

**The associated impacts of stress and expectancy upon
the elite coach-athlete relationship in individual based
sports**

By

Elizabeth Scholefield

Submitted to the University of Hertfordshire in partial fulfilment of the requirements of
the degree of Doctor of Philosophy.

January 2018

Acknowledgements

This thesis has been a part of my life for the last seven years. It has been the greatest challenge and I am immensely proud of what I have achieved, but I could not have done it on my own. There are a number of people to whom I owe the utmost thanks. First and foremost, Dr Judith Naseby, for introducing me to sport psychology and inspiring me to do a PhD. Thank you for seeing my potential and guiding me through the early challenges.

To my supervisory team Dr Stephen Pack and Dr Ross Lorimer, thank you for your continued support, feedback, and patience. In particular Ross, your unwavering motivation and encouragement gave me the confidence I needed to cross the finish line.

To Dr Ash, Dr Pete, Dr Jo, and Dr Matt, thank you for keeping my spirits high and offering me advice and encouragement throughout. I will never forget the laughs we shared in the CP Snow Research Office. Many thanks also to Joerg Schulz for your statistics wisdom.

I would like to thank all of the coaches and athletes who gave up their precious time to contribute to my research. Without your support and willingness to participate, this thesis would not have been possible.

Thank you to all my family and friends who have lived through this with me, in particular my Mum and Dad for all your love and support over the years. And lastly, to Jono, thank you for always being there, for listening to me go on, and for making me laugh every day.

Conference Presentations

Material embedded within this thesis has contributed to the following presentations:

Scholefield, E., Pack, S., & Lorimer, R. (2017, November). *The impact of stress on empathic accuracy in coach-athlete dyads participating in elite level individual based sports*. Poster session at the British Association of Sport and Exercise Science and European Federation of Sport Psychology Conference, Nottingham.

Scholefield, E., Naseby, J., & Pack, S. (2013, December). *It takes two: The experience of stress and associated impacts upon the coach-athlete relationship in elite athletics*. Paper presented at the 4th Division of Sport and Exercise Psychology Conference, Manchester.

Scholefield, E., Naseby, J., & Pack, S. (2013, May). *Stress and coping: A study of world class athletics coaches*. Paper presented at the University of Hertfordshire Annual Life Sciences Research Conference, Hertfordshire.

Scholefield, E., Naseby, J., & Pack, S. (2012, May). *A detailed exploration of the stress and coping experiences of elite athletics coaches*. Paper presented at the University of Hertfordshire Annual Life Sciences Research Conference, Hertfordshire.

Abstract

This project of research presents a series of three studies that evolved over the duration of the body of work. Steered by existing research and the findings of each individual study, this project investigates associated impacts of stress and expectancy on the dynamics of interactions between coaches and athletes in elite level individual based sports. Specifically, the impacts of stress and expectancies on empathic accuracy.

Study one explored the stress and coping experiences of six male elite athletics coaches in the UK. The findings indicated that coaches experienced a vast array of stressors, with stress increasing around competition. However, although participants acknowledged facilitative effects of experiencing stress (e.g., increased focus, motivation, & productivity), they also reported a number of perceived debilitating behavioural and communication changes towards their athletes at times of stress. For example, withdrawal and reduced interaction, concealing true feelings and emotions, and increased physical distance where possible. Experience, learning, and support were identified as the most effective coping strategies, and coaches reported limited use of effective psychological skills. While all emerging themes were deemed important, debilitating behavioural and communication changes towards athletes in response to increased stress, specifically around competition, was the most cited theme reported by all elite coaches. Thus, representing a strong indicator of the potential detrimental impact of stress on the dynamics of interactions between coaches and athletes in elite sport.

To further investigate stress and coach-athlete interaction in elite sport, study two examined stress and empathic accuracy in coaches and athletes participating in elite level individual based sports. That is, how accurately coaches and athletes perceived the psychological condition of each other, moment-to-moment, over time, while experiencing stressors associated with different environments (i.e., training & competition). The results indicated that coaches and athletes experienced significantly increased stress during competition compared to training. Empathic accuracy for both coaches and athletes was also found to be higher in competition than in training. However, participants achieved relatively low to moderate levels of empathic accuracy throughout this study. Moreover, the elite coaches recorded varying levels of empathic accuracy with different athletes in their training groups.

Finally, study three explored coach expectancies as a potential antecedent or barrier in determining levels of empathic accuracy achieved between coach and athlete. This study investigated the relationship between a coach's expectancies and levels of empathic accuracy achieved by coach-athlete dyads from the same elite cycling training squad.

Athletes' perceptions of coach treatment were also investigated. Results showed coach-athlete dyads containing high expectancy athletes achieved higher empathic accuracy, compared to those involving low expectancy athletes. In addition, high expectancy athletes perceived the coach gave them less negative feedback, demanded a greater level of work from them, and held higher expectations for them compared to their low expectancy counterparts. These results suggested the coach's behaviour might have been congruent with their expectations, which in turn may have affected levels of empathic accuracy achieved, and influenced perceived differential coach treatment.

This project of research has contributed to researchers' knowledge of the stress and coping experiences of elite coaches in the UK and thus presented key evidence to support the development of effective coping interventions for coaches working alongside world-class athletes. It has provided vital evidence of the potential impacts of stress on the dynamics of interactions between coaches and athletes in different environments, specifically extending broader literature on empathic accuracy through a longitudinal examination in a unique setting. Lastly, it has expanded the limited dialogue surrounding the relationship between a coach's expectancies and the subsequent effectiveness of interpersonal perception with their athletes.

Key words: Stress, expectancies, empathic accuracy, coach-athlete interaction, elite level individual based sports.

Contents

Chapter 1 – Thesis Introduction	1
1.1 Research Questions.....	1
1.2 A Mixed Methods Approach.....	6
1.3 Thesis Structure.....	7
Chapter 2 – Review of Literature	8
2.1 An Introduction to Stress.....	8
2.1.1 Levels of stress analysis.....	10
2.1.2 Psychological stress and appraisal.....	11
2.1.3 Measurement of stress.....	16
2.1.4 Sources of stress in sport.....	18
2.1.5 Sources of coach stress.....	20
2.1.6 Dyadic stress.....	22
2.1.7 The effects of stress on well-being.....	24
2.1.8 Coach burnout.....	25
2.2 An Introduction to Coping.....	27
2.2.1 The coping process.....	28
2.2.2 Measurement of coping.....	30
2.2.3 Coping effectiveness.....	34
2.2.4 Personal, situational, and interpersonal aspects of coping.....	35
2.2.5 Coping in sport.....	37
2.2.6 Dyadic coping.....	39
2.3 Conceptualising Empathy.....	40
2.3.1 Empathy and stress.....	45
2.3.2 Measurement paradigms.....	46
2.3.3 Dyadic research design.....	50
2.3.4 Empathic process.....	52
2.4 Conceptualising Expectancies.....	60
2.4.1 Expectancy effects.....	61
2.4.2 Four-step model of expectancy in sport.....	62
2.4.3 Sources of expectancies.....	63
2.4.4 Sources of expectancy information within the coach-athlete relationship.....	65
2.4.5 Conditions of expectancy effects.....	66

2.4.6	Expectancy effects in sport.....	68
2.5	Directions for Future Research.....	73
2.5.1	Stress and coping in elite sport – from the coaches’ perspective.....	73
2.5.2	Stress and empathic accuracy in elite sport.....	74
2.5.3	Coach expectancies and empathic accuracy in elite sport.....	74
Chapter 3 – Study One: Stress and Coping: A Study of World Class Athletics Coaches.....		76
3.1	Abstract.....	76
3.2	Introduction.....	76
3.2.1	Research aims and objectives.....	80
3.3	Methodological Approach.....	81
3.4	Defining Key Terms.....	81
3.5	Method.....	82
3.5.1	Participants.....	82
3.5.2	Interview guide.....	83
3.5.3	Procedure.....	85
3.5.4	Pilot interview.....	86
3.5.5	The interviews.....	86
3.5.6	Controls for bias.....	87
3.6	Data Analysis.....	88
3.6.1	Enhancing trustworthiness of the analysis.....	90
3.7	Results.....	91
3.7.1	Sources, consequences, and characteristics of coach stress.....	91
3.7.2	Coach coping strategies.....	105
3.8	Discussion.....	110
3.9	Strengths and Limitations.....	121
3.10	Conclusions.....	122
3.11	Contributions to Existing Research.....	123
Chapter 4 – Study Two: Stress and Empathic Accuracy in Coaches and Athletes Participating in Elite Level Individual Based Sports.....		125
4.1	Abstract.....	125
4.2	Introduction.....	126
4.2.1	Research aim and hypotheses.....	129
4.3	Methodological Approach.....	129

4.4	Method.....	131
4.4.1	Participants.....	131
4.4.2	Procedure.....	131
4.4.3	Measures.....	132
4.4.4	Data collection.....	133
4.5	Results.....	135
4.6	Discussion.....	140
4.7	Strengths and Limitations.....	145
4.8	Conclusions.....	147
4.9	Contributions to Existing Research.....	148

Chapter 5 – Study Three: The Relationship between Coach Expectancies and

	<i>Empathic Accuracy – A Case Study in Elite Cycling.....</i>	149
--	---	-----

5.1	Abstract.....	149
5.2	Introduction.....	150
5.3	Methodological Approach.....	153
5.4	Method.....	154
5.4.1	Participants.....	154
5.4.2	Procedure.....	154
5.4.3	Measures.....	155
5.4.4	Data collection.....	157
5.5	Results.....	159
5.6	Discussion.....	162
5.7	Strengths and Limitations.....	164
5.8	Conclusions.....	165
5.9	Contributions to Existing Research.....	165

Chapter 6 – General Discussion..... 167

6.1	Summary of Findings.....	168
6.2	Limitations of this Thesis.....	171
6.3	Theoretical Implications.....	172
6.3.1	Stress and coping experiences of coaches.....	172
6.3.2	Empathy in coach-athlete relationships.....	174
6.3.3	Expectancies.....	174
6.3.4	Research in elite sport.....	175

