2-tailed)	.080	.653	.812	.227	.031	.643	.373	.190	.158	
performance	N	60	60	60	60	60	60	60	60	60	60.000

** . Correlation is significant at the 0.01 level (2-tailed).

* . Correlation is significant at the 0.05 level (2-tailed).

Hypothesis 1. Positive perceptions of a partner's viewpoint (positive meta-perspective) will be positively associated with empathic accuracy.

Hypothesis 2. Positive perceptions of a partner's viewpoint (positive meta-perspective) will be positively associated with satisfaction and performance.

Hypothesis 2. Empathic accuracy will be positively associated with satisfaction and performance.

Pearson correlations showing associations between variables

Study three: Feedback of information, individual and personality
differences in the empathic accuracy of sport coaches

Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation
Empathic Accuracy 1	60	.00	56.67	22.9999	14.81489
Empathic Accuracy 2	60	6.67	86.67	48.1668	20.51546
Overall Accuracy	60	3.33	71.67	35.5837	16.17650
Estimation of accuracy	60	10	70	38.00	17.153
Post estimation of accuracy	60	10	90	47.50	16.634
Age	60	18	79	28.62	11.362
Coaching experience (years)	60	1.00	30.00	7.1500	5.81297
Coaching hours per week	60	.00	30.00	5.1917	4.81179
Coaching qualification	60	0	4	1.80	.898
Extraversion	60	1.90	4.80	3.3883	.70159
Agreeableness	60	2.40	4.80	3.8350	.63615
Conscientiousness	60	2.30	5.00	3.5133	.70023
Stability	60	2.00	4.70	3.4167	.61923
Imagination	60	2.10	4.50	3.4650	.63562
Valid N (listwise)	60				

Generation of descriptive statistics for entire sample

Group Statistics

	Group	N	Mean	Std. Deviation	Std. Error Mean
Empathic Accuracy 1	Control	30	23.0001	17.55905	3.20583
	Experimental	30	22.9997	11.75626	2.14639
Empathic Accuracy 2	Control	30	37.3332	18.37069	3.35401
	Experimental	30	59.0003	16.61244	3.03300
Overall Accuracy	Control	30	30.1670	17.58653	3.21085
	Experimental	30	41.0003	12.74330	2.32660
Estimation of accuracy	Control	30	38.00	17.889	3.266
	Experimental	30	38.00	16.692	3.048
Post estimation of accuracy	Control	30	48.00	20.410	3.726
	Experimental	30	47.00	12.077	2.205
Age	Control	30	28.97	13.591	2.481
	Experimental	30	28.27	8.812	1.609
Coaching experience (years)	Control	30	7.7333	6.87290	1.25481
	Experimental	30	6.5667	4.56133	.83278
Coaching hours per week	Control	30	5.2833	5.60431	1.02320
	Experimental	30	5.1000	3.95971	.72294
Coaching qualification	Control	30	1.80	1.126	.206
	Experimental	30	1.80	.610	.111
Extraversion	Control	30	3.3567	.72430	.13224
	Experimental	30	3.4200	.68903	.12580
Agreeableness	Control	30	3.8333	.69696	.12725
	Experimental	30	3.8367	.58101	.10608
Conscientiousness	Control	30	3.5933	.58659	.10710
	Experimental	30	3.4333	.80014	.14609
Stability	Control	30	3.4900	.65566	.11971
	Experimental	30	3.3433	.58232	.10632
Imagination	Control	30	3.5633	.55116	.10063
	Experimental	30	3.3667	.70581	.12886

Generation of descriptive statistics for experimental and control groups

Within-Subjects Factors

Time	Dependent Variable
1	Empathic Accuracy 1
2	Empathic Accuracy 2

Between-Subjects Factors

	Value Label	N
Group -1	Control	30
1	Experimental	30

Multivariate Tests^b

Effect		Value	F	Hypothesis df	Error df	Sig.
Time	Pillai's Trace	.849	3.257E2	1.000	58.000	.000
	Wilks' Lambda	.151	3.257E2	1.000	58.000	.000
	Hotelling's Trace	5.616	3.257E2	1.000	58.000	.000
	Roy's Largest Root	5.616	3.257E2	1.000	58.000	.000
Time * Group	Pillai's Trace	.510	60.357 ^a	1.000	58.000	.000
	Wilks' Lambda	.490	60.357 ^a	1.000	58.000	.000
	Hotelling's Trace	1.041	60.357 ^a	1.000	58.000	.000
	Roy's Largest Root	1.041	60.357 ^a	1.000	58.000	.000