6.4	Practical Implications.....	176
6.4.1	Stressors and coping efforts of elite coaches.....	176
6.4.2	The dynamics of interactions between coaches and athletes.....	177
6.4.3	Coach perceptions of athletes.....	178
6.5	Recommendations for Future Research.....	178
6.6	Concluding Remarks.....	179
 Appendices.....		 181
Appendix A:	Study One Participant Information Document.....	182
Appendix B:	Study One Interview Guide.....	183
Appendix C:	Study One Codebook.....	185
Appendix D:	Study Two Participant Information Document.....	187
Appendix E:	Study Two Informed Consent Form.....	189
Appendix F:	Study Two Stressor Frequency Scale.....	190
Appendix G:	Coach and Athlete Self-report Forms.....	191
Appendix H:	Coach and Athlete Inference Forms.....	193
Appendix I:	Study Three Participant Information Document.....	195
Appendix J:	Study Three Informed Consent.....	197
Appendix K:	Modified Expectancy Rating Scale (MERS; Becker & Wrisberg, 2008)	198
Appendix L:	Coach Treatment Inventory (CTI; Wilson & Stephens, 2007).....	199
Appendix M:	3-point Likert Scale for Coach Expectancy at Mid-season.....	201
Appendix N:	SPSS Outputs.....	202
 References.....		 209

List of Tables and Figures

Tables

Table 1.1	The Chronological Order, Participant Details and Key Point of Evolution for Each Study in this Research Series.....	5
Table 4.1	Mean Empathic Accuracy Scores of Coaches and Athletes in Training One, Training Two, and Competition.....	135
Table 5.1	Mean Empathic Accuracy Scores of Coaches and High and Low Expectancy Athletes.....	160
Table 6.1	Summary of Studies.....	167

Figures

Figure 2.1	Transactional stress process (Lazarus & Folkman, 1984).....	13
Figure 2.2	The four-step expectancy cycle (Horn, Lox, & Labrador, 2010).....	63
Figure 3.1	Stressors identified by elite athletics coaches.....	94-95
Figure 3.2	Consequences of stress identified by elite athletics coaches.....	99-100
Figure 3.3	Facilitative effects of stress identified by elite athletics coaches.....	101
Figure 3.4	Intensity and frequency of stress in training compared to competition identified by elite athletics coaches.....	103
Figure 3.5	Coping strategies employed by elite athletics coaches.....	106-107
Figure 3.6	Perceived coping strategy effectiveness identified by elite athletics coaches.....	109
Figure 4.1	Coaches' empathic accuracy in training compared to competition.....	136
Figure 4.2	Athletes' empathic accuracy in training compared to competition.....	136
Figure 4.3	The relationship between coaches' empathic accuracy during Training One and Training Two.....	137
Figure 4.4	The relationship between athletes' empathic accuracy during Training One and Training Two.....	138
Figure 4.5	The relationship between coaches' empathic accuracy during Training One and Competition.....	138
Figure 4.6	The relationship between athletes' empathic accuracy during Training One and Competition.....	139
Figure 4.7	The relationship between coaches' empathic accuracy during Training Two and Competition.....	139
Figure 4.8	The relationship between athletes' empathic accuracy during Training Two and Competition.....	140
Figure 5.1	Empathic accuracy for coaches and athletes based on coach expectancy (i.e., high & low).....	161

Chapter 1

Thesis Introduction

The psychiatrist Harry Sullivan, whose research laid the foundations of interpersonal psychoanalysis, recognised the importance of interpersonal relationships in human life. Specifically, he outlined how the field of psychology “*is the field of interpersonal relations, since a personality can never be isolated from the complex of interpersonal relations in which the person lives and has his being*” (Sullivan, 1940, p. 10). For Sullivan, human beings have a fundamental need for interpersonal relations, and nothing is considered a more significant determinant of psychological well-being and quality of experience, than the nature of an individual’s connections to the people around them (Carr, 2012).

Sport is a social environment and researchers have acknowledged that the frequent and varied opportunities for social interaction make it an ideal context in which to investigate interpersonal relationships (Jowett, 2007), especially between a coach and their athletes. Although many interpersonal relationships are formed in sport, exercise, and physical education environments, the most crucial relationship is the one formed between the coach and the athlete (Jowett, 2005). For coaches, the importance of this relationship is manifested in their ability to direct their athletes’ development physically, technically, and psychologically, through their knowledge, experience, and expertise (Lyle, 2002). For athletes, the importance of this relationship is reflected in a need to widen their knowledge, competence, and experience (Antonini Philippe & Seiler, 2006). Broadly defined as a situation in which the coaches’ and athletes’ cognitions, feelings, and behaviours are mutually and causally interrelated (Jowett & Poczwardowski, 2007), the coach-athlete relationship is considered to be dynamic in nature and shaped by the interactions that occur between both parties (Manley, Greenlees, Thelwell, & Smith, 2010). Previous research has revealed the interaction between coach and athlete can shape the quality of their dyadic athletic relationship and also determine the quality of coaching (Jowett & Poczwardowski, 2007). Furthermore, according to Lorimer and Jowett (2009b), the manner in which coaches interact with their athletes can have a profound impact upon the effectiveness of their training sessions, which, in turn, may directly or indirectly influence such factors as satisfaction, enjoyment, motivation, and performance. Effective interaction between coach and athlete is therefore essential.

1.1 Research Questions

The purpose of this project of research was to investigate associated impacts of stress and expectancies on the dynamics of interactions between coaches and athletes involved in elite sport.

This body of work is presented in a series of three studies, the aims of which evolved over the duration of the project, steered by existing research and the outcomes of each investigation.

A dearth of previous research exploring the stress and coping experiences of coaches involved in elite sport, formed the primary rationale for **study one** presented in this body of work. To date, a wealth of research has explored the stress and coping efforts of elite athletes (e.g., Anshel, 2001; Dale, 2000; Holt & Hogg, 2002; Nicholls et al., 2006). Yet even though the role of the coach has been recognised as a pivotal component of an athlete's performance (Jowett, 2005), few studies have focused on the stress and coping experiences of elite coaches. Therefore, study one employed semi-structured interviews to explore stress and coping in elite sport, from the coach's perspective. Coaches were purposively recruited from elite level athletics, who at the time of investigation were all working with world-class athletes in preparation for the 2011 World Championships in Daegu and/or entering the final stages of training ahead of the London 2012 Olympic and Paralympic Games, arguably the pinnacle events in the careers of both coaches and athletes. The first research questions addressed were: **what stressors do elite athletics coaches experience? What coping strategies do elite athletics coaches employ in response to such stressors and how effective are they? And lastly, how does stress influence the performance of elite athletics coaches?** A qualitative approach shaped this discovery oriented study, providing depth and detail in capturing the subjective meaning of stress in a new context. The results suggested elite coaches experienced a vast array of stressors, with stress increasing around competition. Although coaches acknowledged a number of perceived facilitative effects of experiencing stress on their performance (e.g., increased focus, motivation, & productivity), they also reported a number of perceived debilitating behavioural and communication changes towards their athletes at times of stress (e.g., reduced interaction, concealing their true feeling & emotions, increased physical distance away from athletes where possible).

While all emerging themes from study one were deemed important, the perceived debilitating behavioural and communication responses towards athletes at times stress, was the most cited theme reported by all elite coach participants, and therefore represented a strong indicator of the potential impacts of stress on coach-athlete interaction. Yet, previous research has emphasised the importance of positive and effective coach-athlete interaction (e.g., Jowett & Poczwardowski, 2007). Broadly defined as a situation in which the coaches' and athletes' cognitions, feelings, and behaviours are mutually and causally interrelated (Jowett & Poczwardowski, 2007), the coach-athlete relationship has been recognised for being dynamic in nature and shaped by the interactions that occur between both parties (Manley et al., 2010).

In addition, Jowett and Poczwardowski (2007) suggested the manner in which coaches and athletes interact can shape the quality of their dyadic athletic relationship and also determine the quality of coaching. Thus suggesting effective interaction between both coach and athlete is required, to translate into positive outcomes such as performance success. The capacity of the coach and athlete to perceive and understand each other is therefore vital, allowing them to react, respond and interact effectively with each other (Jones & Cassidy; Lyle, 2002). When two people interact they spend much of that time perceiving and making judgements about one another. They consciously and unconsciously observe and make inferences about each other's personality, views, behaviours, intentions, emotions, and thoughts (Ickes, 2001). Empathy is thought to be the process of making such judgements about others (Lorimer & Jowett, 2009a). It is these judgements that therefore lead to individuals such as coaches and athletes gaining an understanding of each other. Empathic accuracy as a general term refers to the precision of the judgements people make about each 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).

Thus, the perceived debilitating impacts of stress on the dynamics of interactions between elite coaches and their athletes reported in study one, guided the aims of **study two**. Study two used an adaptation of the unstructured dyadic interaction paradigm (Lorimer & Jowett, 2009a, 2009b) to explore empathic accuracy in coaches and athletes participating in elite level individual based sports, over time, while experiencing stressors associated with different environments (i.e., training & competition). This study addressed the research question: **how accurately do elite coaches and their individual athletes perceive the psychological condition of each other while experiencing stressors associated with training and competition?** A quantitative approach was employed in this instance because the aims of the study focused on the measurement and interpretation of a potentially causal relationship between stress and empathic accuracy in a unique context (i.e., over time & in different environments). This study aimed to test existing theories but in a unique context and so quantitative methods were deemed appropriate.

The findings revealed coaches and athletes from multiple individual based sports (e.g., cycling, swimming, athletics, & gymnastics) experienced significantly more stress related to competition than training. Both coaches and athletes achieved greater levels of empathic accuracy in competition than training, thus highlighting a positive relationship between empathic accuracy and stress. In addition, the results of this study revealed each elite coach achieved varied levels of empathic accuracy with the different athletes in their training groups.

Thus suggesting coaches achieved greater empathic accuracy with some, but not all, athletes in their squads. This difference in social perception guided the aims of study three in this research series.

A wealth of previous research has examined the likely variables that predict empathic accuracy. For example, immediately available information (e.g., Ambady & Rosenthal, 1992; Ickes et al., 1990; Lorimer & Jowett, 2010), relationship quality and duration (e.g., Lorimer & Jowett, 2009b; Stinson & Ickes, 1992; Thomas & Fletcher, 2003), levels of motivation (e.g., Ickes et al., 1990; Thomas et al., 1997), position of authority (Snodgrass et al., 1998; Magee & Smith, 2013), gender (e.g., Hodges, Laurent, & Lewis, 2011), and similarity (e.g., Jowett & Clark-Carter, 2006; Neyer et al., 1999). A common theme throughout such research is the recognition of an accurate empathiser as an individual who employs strategies such as paying close attention to specific words, nonverbal cues, and overt behaviours of a target, and then uses such information to deduce the individual's thoughts and feelings at any given moment in time. However, contrary to this view, Lewis et al. (2012) proposed a significant source of accuracy in inferring other's thoughts and feelings comes from within the perceiver's own mind. That is, an individual may use prior knowledge to go beyond the information given in their attempts to understand a target. One source of such prior knowledge may be the expectancies a perceiver holds regarding the target (Lewis et al., 2012); information available either before an interaction or in the early stages of an interaction to assist judgements about the characteristics and mental state of the other person (Buscombe et al., 2006). According to Horn et al. (2010) the expectations perceivers have formed about a target can serve as prophecies that dictate or determine the way they treat them. Yet no previous research had explored coach expectancies as a potential influencing factor of social perception between coach and athletes.

Study three used the adaptation of the unstructured dyadic interaction paradigm (Lorimer & Jowett, 2009a, 2009b), combined with the Modified Expectancy Rating Scale (MERS; Becker & Wrisberg, 2008) and Coach Treatment Inventory (CTI; Wilson & Stephens, 2007) to examine the relationship between coach expectancies and empathic accuracy in coach-athlete dyads in elite cycling. This study addressed the research question: **How does a coach's expectancies of their individual athletes relate to levels of empathic accuracy achieved?** Again, quantitative methods were employed because the aim of this third and final study was focused on measurement of specific variables and applying existing theories.

The chronological order and details regarding the participants for each study in this research series have been presented in Table 1.1 (p.5).

Table 1.1

The Chronological Order, Participant Details and Key Point of Evolution for each Study in this Research Series

	Study One	Study Two	Study Three
When	<ul style="list-style-type: none"> The first study in this research series which ran from March 2011 to March 2013. 	<ul style="list-style-type: none"> The second study in this research series which ran from January 2013 to December 2015. 	<ul style="list-style-type: none"> The final study in this research series which ran from January 2016 to August 2017.
Aim/s	<ul style="list-style-type: none"> Explore the stress and coping experiences of elite athletics coaches in the UK, from the coaches' perspective. 	<ul style="list-style-type: none"> Explore stress and empathic accuracy of coaches and athletes over time, in different environments of elite sport. Validate measure of empathic accuracy over time and in different environments 	<ul style="list-style-type: none"> Explore the relationship between a coach's expectancies and empathic accuracy achieved in elite cycling. Further support validity of measure of empathic accuracy in elite competition
Participants	<ul style="list-style-type: none"> 6 male, UK based, elite athletics coaches aged between 32 and 57 years ($M_{age} = 46.7$, $SD = 11.5$) were purposively recruited. Coaches had between 7 and 30 years ($M = 15.5$, $SD = 9.9$) experience coaching at an elite level and represented 8 track and field events: long jump, triple jump, pole vault, high jump, 100m, 200m and 400m sprints, and the 400m hurdles. All 6 coaches were employed by UK Athletics (UKA). At the time of investigation, UKA employed 12-14 salaried coaches, so the participants represented a significant proportion of this elite coaching population. At the time of participation, all 6 coaches were preparing athletes for the 2011 World Championships in Daegu and/or entering the final stages of training ahead of the London 2012 Olympic and Paralympic Games. 	<ul style="list-style-type: none"> 4 coaches ($M_{age} = 36.6$, $SD = 4.8$) and 20 athletes ($M_{age} = 18.5$, $SD = 1.7$), forming 20 coach-athlete dyads from elite level individual based sports, volunteered to participate. The sample was comprised of 3 male coaches, 1 female coach, 13 (65%) male athletes, and 7 (35%) female athletes. The distribution of athletes was; 3 male athletes from gymnastics, 5 athletes from cycling (4 male & 1 female), 6 athletes from athletics (4 male & 2 female), and 6 athletes from swimming (2 male & 4 female). The performance level of participants was national (35%) and international (65%). 	<ul style="list-style-type: none"> 1 male coach aged 38 years and 5 elite athletes (3 males & 2 females), aged 19 to 21 years ($M_{age} = 20.4$, $SD = 0.89$), forming five coach-athlete dyads, were purposively recruited. The coach had previously been identified for achieving differing levels of empathic accuracy with the athletes in his training group. All participants were of international performance level, competing in cycling. Coach-athlete relationship duration ranged between 6 months and 4 years.
Key Point of Evolution	<ul style="list-style-type: none"> The findings of this study suggested coach-athlete interaction was negatively affected by coaches' experiencing stress. However, previous research has recognised the coach-athlete relationship as being dynamic in nature and shaped by the interactions that occur between both parties (Manley et al., 2010). The capacity of the coach and athlete to perceive and understand each other is therefore vital, allowing them to react, respond, and interact effectively with one another (Jones & Cassidy, 2004; Lyle, 2002). No previous research had explored how accurately coaches and athletes perceive the psychological condition of each other during interactions over time, while working with stressors associated with different environments (i.e., training & competition). How accurately do elite coaches and their individual athletes perceive the psychological condition of each other while experiencing stressors associated with training and competition? 	<ul style="list-style-type: none"> The findings of this study revealed elite coaches achieved greater levels of empathic accuracy with some, but not all elite athletes in their training squads. Education research dating back to Rosenthal and Jacobsen's (1968) Pygmalion in the Classroom study has consistently found expectancies to impact social interaction; with teachers behaving more favorably towards high expectancy pupils. According to Horn et al. (2010) the expectations perceivers have formed about a target can serve as prophecies that dictate or determine the way they treat them. No previous literature had explored the impact of coach expectancies on social perception within the coach-athlete relationship. How does a coach's expectancies of their individual athletes relate to levels of empathic accuracy achieved? 	

1.2 A Mixed Methods Approach

The methods chosen throughout this body of work were those deemed appropriate to fulfil the aims and objectives of each individual study. This approach supported the view of Strauss and Corbin (1998) who referred to research as a “flow of work” (p. 29), whereby choices about data collection methods, analytical procedures, and interpretation evolve over the life of the project.

According to Creswell (2009), researchers typically have a preference to understand the complex philosophical perspectives within the context of two main traditions of research inquiry, quantitative and qualitative. However, in debates about the research process some have argued it may be appropriate to start by asking “do you need to adopt one philosophical position?” (Tashakkori & Teddlie, 2003). The rationale behind this as suggested by Saunders et al. (2009), Tashakkori and Teddlie (2003), and Creswell, Klassen, Clark, and Smith (2011), is that sitting comfortably in one position or the other is not idealistic, as some research questions require the combination of methods in answering them. Hardy, Jones, and Gould (1996) noted: “At times, it is best to use qualitative methods, and at other times a quantitative approach. Because both methods have strengths and limitations, sometimes it may also be advisable to combine the two approaches” (p. 259). For this project, both qualitative and quantitative methods have been employed for the purposes of breadth and depth of understanding in partnership (Johnson, Onwuegbuzie, & Turner, 2007).

Although qualitative and quantitative paradigms seem to have contrasting epistemological stances (Lincoln & Guba, 2007), pragmatism supports the notion that there is a continuum between objectivism and subjectivism, with the research question dictating which one is adopted (Creswell, 2009; Tashakkori & Teddlie, 2003). Pragmatists reject a single reality and believe there is no way any individual can determine whether their theories better reflect the truth. Because of this, pragmatism abandons arguments surrounding the agreement of theory and reality, but rather favours discussion where the value of different types of knowledge are viewed as tools for helping us cope with and thrive within our environment (Rorty, 2007). Thus, the pragmatist opts for methods and theories deemed most useful within a specific context, rather than those that reveal underlying truths about the nature of reality. According to Giacobbi, Poczwardowski, and Hager (2005), pragmatists consider the problem being investigated and the research aims to carry greater significance than the principal philosophical assumptions of the method.

This thesis is a research series that has employed both qualitative and quantitative approaches, cohering to a pragmatic philosophy. A mixed methods approach supported a better understanding of the overall research aims than the sole use of either approach. In addition, a pragmatic approach allowed areas to be studied that were of interest, embracing methods that were considered appropriate. Favouring method over epistemology, offered support and adoption of multiple research methods. Specifically, an equivalent status design was employed (Tashakkori & Teddlie, 2003). Within such design, both qualitative and quantitative methods contributed to the final results, with each approach deemed to have equal importance.

1.3 Thesis Structure

Chapter 2 presents a literature review, composed to allow a better understanding of theories and research concerning stress, coping, empathy, and expectancies. It describes the conceptualisation of the individual topics and highlights the role they play in the coach-athlete relationship. The methods used to measure each concept are also discussed. Chapter 3 presents study one, an explorative study into the sources and consequences of stress and subsequent coping strategies employed by world class athletics coaches in preparation for the London 2012 Olympic and Paralympic Games. Directed by the subsequent findings, Chapter 4 presents study two, a longitudinal examination of stress and empathic accuracy in coach-athlete dyads participating in elite level individual based sports. Based on the presented results, Chapter 5 presents study three, an exploration of the relationship between a coach's expectancies of their athletes (i.e., high & low) and empathic accuracy achieved in elite cycling. Chapter 6 provides a general discussion of the results reported in Chapters 3, 4, and 5 and highlights the theoretical and practical implications and limitations of this body of work. Recommendations for future research are also presented.

Chapter 2

Review of Literature

2.1 An Introduction to Stress

The term *stress* first appeared in Psychological Abstracts in 1944. Since then the concept of stress has been discussed comprehensively throughout the biological and social sciences, extending into the fields of health care, economics, political science, business, education, and more recently in sport. However, despite its long history of investigation, or perhaps because of it, this far reaching phenomenon has been conceptualised throughout the literature in numerous ways. Early researchers referred to stress as a troubled *response* to a stimulus (e.g., Selye, 1956). Developed predominantly by the biological and medical community, the response model assumes that excessive demands placed on an individual trigger hormonal and neurological reactions, designed to prepare the person to fight or flee imminent danger (Selye, 1956). According to this definition, feelings of pressure, harm, threat, distress, and sadness would all be viewed as stress. Later, researchers from the social sciences commonly referred to stress as a *stimulus*, focussing on external (e.g., environmental) events that placed excessive demands on an individual (e.g., Holmes & Rahe, 1967). Examples of such stimuli may include noise, sleep loss, and heat (Campbell, 1983). Furthermore, according to the stimulus model, certain environmental events such as unemployment or injuries are inherently stressful and cause the same response (i.e., strain) to all individuals.

Conversely, Lazarus and Folkman (1984) highlighted a number of criticisms to both the aforementioned stimulus and response descriptions of stress. First, they argued that the stimulus-response viewpoints present a circular process and do not account for what components of a stimulus result in a stress reaction and what elements of a reaction signpost a specific stressor? Second, they suggested how a stress response is defined can be problematic. In defining stress as a hormonal or neurological reaction and thus a disruption of homeostasis, it is hard to describe a baseline state from which to assess such disruption. Finally, they contended stimulus and response models both failed to recognise individual differences, and more specifically the role of cognition in the stress process.