a. Exact statistic

b. Design: Intercept + Group

Within Subjects Design: Time

Tests of Within-Subjects Effects

Source		Type III Sum of Squares	df	Mean Square	F	Sig.
Time	Sphericity Assumed	19001.169	1	19001.169	325.707	.000
	Greenhouse-Geisser	19001.169	1.000	19001.169	325.707	.000
	Huynh-Feldt	19001.169	1.000	19001.169	325.707	.000
	Lower-bound	19001.169	1.000	19001.169	325.707	.000
Time * Group	Sphericity Assumed	3521.122	1	3521.122	60.357	.000
	Greenhouse-Geisser	3521.122	1.000	3521.122	60.357	.000
	Huynh-Feldt	3521.122	1.000	3521.122	60.357	.000
	Lower-bound	3521.122	1.000	3521.122	60.357	.000
Error(Time)	Sphericity Assumed	3383.621	58	58.338		
	Greenhouse-Geisser	3383.621	58.000	58.338		
	Huynh-Feldt	3383.621	58.000	58.338		
	Lower-bound	3383.621	58.000	58.338		

Tests of Within-Subjects Contrasts

Source	Time	Type III Sum of Squares	df	Mean Square	F	Sig.
Time	Linear	19001.169	1	19001.169	325.707	.000
Time * Group	Linear	3521.122	1	3521.122	60.357	.000
Error(Time)	Linear	3383.621	58	58.338		

Tests of Between-Subjects Effects

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Intercept	151940.833	1	151940.833	322.144	.000
Group	3520.833	1	3520.833	7.465	.008
Error	27355.956	58	471.654		

Hypothesis 1. Coaches' empathic accuracy will be significantly higher in the second half of observing a coaching session than the first half.

Hypothesis 2. Coaches who receive corrective feedback will improve significantly more than those not receiving feedback.

A 2x2 ANOVA with one between subject factor (feedback vs. no feedback) and one within subject factor (time 1 vs. time 2)

Correlations

		Overall Accuracy
Overall Accuracy	Pearson Correlation	1.000
	Sig. (2-tailed)	
	N	30.000
Estimation of accuracy	Pearson Correlation	-.220
	Sig. (2-tailed)	.243
	N	30
Post estimation of accuracy	Pearson Correlation	-.039
	Sig. (2-tailed)	.838
	N	30
Coaching experience (years)	Pearson Correlation	-.395 [*]
	Sig. (2-tailed)	.031
	N	30
Coaching hours per week	Pearson Correlation	-.424 [*]
	Sig. (2-tailed)	.020
	N	30
Coaching qualification	Pearson Correlation	-.187
	Sig. (2-tailed)	.323
	N	30
Extraversion	Pearson Correlation	-.050
	Sig. (2-tailed)	.791
	N	30
Agreeableness	Pearson Correlation	-.250
	Sig. (2-tailed)	.182
	N	30
Conscientiousness	Pearson Correlation	.087
	Sig. (2-tailed)	.647
	N	30
Stability	Pearson Correlation	-.205
	Sig. (2-tailed)	.278
	N	30

Imagination	Pearson Correlation	.448*
	Sig. (2-tailed)	.013
	N	30

*. Correlation is significant at the 0.05 level (2-tailed).

**. Correlation is significant at the 0.01 level (2-tailed).

Correlations

		Overall Accuracy
Overall Accuracy	Pearson Correlation	1.000
	Sig. (2-tailed)	
	N	30.000
Estimation of accuracy	Pearson Correlation	.202
	Sig. (2-tailed)	.286
	N	30
Post estimation of accuracy	Pearson Correlation	.371*
	Sig. (2-tailed)	.043
	N	30
Coaching experience (years)	Pearson Correlation	-.074
	Sig. (2-tailed)	.696
	N	30
Coaching hours per week	Pearson Correlation	.247
	Sig. (2-tailed)	.188
	N	30
Coaching qualification	Pearson Correlation	.115
	Sig. (2-tailed)	.544
	N	30
Extraversion	Pearson Correlation	.146
	Sig. (2-tailed)	.443
	N	30
Agreeableness	Pearson Correlation	-.039
	Sig. (2-tailed)	.837
	N	30

Conscientiousness	Pearson Correlation	.002
	Sig. (2-tailed)	.993
	N	30
Stability	Pearson Correlation	.112
	Sig. (2-tailed)	.557
	N	30
Imagination	Pearson Correlation	.258
	Sig. (2-tailed)	.169
	N	30

*. Correlation is significant at the 0.05 level (2-tailed).

**. Correlation is significant at the 0.01 level (2-tailed).

Hypothesis 3. Coaches' pre and post-experimental rating of their own empathic accuracy will not be significantly associated with their actual empathic accuracy scores.

Hypothesis 4. Coaches who hold higher coaching qualification, who have been coaching for longer, and who have a higher average amount of training hours per week will demonstrate increased empathic accuracy.

Hypothesis 5. Coaches' personality characteristics will be positively associated with their reported level of empathic accuracy.

**Pearson correlations between all major variables
and overall empathic accuracy for each participant**