In response to such criticisms, Lazarus and colleagues proposed a third model, the transactional model of stress and coping (e.g., Folkman, Lazarus, Dunkel-Schetter, DeLongis, & Gruen, 1986; Lazarus, 1966; Lazarus & DeLongis, 1983; Lazarus & Folkman, 1984).

According to this approach, stress is defined as neither the stimulus nor the response, but rather as a dynamic bi-directional process between the individual's perception and the environment: "stress is the relationship between the person and the environment that is appraised by the person as taxing or exceeding their resources, and possibly endangering their well-being" (Lazarus & Folkman, 1984, p. 19). Therefore, the term stress is not used to describe specific constructs, but rather the dynamic relationship between environmental demands (i.e., *stressors*) and the individual's psychological resources for dealing with them (i.e., *coping ability*; *hardiness*), with stress responses (i.e., *strain*) resulting from a perceived imbalance between the demands and resources (Olusoga, Butt, Hays, & Maynard, 2009). This relational definition supports the notion that "what is stress for some, is not for others" (Lazarus & Folkman, 1984, p. 19).

Because this thesis investigates sports coaches' experiences of stress and coping, it is important to identify the key differences between stress and associated concepts within sports research. Unfortunately, since its first appearance in Kroll's (1979) discussion, "The Stress of High Performance Athletes", the term stress has suffered the same lack of definitional clarity in sport literature as observed in the biological and social sciences (e.g., Giacobbi, Foore, & Weinberg, 2004; Gould, Finch, & Jackson, 1993; Scanlan, Stein, & Ravizza, 1991). Stress has been described by researchers as the environmental demands (i.e., stimuli) placed on an athlete, an athlete's response to such demands (i.e., response), and as an interaction between the environment and the athlete (Fletcher, Hanton, & Mellalieu, 2006). A number of contradictions between researcher's conceptual and operational definitions of athletes stress have also been noted. For example, a study by Scanlan et al. (1991) employed interviews with national skaters to "identify sources of stress" (p. 104), thus suggesting a stimulus-based view. But further into the paper, Scanlan et al. (1991) appear to operationalise stress for their participants as "the negative emotions, feelings, and thoughts you might have had with respect to your skating experience. These include feelings of apprehension, anxiety, muscle tension, nervousness, physical reactions (such as butterflies in the stomach, shaking, or nervous sweating), thoughts centred on worry and self-doubt, and negative statements to yourself" (p. 105), thus suggesting a response-based view of stress (Fletcher & Scott, 2010). Definitional uncertainty continued in the results section of the Scanlan et al. (1991) study, which reported "self-doubts" and "worries" under the general heading "sources of stress" (p. 111). It has been argued that such approach to exploring stress in athletes fails to differentiate between cause and consequence, and as a result, limits the application in professional practice. Moreover, similar to the aforementioned criticisms of the stimulus and response models, according to Fletcher et al. (2006) the grouping of stressors and responses obscures the cognitive underpinnings of the stress experience, and this approach paints a simplistic picture of what is a complex, multifaceted psychological process.

Literature exploring stress specific to sports coaches is somewhat less confusing in its conceptualisation of stress, but not because of greater precision in defining the term stress, rather researchers in the field appear to have by-passed any definitional issues by avoiding the matter altogether. Kelley et al. (Kelley, Eklund, & Ritter-Taylor, 1999; Kelley & Gill, 1993), Thelwell et al. (Thelwell, Weston, & Greenlees, 2010), and Olusoga et al. (Olusoga et al., 2009; Olusoga, Butt, Maynard, & Hays, 2010) being just three notable exceptions. Kelley et al. (1999) employed an interactional definition of stress in their investigations into coach stress, with stress described as an interaction between a coach and their environment. Although such approach was considered a progression to the stimulus-response definitions, it has since been superseded by more conceptually precise terminology (Fletcher et al., 2006; Lazarus, 1999). More recent research exploring stress and sports coaches, (e.g., Thelwell et al., 2010; Olusoga et al., 2009, 2010) has employed Lazarus & Folkman's (1984) transactional model of stress and coping to support definitions, that “stress is the relationship between the person and the environment that is appraised by the person as taxing or exceeding their resources, and possibly endangering their well-being” (p. 19).

2.1.1 Levels of stress analysis.

According to Lazarus (1999), for clarity and consistency it is important to understand the opposing levels of analysis; “physiology is concerned with the body, especially the brain and its hormonal neurotransmitters...sociology and cultural anthropology deal primarily with the society or sociocultural system...psychology is concerned with individual mind or behaviour” (p. 38). It is important to differentiate psychological stress from physiological or socio-cultural analysis in this instance because this project focuses on the psychological stress experiences of sports coaches.

Physiological level.

Biologist, Hans Selye (1956) devised the most prevalent modern theory of physiological stress. His is considered to provide the most complete theory detailing how the human body responds and mobilises to cope with harm and threats. According to Lazarus (1999), analysis of physiological stress involves the examination of the body's response to harmful physical conditions.

Sociocultural level.

Causes of upset in society are commonly signified by sociologists as social strains, which can result in psychological stress in individuals and groups (Lazarus, 1999).

Large scale societal changes such as natural disasters, economic depressions, war, and cultural transformations can impact individuals and social units.

Psychological level.

The notion that physiological and sociocultural stress originate from a psychological level can confuse the distinction between the different levels of stress. According to Lazarus (1999) “The most difficult problem for psychological stress theory is to specify what is psychologically noxious – that is, to identify the rules that make a psychological event stressful thereby producing a stress reaction” (p. 48).

2.1.2 Psychological stress and appraisal.

Despite the late emergence of research focusing on psychological stress in the lives of sports coaches, it would appear the adoption of the transactional theory of stress (Lazarus & Folkman, 1984) has supported important developments of this topic, not least by providing researchers with more consistent definitions. To extend existing literature by facilitating a deeper understanding of coaches’ stress experiences and to support application in professional practice, this thesis also adopts the transactional framework of stress to support its definitions. This section therefore outlines Lazarus & Folkman's (1984) transactional model of stress.

Epistemological and meta-theoretical principles underpinning the transactional model of stress.

To explain the foundations of the transactional model of stress, Lazarus (1999) identified four simple epistemological and meta-theoretical principles.

Principle one: Interaction and transactional meaning.

Lazarus (1999) argued, it is more prolific to observe mind and behaviour as interplaying variables, rather than considering them as a response to an environmental stimulus. Lazarus acknowledged the interaction of two causal variables, those within the environment and those within the individual. He suggested models of interaction should consider it is the environment that affects the individual and the individual that affects the environment. However, Lazarus (1999) emphasised that the mind connects both individual and environmental variables to appraise the personal meaning of a stressor; “the person and environment interact but it is the person who appraises what the situation signifies for personal well-being” (p. 12). The word transaction therefore contributes the personal meaning of what occurs during the perceived stress experience.

Principle two: Structure and process.

According to Lazarus (1999), the term *structure* signifies a stable arrangement of components, whereas *process* refers to what arrangements do and how they change (p. 13). He emphasised the helpfulness of process in conceptualising psychological stress, “stress is concerned with unsatisfactory situations in life that we want to change for the better, and emotions come and go quickly with changes in circumstances. So these topics are especially compatible with a process emphasis” (p. 16).

Principle three: Analysis and synthesis.

To accurately explain a phenomena such as stress, Lazarus (1999) proposed that researchers must go continuously reflect and challenge their thinking, both of the component parts, and the concept as a whole. He argued that one could not be understood in the absence of the other.

Principle four: Systems theory.

In more recent years, systems theory (i.e., transactional theory of stress) have begun to replace stimulus-response formulations in psychological research. Linear models have been deemed too simple in representing the complex events occurring within mind, emotion, and action, and the multiple directions of cause and effect. Whereas systems theory appreciates mind and behaviour as subsystems functioning within a much bigger system.

Origins of appraisal.

The psychology of appraisal has continued to evolve over the last 60 years. Grinker and Spiegel (1945) were first to discuss appraisal in a technical sense, during investigations into how flight crews coped with the relentless stress of war. Then, in a paper exploring individual difference in stress, Lazarus, Deese, and Osler (1952) discussed the personal meaning of stress; “the situation will be more or less stressful for individual members, and it is likely difference in the meaning of the situation will appear in their performance” (p. 294). Lazarus, Baker, Broverman, and Mayer (1957) were the first to suggest the relational emphasis in conceptualisations of stress and to acknowledge the individual differences involved in the stress process. By 1966, appraisal formed the principle component of Lazarus’ theory of psychological stress.

Appraising and appraisal in stress theory.

The transactional conceptualisation of stress (Figure 2.1, p.13) suggests that an individual’s cognitive appraisal of a potentially stressful situation is central to the stress experience.

According to Lazarus and Folkman (1984), cognitive appraisal refers to the evaluative process through which an individual evaluates a stress stimulus in relation to its potential influence on their well-being (Lazarus & Folkman, 1984); this evaluation involves both primary and secondary appraisals and they will be considered separately.

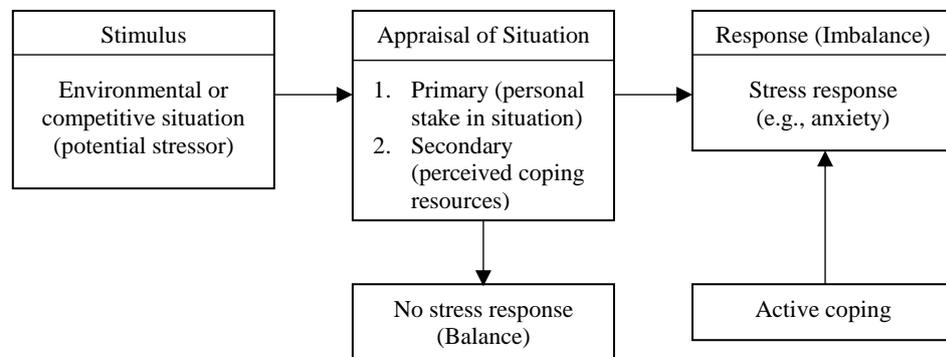


Figure 2.1. Transactional stress process (Lazarus & Folkman, 1984).

Primary appraisal.

Primary appraisal involves the initial assessment of the encountered stressor in relation to its potential impact on both the individual's physical and psychological well-being. Lazarus and Folkman (1984) distinguished three types of primary appraisal: irrelevant, benign-positive, and stressful. If in the initial instance, the person appraises the situation as irrelevant, there would be no subsequent implications on their well-being. If an individual appraises the stressor as benign-positive, they have perceived the stress encounter as one which will preserve or enhance their well-being. Such appraisals are associated with positive emotions such as joy, happiness, love, and exhilaration and therefore do not require the employment of coping strategies. However, stressful appraisals do require coping strategy implementation. These stressful appraisals include threat, challenge, harm/loss, and benefit. According to Lazarus (1991), threat appraisals are events that refer to harm or loss that have not yet happened, but may in the near future. Threats result in the experience of anxiety and are associated with a strong effort from individuals to protect themselves from possible danger. For example a squad of athletes coming to the end of a long season poses a threat of potential harm or loss through injury. A challenge appraisal is associated with a beneficial outcome, one that reflects potential for growth, and is often characterised by pleasurable emotions such as the desire to succeed, exhilaration, and excitement. Harm/loss appraisals occur when the individual evaluates and interprets previous experiences as damaging, such as the loss of a loved one, or an incapacitating injury or illness. Benefit appraisals were added by Lazarus (1999), benefit appraisals occur when an individual believes they are going to benefit from the situation, it reflects a potential gain or growth from the encounter.

Secondary appraisal.

Following completion of primary appraisal, an individual re-evaluates the situation and engages in secondary appraisal. According to Lazarus (1999), an individual will engage in secondary appraisal if they perceive a stress encounter as causing a threat, challenge, harm/loss, or benefit. Secondary appraisal refers to a complex evaluative process that considers all available coping options in relation to the specific situation, focusing on minimising harm and maximising gains or favourable outcomes (Lazarus & Folkman, 1984). Evaluating coping options and available resources may include social, physical, psychological, and material assets. Zakowski, Hall, Klein, and Baum (2001) described the secondary appraisal process as assessing the resources available, such as coping strategies and the degree of perceived control, to meet the demands of the situation. Perceived control is said to influence the level of perceived stress and coping strategies (Compas, Banez, Malcarne, & Worsham, 1991).

Appraisal construction.

Appraisals are often established on delicate environmental cues, previous experience, and a multitude of personality variables such as goals, situational intentions, and personal resources and liabilities (Lazarus, 1999). Combined, these variables provide the basis for an individual decision about how to respond (Lazarus, 1999). According to Lazarus (1999), appraisals can either be assembled cognitively unconsciously, or consciously and deliberately. Cognitively unconscious appraisals are intuitive and automatic, whereas conscious and deliberate appraisals tend to be a measured examination of detail on which to base an appropriate reaction. Appraisals become automated through previous experiences of the same appraisal process (Lazarus, 1999). Conscious appraisals can be readily reported using self-report measures, however cognitively unconscious appraisals highlight the potential drawbacks of using such techniques, as these function at a much deeper level and cannot easily be acknowledged.

Antecedent conditions of appraisal.

Lazarus (1999) identified four environmental variables that impact an individual's stress appraisal; 1) demands, 2) constraints, 3) opportunity, and 4) culture. Environmental demands are pressures from the social environment to behave a specific way and demonstrate socially accepted attitudes. Psychological stress can be the result of conflict between inner goals and beliefs. For example, it may be essential for an international coach to work alongside competing athletes on a Sunday and this may conflict with his/her personal beliefs, resulting in psychological stress.

Environmental constraints define what people should not do and are backed up by punishment if violated (Lazarus, 1999). For example, because violence is not tolerated in society, restricting the violent impulses of specific individuals will likely cause psychological stress.

Opportunities also affect appraisal, "...opportunities arise from fortunate timing but could also depend on the wisdom to recognise the opportunity. To take advantage of it requires the right action at the right moment" (Lazarus, 1999; p. 63). Missed opportunities may cause psychological stress due to a sense of loss, whereas gained opportunities may result in positive forms of stress such as feelings of challenge. Lastly, cultural factors are believed to influence appraisal; what is an offence might be defined differently by different people, resulting in diverse emotional reactions from one culture to another (Lazarus, 1999).

Lazarus (1999) also recognised person centred variables that interact with the aforementioned environment variables to affect stress appraisal. For example, goals and goal hierarchies, beliefs about self, beliefs about the world, and personal resources. Lazarus argued that in the absence of a goal, there is no potential for stress; for emotions are the result of how we appraise or evaluate the fate of goals in adaptational transactions. However, the individual must decide how goals are prioritised in any given situation, because goal hierarchies impact stress appraisals. A coach with the goal of his/her athlete becoming an Olympic or Paralympic Champion, may appraise losing in the first round of the Games to be more stressful than a coach with a goal of his/her athlete simply qualifying for the next round. In terms of beliefs about self and beliefs about the world, Lazarus (1999) notes these variables influence our expectations about what is likely to happen and therefore determine our anticipatory and outcome emotions. For example, a coach working with a British champion might expect them to have a chance at team selection. Therefore, if this athlete is not selected, it is likely that the coach would appraise the situation as highly stressful. In comparison, a coach with a low ranked athlete, might not expect them to be selected and therefore non-selection may cause little or no stress.

Lastly, according to Lazarus (1999), personal resources (e.g., intelligence, money, social skills, education, supportive family & friends, physical attractiveness, health & energy) can also influence stress appraisals. For example, it is understood losing in the first round of a major competition affects coaches and athletes differently depending on their financial resources, their family support, their self-esteem etc. Lazarus (1999) suggested although we are born with many of these personal resources, others can be achieved by sustained effort.

Thus, in a coaching context, depending on the outcome of the initial cognitive appraisal of a stressor, a coach may engage thoughts and behaviours designed to deal with the situation; strategies that will likely change over time as efforts are reappraised and outcomes evaluated (Fletcher & Scott, 2010). This on-going dynamic process will affect subsequent appraisals of stressors and hence a coach's response and possible choice of coping strategy (Lazarus, 1999).

However, despite these examples of applying Lazarus' concept of stress appraisal to sports coaches, little is known about sports coaches' appraisal of stress.

2.1.3 Measurement of stress.

Researchers within psychology and sport psychology literature have adopted a variety of methods, both qualitative and quantitative, to explore the stress process. The methodologies employed can be grouped into four broad categories: (1) behavioural observations, (2) self-report measures, (3) physiological measures, and (4) performance tests.

1. *Behavioural observations* involve the assessment and evaluation of the participant's reactions and/or performance by a closely related third party (e.g., supervisor, spouse, or coach) who is familiar with the individual's natural behaviour and mannerisms. However, the results of these measures do not always correlate with physiological and psychological interventions employed to assess similar outcomes (e.g., Becker & Wrisberg, 2008; Rotella, McGuire, & Gansneder, 1985).
2. *Self-report measures* include interviews or psychological inventories (e.g., surveys & questionnaires) designed to capture an individual's perception of stress. Arguments against the use of self-report measures are reinforced by certain methodological limitations inherent to survey methods. For example, participants may under-or-over estimate their degree of stress for certain reasons (e.g., self-presentation, belief systems, personal dispositions, or values).
3. *Physiological measures* include blood pressure, heart rate, galvanic skin response, and biochemical assessments (e.g., hormone & catecholamine secretion). Limitations of physiological methods include the need for an equipped laboratory, the requirement to employ artificial, rather than real life stressors in a clinical environment, and the possibility of inducing additional anxiety to subjects as a result of using electrodes and intrusive physiological equipment.
4. *Performance tests* evaluate the individual's ability to perform certain tasks following exposure to a stressor. Although these investigations can take place in the natural performance environment, they often assume any impaired performance is a result of exposure to the stimuli.

However, such performance measures can fail to account for the influence of other external environmental (e.g., weather, the quality of the athletic setting or equipment, or crowd behaviour) or internal factors (e.g., mood, fatigue, & motivation of the participant).

Although the different methods for assessing stress have allowed researchers to address various research questions, the limitations of each approach resulted in early stress-related studies employing a combination of the different techniques to gain a picture of an individual's stress experience. However, the use of combined methods also resulted in inconsistency of findings, these included the confusion between physiological and psychological stress and the questionable relationship between coping and performance (Steptoe, 1989). Therefore, as stress-related research has continued to develop, the majority of researchers have relied on self-report instruments to explore psychological stress and coping processes and to gain individual insights into the experience of stress in different situations.

There have been several attempts at developing self-report inventories to measure psychological stress in a sports context. For example, Seggar (1997) proposed the Athlete Stress Inventory (ASI), a gauge of stress surrounding athletic performance. The ASI was initially formed using 148 female intercollegiate athletes and was further tested in a study of 32 female intercollegiate athletes from tennis, gymnastics, and basketball. The findings of Seggar (1997) reported negative mood, team compatibility, physical well-being, and academic efficacy as four key factors contributing to stress in student athletes.

Anshel and Weinberg (1995) developed the basketball officials' source of stress inventory (BOSSI) to establish different sources of stress experienced by officials. The BOSSI contains 15 items (stressors) and participants are required to respond to each item using a Likert type scale from 1 (*not at all*) to 10 (*extremely*) to indicate the extent they experienced each stressor. The 15 stressor items evolved from three sources. First, from the results of open-ended interviews with eight basketball referees and three former referees. Second, from published items such as *Referee Magazine*, and third, from research articles highlighting sources of stress among sports officials (e.g., Goldsmith & Williams, 1992; Lehman & Reifman, 1987). The BOSSI was found to be reliable and valid and supported the results of a number of studies exploring basketball officials stress (e.g., Anshel & Weinberg, 1995; Kaissidis-Rodafinos, Anshel, & Sideridis, 1998).

Madden, Summers, and Brown (1990) created The Stressful Situations in Basketball Questionnaire (SSBQ), to determine levels of perceived stress experienced during a range of situations in competition basketball.

Items relate to a variety of offensive, defensive, and neutral situations or game states. For example, being outplayed, making skill errors, errors in general play or strategic errors, game tension, team performance, and errors in specific tasks. Madden et al. (1990) employed the SBBQ together with the Ways of Coping Checklist (Lazarus & Folkman, 1984) to explore the influence of perceived stress on coping within competitive basketball.

The Ontario Soccer Officials Survey (OSOS) was developed by Taylor and Daniel (1988) to assess stress surrounding officiating, burnout, and intent to quit. The OSOS consists of 30 items and measures perceived stress using a 4-point Likert scale. Responses range from 0 (*did not*), to 4 (*strongly*), to the question, “How much did these contribute to the amount of stress you felt?” Seven sub-scales of perceived stress include: 1) fear of physical harm, 2) fear of failure, 3) peer conflicts, 4) time pressures, 5) interpersonal conflicts, 6) role culture, and 7) fitness concerns.

These tools have been designed to measure stress in athletes or officials. Yet, there is currently no questionnaire designed to measure stress in coaching. The few existing studies to have explored coach stress (e.g., Kelley et al., 1999; Olusoga et al., 2009, 2010; Thelwell et al., 2010), have typically employed interviews. Qualitative approaches, such as interviews, are considered most suited to studying the concept of stress because it is a subjective process (Denzin & Lincoln, 2005). Interviews encourage individuals to provide in-depth information that resonates at a personal level and captures the subjective meaning in contextual situations (Kvale & Brinkmann, 2009). The majority of interview studies that have assessed the impacts of stress and coping in sport have adopted a semi-structured interview approach. Semi-structured interviews offer a degree of flexibility, enabling the researcher to probe interesting points raised by each participant.

2.1.4 Sources of stress in sport.

With increasing demands and pressures being placed on sports performers, it is perhaps unsurprising that an array of stressors have been identified within sports literature. Research published over the last decade has predominantly employed qualitative methods to unveil sources of stress experienced by sport performers (e.g., Fletcher & Hanton, 2003; Gould, Jackson, & Finch, 1993; Hanton, Fletcher, & Coughlan, 2005; Neil, Hanton, Mellalieu, & Fletcher, 2011; Weston, Thelwell, Bond, & Hutchings, 2009; Woodman & Hardy, 2001).

According to Fletcher et al. (2006) stressors encountered in sport can be categorised into three main forms: 1) competitive, 2) organisational, and 3) personal.

Competitive stressors are reported to include performance expectations (Scanlan et al., 1991; Thelwell, Weston, & Greenlees, 2007), unexpected disruptions (Gould, Jackson, et al., 1993), competition preparation issues (Hanton et al., 2005; McKay, Niven, Lavallee, & White, 2008), injury (Hanton et al., 2005; McKay et al., 2008; Nicholls, Holt, Polman, & Bloomfield, 2006), and playing status (Thelwell et al., 2007). The pressures of competition (Hanton et al., 2005; McKay et al., 2008), superstitions (Hanton et al., 2005), and opponents (Nicholls et al., 2006; Reeves, Nicholls, & McKenna, 2009) have also been identified as stressors related to competition. Organisational stressors encountered by sports performers have been categorised into five key themes (Fletcher et al., 2006; Hanton & Fletcher, 2005): 1) factors intrinsic to the sport (e.g., training environment & travel), 2) roles within the sports organisation (e.g., role conflict & ambiguity, responsibility for people), 3) organisational structure and climate of sport (e.g., cultural & political issues, poor communication), 4) relationships and interpersonal demands (e.g., coach-athlete relationship, lack of social support, leadership style), and 5) athletic career and performance development issues (e.g., position insecurity, career progression, income, & funding). Finally, the least frequently cited, personal stressors include lifestyle issues (Noblet & Gifford, 2002), family disturbances (Scanlan et al., 1991), financial issues (Thelwell et al., 2007), and life events outside the sport (McKay et al., 2008). Research by Woodman and Hardy (2001) and Fletcher and Hanton (2003) reported that organisational stressors are generally encountered more frequently than stressors related to competition. However, according to Mellalieu, Neil, Hanton, and Fletcher (2009), when focusing on the demands encountered by sports performers within the actual competition environment, although organisational stressors were identified, participants reported facing more competition related stressors.

The importance of identifying sources of stress in any working environment have been outlined by Lloyd, King, and Chenoweth (2002), these suggestions have direct implications for individuals working within a sports setting. These include: 1) enabling individuals to assess their own levels and intensities of stress, 2) offering future sports participants a better understanding of the possible stressors they may experience, 3) developing interventions and training programmes to better equip individual's to identify and cope with stressors, 4) providing supervisors with an objective rating of an individual's current levels of stress to assess personal needs for any stress management programmes, and 5) to support systematic research into an individual's experience of stress. Thus, identifying and assessing the stressors that reside in sport allows scientists, coaches, and organisations to design more appropriate interventions to manage the demands placed on performers. Furthermore, comparisons of the stressors identified within the athlete focused literature, with those highlighted in emerging coach-stress publications, offers valuable insight to the concurrent stress experiences of both members of the coach-athlete relationship.

2.1.5 Sources of coach stress.

Despite a recent increase in research exploring coach stress, investigations specifically focused on the sources of coach stress have been late to emerge. A number of early studies highlighted specific coach stressors as a consequence of their primary investigations into sports coaching, for example, a study examining coaches working at an Olympic Games found that selecting athletes, representing their country, lack of preparation time, and spending time away from family were the primary stressors encountered by coaches during their time at the games (Sullivan & Nashman, 1993). Wang and Ramsey (1998) identified effective communication, creating a positive and motivational team atmosphere, keeping non-starters motivated, and lack of financial assistance as being significant stressors for new coaches. Finally, Pastore (1991) reported having less time available to spend with family and friends, lack of financial incentives, and increased intensity of recruiting were the stress factors given by collegiate level coaches for leaving the profession. However, it was as recent as 2007 that the first study focused entirely on coach stress was published. In her study exploring the experiences of stress in American NCAA Division 1 coaches', Frey (2007) interviewed coaches from a variety of sports and subsequently identified nine stressor themes: 1) task-related sources, 2) recruiting, 3) interpersonal/personal sources, 4) sources that would lead to quitting, 5) other people, 6) being the head coach, 7) time demands, 8) self-imposed stress, and 9) outcomes of competition. These findings suggested modern-day coaches experienced a vast array of stressors. Furthermore, Frey (2007) reported stressors had a negative impact on the coaches' performance, in particular their concentration, decision-making, and proneness to emotional outbursts.

While recognising the advancements made by Frey (2007), Thelwell et al. (2008) argued for additional research exploring stress in coaching in elite sport. Despite coaching being thought of as an inherently stressful occupation (Kelley & Gill, 1993), coaches are often mistakenly seen as 'problem solvers', rather than those who can succumb to stress (Frey, 2007). This assumption might suggest why coaches' experiences of stress within the unique culture of world-class sport have not been studied in depth. In an attempt to bridge this gap, Thelwell et al. (2010), interviewed British coaches working with elite athletes and employed by their respective governing bodies of sport or by professional clubs, to explore the causes of potential stress. Following inductive and deductive analysis of the interview transcripts, emergent stressors were categorised under performance-related or organisational-related dimensions. The performance stressors were those relating to either the performance of the coaches' athletes or of their own need to perform in their coaching roles. The organisational stressors were those relating to the sports organisations within which the coaches operated.

In addition, Olusoga et al. (2009) explored the stress experiences of coaches immersed in the unique culture of world-class sport. In their study, Olusoga et al. (2009) employed a semi-structured guide during interviews with twelve world class sports coaches based in the UK; these coaches represented eight sports including both individual and team based sport disciplines. Again, the findings suggested world-class coaches experience a diverse range of stressors; this was demonstrated by ten higher-order themes (conflict, pressure & expectation, managing the competition environment, athlete concerns, coaching responsibilities to the athlete, consequences of sport status, competition preparation, organisational management, sacrificing personal time, & isolation). However, perhaps the most salient findings presented by Thelwell et al. (2010) and Olusoga et al. (2009), were the sheer quantity of stressors reported by elite coaches. In notable contrast to Frey's (2007) nine stressor themes, Thelwell et al. (2010) recognised 182 distinct demands spanning the performance-related and organisational-related domains. Similarly, Olusoga et al. (2009) highlighted 129 specific stressors experienced by world-class coaches, also associated to performance and organisational related areas. Furthermore, the stressors described by elite coaches were often experienced in combination; therefore, having to simultaneously respond to a combination of stressors is likely to make the coping efforts of coaches more complex (Olusoga et al., 2010). For example, athletes under-performing in competition, a lack of coach control and pressure from a governing body to produce results, might all be experienced concurrently against a backdrop of poor team management and conflict between staff (Olusoga et al., 2010). Taken collectively, the research available in this area demonstrates the various stressors sports coaches can encounter and illustrates the potentially stressful nature of sports coaching (Olusoga et al., 2009).

These findings reinforce the notion that elite coaches operate within a highly demanding environment and contribute to previous research by explicitly identifying the specific origins of coach stressors. However, although this research represents a significant step forwards in understanding what causes stress among coaches and provides important fundamental information for researchers and sports psychologists involved in elite sport, further research is still required. For example, existing studies investigating stress experienced by coaches have recruited coaches from a combination of both team and individual based sports. No explorations have focused solely on coaches involved in elite level individual based sports where coaches and athletes work predominantly on a one-to-one basis and are said to have better opportunities to develop close relationships (Salminen & Liukkonen, 1996). In addition, in the knowledge that athletes often seek support and advice from those with whom they are familiar (Jowett & Cockerill, 2003), especially during athletic contests (Bowes & Jones, 2006), it seems appropriate to explore the frequency and intensity of stressors experienced by sports coaches in different environments.

Such investigation would enable professionals to better understand and support the overall stress experiences of coaches and provide novel insight into the potential impacts of differing levels of stress on the coach-athlete relationship.

2.1.6 Dyadic stress.

While separate explorations focused on athletes' (e.g., Hanton et al., 2005; Thelwell, et al., 2007) and coaches' (e.g., Olusoga et al., 2010; Thelwell et al., 2010) experiences of stress offer essential knowledge and understanding surrounding individual experiences of stress, few studies have explored stress within interpersonal relationships in sport, namely the coach-athlete relationship. Yet research by clinical and social psychologists has consistently shown that stress poses a risk not only to individual functioning but also for couples' relationships (Falconier, Nussbeck, Bodenmann, Schneider, & Bradbury, 2015). For example, investigations by Bodenmann and Cina (2006) and Bodenmann, Ledermann, and Bradbury (2007) yielded strong empirical evidence that stress is negatively associated with relationship quality and satisfaction, the developmental course of the relationship, as well as relationship outcome. Findings revealed that stress was a significant predictor of partners' poor well-being and poor communication and low relationship satisfaction (Bodenmann, 2000, 2005). Furthermore, during EISI-experiments (EISI, Experimentally Induced Stress in Dyadic Interactions; see Bodenmann, 2000), couples showed a dramatic decrease in their quality of communication (of 40%) when they were experimentally stressed in the laboratory.

Bodenmann (2005) defined dyadic stress as a stressful event or encounter that concerns both members of a relationship, either directly, when both partners are confronted by the same stressful event or when stress originates inside the couple, or indirectly, when the stress of one partner spills over to the relationship and affects both partners (Bodenmann, 2005). Thus, dyadic stress can be classified along three dimensions: (1) the way each partner is affected by the stressful event (i.e., directly or indirectly), (2) the origin of the stress (i.e., whether it originates from inside or outside of the couple), and (3) the time sequence (at what moment in the coping process each partner becomes involved). Many researchers and theorists agree that stress in couples is always a dyadic phenomenon that affects both partners in some way (Bodenmann 2005; Story & Bradbury, 2004). Understanding the mechanisms through which stress affects partners individually and in their relationship is therefore essential for prevention and intervention efforts.

For example, while further research is required to better understand the stress experiences of elite coaches to inform individual oriented coping interventions and methods, integrating the role of the relationship partner shows how both partners can mutually assist each other in the coping process and how dyadic coping resources, in addition to individual coping skills, can enhance responses to stress.

According to Randall and Bodenmann (2009), stress research in dyadic relationships, such as the coach-athlete relationship in sport, needs to consider three dimensions of stress in order to depict, in a reliable and valid way, the impact that stress has on such relationships: (1) external versus internal stress, where external stressors are those that originate outside of a relationship, for example stress at the workplace, financial stress, social stress, or family-oriented stress (Story & Bradbury, 2004) and internal stressors are those that originate within the couple (i.e., dyadic), such as conflicts and tensions between partners expressing different goals, attitudes, needs, and desires; (2) major versus minor stress. Major stressors are critical life events, such as severe illness, unemployment, death of a significant other, or accidents (e.g., Dohrenwend & Dohrenwend, 1974). Minor, or everyday stressors, include aspects of family life, conflicts in one's work setting and aspects of the physical environment (Randall & Bodenmann, 2009); (3) acute versus chronic stress, where the main differentiation is the duration of time which dyadic relationships are exposed to stressors. Acute stressors are temporary and their effects may be restricted to a singular instance (e.g., Cohan & Bradbury, 1997). Whereas chronic stressors (e.g., Bahr, 1979) are stable aspects of the environment and their effects can be longer lasting (Story & Bradbury, 2004).

While understanding stress in a range of relationships has been a main focus of research in recent years (e.g., law enforcement: Kinman & Jones, 2008; nursing & mental health workers: Bennett, Lowe, Matthews, Dourali, & Tattersall, 2001; management: Kerr, McHugh, & McCrory, 2009), few studies have explored the impacts of stress on the dyadic relationship between coaches and athletes. Yet, previous literature suggests the coach-athlete relationship is the most important relationship in the sports domain (Jowett, 2005), and plays a vital role in promoting the development of an athlete's physical and psychosocial skills. A more detailed understanding of the potential impacts of stress on interactions between coaches and athletes is therefore required.

Lastly, although the effects of stress on social interactions remain unclear. Accumulating evidence suggests prosocial behaviours increase under acute stress (e.g., Buchanan & Preston, 2014; Takahashi, Ikeda, & Hasegawa, 2007; Vinkers et al., 2013; Von Dawans, Fischbacher, Kirschbaum, Fehr, & Heinrichs, 2012).

Findings typically support a ‘tend-and-befriend’ stress response, which proposes that affiliative behaviour increases at times of stress to secure support from others (Taylor et al., 2000). Although originally proposed as a female stress response (Taylor et al., 2000), more recent empirical research has suggested males also engage in such a response at times of stress (Buchanan & Preston, 2014).

2.1.7 The effects of stress on well-being.

A number of debilitating physiological and psychological symptoms can arise when individuals do not have (or believe they do not have) the resources required to deal with a situation. For example, medical research exploring the physiological effects of stress have shown that prolonged stress may result in primary headaches (Nash & Theborge, 2006), immune system deficits (Glaser & Kiecolt-Glaser, 2005), coronary heart disease (Kivimaki et al., 2006), rheumatoid arthritis (Stephens, Hamer, & Chida, 2007), and hypertension (Matthews et al., 2004). Furthermore, a study by Hall et al. (2000) observed positive associations with insomnia, depression, and stress, suggesting excessive stress also influences the psychological well-being of an individual. Short-term effects of excessive stress include muscular tension, headaches, anxiety, and reduced concentration (Nash & Theborge, 2006).

The concept of increased levels of stress has traditionally been viewed as detrimental toward performance in the sports literature. Early studies revealed stress and anxiety were either related directly or indirectly to sports performance, and the negative effects of excessive stress on an athlete’s physiological and psychological well-being were documented (e.g., Burton, 1988; Wilks, 1991). The experience of stress has been linked to negative emotions (e.g., sadness, anger, & anxiety), which in turn, have been linked to impaired performance (Kleine, Sampedro, & Melo, 1988; Mace & Carroll, 1986). For example, Kleine et al. (1988) reported track and field athletes high in state anxiety, exhibited increased heart rates (in addition to the expected levels due to the physical work load) during the entire period of testing, and this was positively related to poor running performance. Not only were high levels of anxiety linked to poor performance, high performance was linked to low levels of anxiety. A study by Kerr and Minden (1988) also reported that stress hampered performance by increasing the occurrence of injuries, these findings illustrated that excessive physiological and psychological stress induced by sports competition increased the likelihood and severity of injuries compared with non-competitive situations. Furthermore, Anshel (2001) revealed the short and long term psycho-physiological effects of acute stress in sports include a reduction in: mental preparedness to perform (i.e., information processing capability), risk taking behaviour, ability to focus attention on relevant aspects of the situation and, ability to make quick decisions.

As research exploring the effects of stress in sport have continued to develop, the debilitating effects of stress have remained prominent (e.g., Price & Weiss, 2000; Vealey, Armstrong, Comar, & Greenleaf, 1998). However, stress has also been found to have positive effects on an individual, with a certain amount of stress considered necessary for a person to maintain their well-being and achieve optimum performance. For example, the findings of Anshel (2001) suggested stress may actually benefit an individual by having a positive effect on their incentive to learn and achieve goals, or to reach and maintain optimal levels of arousal, provided the person has the resources to contain the stress. Furthermore, Csikszentmihalyi (1990) reported that experiencing stress is important for generating a flow state during a performance. The findings of Hanton and Jones (1999) also suggested if athletes can learn to interpret their thoughts and feelings toward focusing on what they must do to improve their sporting performance, pre-competition stress and anxiety may not necessarily have a debilitating effect on their performance, and thus a facilitative interpretation of stress was identified as a motivator for the accomplishment of various tasks.

Although the debilitating and facilitative impacts of stress have been explored within athlete stress research, there appears to be no evidence of the study of directionality of stress in coaches. Several coach participants in Frey's (2007) study indicated that stress could negatively affect their performance and these coaches felt their focus and decision making was impeded when they were unable to manage their stress effectively. Kellmann and Kallus (1994) also postulated that stress often resulted in coaches being unable to perform necessary tasks, such as analysing situations and preparing athletes during competitions. Furthermore, to date, the majority of research investigating coaches' response to stress has typically focused on the phenomenon known as burnout (Freudenberger, 1974). However, the collegiate coach participants of Frey (2007) also reported several positive responses and effects of stress, including heightened awareness, energising effects, and increased motivation. Thus providing support for the findings of Anshel (2001) who postulated only stressors appraised as taxing or exceeding personal coping resources are negative; the physiological effects of stress actually prepare an individual to deal with the demands of a situation. Despite these observations, a need remains to examine more thoroughly the stress response of coaches and moreover, whether sports coaches are equipped with the coping resources required to manage the pressures involved in elite sport.

2.1.8 Coach burnout.

Research into burnout began through examinations in the mental health profession.

Freudenberger (1974) was the first researcher to systematically investigate the occurrence of burnout and following intensive observations defined the phenomenon as a “state of fatigue or frustration brought about by devotion to a cause, way of life, or a relationship that failed to produce the expected reward” (p. 159). Maslach, Jackson, and Leiter (1997) stated burnout involves three specific psychological impairments: emotional exhaustion, de-personalisation, and reduced personal accomplishment. It is said to appear slowly, develop in a chronic situation, and manifest with physical and behavioural symptoms. For example, feelings of exhaustion, pressure, and fatigue, being overburdened, rigid, stubborn, and inflexible thinking, depression, and working longer hours while accomplishing less and less (Freudenberger, 1974). In the sports domain, researchers studying the occurrence of burnout have since identified definitions specific to the experiences of those individuals involved in sport environments. Smith (1986) defined burnout as a reaction to chronic stress that involves withdrawal from an activity that was formerly considered enjoyable. The reaction involves physical, mental, and behavioural components that arise due to an inability to cope with stress over a prolonged time (Smith, 1986).

Early burnout research in a professional sports coaching setting was directed in view of individual coach characteristics, for example age, professional experience, gender, and family status (Caccese & Mayerberg, 1984). A theoretical model of burnout was developed which stressed relations and reciprocal interactions between causal, cognitive, biological, and behavioural factors (Smith, 1986). These early studies also reported coaches and trainers exhibited lower levels of burnout than other service professionals (e.g., Capel, 1987; Dale & Weinberg, 1989). However, according to Kelley and Gill (1993), these initial investigations were plagued by numerous conceptual and methodological shortcomings.

More recent studies into professional coach burnout have established that burnout is a salient feature within the lives of modern-day coaches (e.g., Altfied & Kellman, 2013; Kelley & Gill, 1993; Vealey, Udry, Zimmerman, & Soliday, 1992). Research exploring sports coaches experiencing burnout suggest they may be physically and mentally exhausted from the demands of coaching; they may begin to doubt their ability to succeed as a coach, and psychologically distance themselves from their athletes (Maslach, et al., 1997). Moreover, Kelley et al. (1999) found from a sample of 261 head tennis coaches, many reported moderate to high levels of emotional exhaustion (56% of men, 59% of women), depersonalisation (74% & 71%), and a reduced sense of personal accomplishment (69% & 74%). In addition, the results of Karabatsos, Malousaris, and Apostolidis (2006) found that coaches with an exclusive occupation in the coaching profession reported increased levels of burnout than those with more than one job or part-time job.

A recent review of 23 studies investigating burnout in coaches by Goodger et al. (Goodger, Gorely, Lavallee, & Harwood, 2007), identified three key psychological correlates of burnout: perceived stress (positively related), commitment, and social support (both negatively related). In terms of demographic correlates, the findings also showed that female coaches experienced higher emotional exhaustion than male coaches, but the data was inconclusive regarding depersonalisation and reduced performance accomplishment.

Thus, existing sports literature suggests that burnout is a prevalent negative consequence of psychological stress in coaches. The phenomenon appears to be linked to high levels of perceived stress relating to coaching issues, an entrapment-based commitment profile, and low social support (Fletcher & Scott, 2010). Furthermore, burnout is reported to be more likely in highly motivated individuals with high goal expectations (Pines, 1993), coaches operating in world class sporting environments could therefore be particularly vulnerable. In addition, burnout is not only reported to have a detrimental effect on coaches themselves, but also as having a negative impact on the athletes working with those coaches (Price & Weiss, 2000; Vealey et al., 1998). Moreover, coaches realise their behaviour changes due to stress might negatively influence their athletes (Gould, Guinan, Greenleaf, & Chung, 2002), and athletes also report these changes in coach behaviour as stressors for them (e.g., Gould, Guinan, Greenleaf, & Medbery, 1999). Stress management, confidence, motivation, and focus are well documented in the literature as being key to performance in sport. According to Hardy et al. (1996), participating in elite sports requires performers to cultivate an arsenal of skills to cope with stressful encounters in the competitive environment. However, there is a dearth of research investigating the coping strategies employed by coaches as they attempt to cope with perceived stress.

2.2 An Introduction to Coping

Similarly to stress, due to a history of differences in conceptualisations, the construct of coping has also proven difficult to define and operationalise (Compas, Orosan, & Grant, 1993). Early work typically concentrated on unconscious processes involved in coping, whereas more recent research has focused on coping as a conscious cognitive process (Dewe, Cox, & Ferguson, 1993; Endler & Parker, 1990; Lazarus & Folkman, 1984). The theoretical orientation chosen to explore coping is fundamental as it determines the factors to be explored. Previous literature suggests coping can be considered from a person-based, situational-based, interactive, or transactional perspective. A person-based approach assumes that any differences in coping preferences are as a result of differences in personality, and that an individual's coping preferences are consistent in all stressful events (Anshel, Jamieson, & Raviv, 2001).

In comparison, the situational-based perspective suggests it is environmental or situational factors which determine an individual's coping preferences. The interactive approach states that the individual and the environment both determine the coping strategies employed (Aldwin, 2007). Finally, the transactional perspective (Lazarus & Folkman, 1984) describes coping as a dynamic and recursive process that involves a transaction between an individual's internal (e.g., personal goals & values) and external (e.g., situational) environments. This approach requires an in-depth view of a given situation and suggests that coping preferences may change in response to coping effects (Lazarus & Folkman, 1984). Thus, it is coping that influences subsequent appraisals to stress, as well as the individual and environment.

Coping in sport has typically been conceptualised using a person-based approach or transactional perspective, influenced primarily by the early work of Lazarus and Folkman (1984). Defined as “constantly changing cognitive and behavioural efforts to manage specific external and/or internal demands that are appraised as taxing or exceeding the resources of the person” (p. 141), coping from the transactional perspective is regarded as a dynamic recursive process that can change depending on the situation and involves any methods that an individual employs to master, reduce, or otherwise tolerate stress. In their coping review, Nicholls and Polman (2007) found that the majority of sports literature supports the understanding that coping is a dynamic and recursive process. These findings suggest that athletes do not have preferred coping styles, nor that the situation determines coping, but instead athletes coping preferences vary according to previous experiences and appraisals of the situation, thus offering support to the transactional perspective of coping. The transactional framework is also supported within mainstream Psychology literature (e.g., Aldwin, 2007; Tamres, Janicki, & Helgeson, 2002) and thus, to extend existing literature, this project employs the transactional framework to define and explore coping in sports coaches.

2.2.1 The coping process.

Early approaches to coping are accused of portraying coping as an inflexible process and failing to consider the situation or context. Lazarus and Folkman (1984) adopted a dynamic transactional process perspective of coping, as opposed to deeming coping as a simple reaction to a stressor. According to Lazarus (1999), a process approach to coping contains three key themes: 1) no universally effective or ineffective coping strategy exists, 2) coping thoughts and actions should be described in detail, and 3) major functions of coping classifications. These are discussed in more detail below.

1. No universally effective or ineffective coping strategy exists.

Lazarus (1999) argued that coping must be assessed apart from its outcomes to evaluate the effectiveness of each individual coping strategy. He stated, “coping efficacy depends on the type of person, the type of threat, and the stage of the stressful encounter” (p. 111). According to Lazarus (1999), “the choice of coping strategy will usually vary with the adaptational significance and requirements of each threat...which will change over time” (p. 113). Therefore, it must not be assumed that how a person copes in response to one threat will be the same response employed to an alternative threat.

2. Coping thoughts and actions should be described in detail.

According to Lazarus (1999), to study the coping process researchers must understand what the individual is thinking and doing at each point, and the context within which it happens. This requirement resulted in the development of the Ways of Coping Questionnaire-Interview (Folkman & Lazarus, 1988), discussed in more detail later in this chapter.

3. Major functions of coping classifications.

Lazarus (1999) classified two functions of coping, a problem-focused function and an emotion-focused function. Problem-focused coping has also been labelled task-oriented coping (Endler & Parker, 1990). Problem-focused or task-oriented coping involves employing cognitive and behavioural efforts to change the problem or challenge causing the stress (Compas et al., 1991; Lazarus, 1991); an individual obtains information about what to do and subsequently takes action to change the person-environment relationship to reduce stress (Lazarus, 1999). Examples of problem-focused coping include: problem-solving, planning, information seeking, suppression of competing behaviour, time management, goal-setting, and increasing efforts. Emotion-focused (e.g., emotion-oriented, accommodation) coping involves actions to help control emotional arousal and stress (Lazarus, 1991). Examples of emotion-focused coping include: mental and behavioural withdrawal, denial, relaxation, imagery, self-blame, acceptance, logical analysis, humour, seeking social support, venting, positive reappraisal, and wishful thinking (e.g., Gaudreau & Blondin, 2004; Sabiston, Sedgwick, Crocker, Kowalski, & Mack, 2007). Ferguson and Cox (1997) suggested a third coping function, that of appraisal-reappraisal. This includes strategies such as logical analysis of a situation, looking for causes of a situation, cognitive redefinition, and social comparison (Ferguson & Cox, 1997). Avoidance coping has been proposed as a fourth coping function; this involves actively removing oneself from the stressful transaction (i.e., physical avoidance) and/or cognitive distancing efforts (i.e., psychological avoidance) to reduce stress (Kowalski & Crocker, 2001). Other functional dimensions proposed specifically in the sports literature are distraction-oriented coping (Gaudreau & Blondin, 2004) and approach-avoidance coping (Anshel, 2001).

Although these coping functions are reported as being distinct, Lazarus suggested the multiple functions of coping are used concurrently in most stressful episodes (Lazarus, 1993). Coping researchers have also suggested that the coping strategies employed can vary widely, depending on the context and specific stressor demands (Carver, Scheier, & Weintraub, 1989). Furthermore, the specific approach taken to classify coping functions has a profound impact on the specific measurement procedures and data analysis and interpretation used in coping research (Aldwin, 2007; Nicholls & Ntoumanis, 2010).

However, limited previous research has explored the coping functions of coaches in elite sport and therefore little is known about how coaches appraise specific stressors and which coping strategies are implemented to cope with those perceived as stressful. It could be argued similar to athletes, elite coaches do not have preferred coping styles, nor that the situation determines coping, but instead coaches coping preferences vary according to previous experiences and appraisals of the situation (Nicholls & Polman, 2007).

2.2.2 Measurement of coping.

Researchers in sport psychology have adopted a variety of methods, both qualitative and quantitative, to explore the concept of coping. Early studies within the sports domain employed quantitative methodologies and relied predominantly on questionnaires to assess coping. However, as coping research continued to develop, researchers moved towards qualitative data collection and an emergence of interview studies were published.

Early quantitative coping research typically explored the problem-focused and emotion-focused coping model using the Ways of Coping Checklist (WCC) outlined by Lazarus and Folkman (1984). The 66-item WCC examines the use of coping strategies in response to a specific stressor. Development of the WCC led to an increasing number of researchers in general psychology using the inventory to investigate coping. For example Endler and Parker (1990) used the WCC to examine the differences in coping styles among college students. The findings revealed a group of students used more problem-focused coping in dealing with college related stress, than emotion-focused. Madden et al. (1990) modified the WCC to contain sport relevant coping strategies. The Ways of Coping Checklist for Sport (WOCS) was used by Madden et al. (1990) to investigate coping styles of competitive middle distance runners and to investigate the influence of perceived stress on coping with competitive basketball. However, the shortcomings of the WCC (& by necessity the WOCS) have also been widely acknowledged. Carver et al. (1989) suggested that only assessing two coping strategies is too simplistic and that researchers often discover more than two factors when conducting coping research.

Furthermore, Carver et al. (1989) highlighted that the meaning of some items on the WCC were ambiguous and difficult to interpret and the measure was derived primarily from an empirical rather than theoretical foundation. Citing concerns with the WCC, Carver et al. (1989) developed the original COPE instrument.

The COPE assessed 13 distinct scales constructed through the application of existing theories, including the transactional model of coping, the model of behavioural self-regulation, and pre-existing measures of coping (Carver et al., 1989). The COPE contained five scales to assess specific components of problem-focused coping (i.e., active coping, planning, suppression of competing activities, restraint coping, & seeking instrumental social support), five scales of emotion-focused coping (seeking emotional social support, positive reinterpretation & growth, acceptance, denial, & turning to religion), and three further scales (focus on & venting of emotions, behavioural disengagement, & mental disengagement). Carver et al. (1989) found situational appraisals influenced the coping responses of college students during a stressful event. Specifically, students reported using more focus on and venting of emotions, denial, and seeking social support as coping responses when the situation mattered, compared to when the situation was deemed unimportant. Finch (1994) examined the coping performance relationship among female softball players employing the COPE. The findings revealed that high levels of competitive anxiety were positively related to maladaptive coping and emotion-focused coping, whereas high levels of competitive anxiety were negatively correlated with adaptive coping and problem-focused coping. However, Crocker and Graham (1995) suggested further development of the original COPE was required to make the instrument more suitable for subjects based in sport.

Crocker and Graham (1995) modified the COPE (MCOPE) instrument to study situational-based coping in physical activity. A number of modifications were made to the wording of some items to make them more applicable to sport but 9 of the 12 subscales were taken from the original COPE instrument: active coping, seeking social support for instrumental reasons, planning, seeking social support for emotional reasons, denial, humour, behavioural disengagement, venting of emotions and suppression of competing activities. The three additional subscales of the MCOPE are based on previous sport-specific coping research and include self-blame, wishful thinking, and increasing effort. Although the MCOPE contains items appropriate to most sporting situations, the problems surrounding what coping periods are actually being recalled by athletes and whether reporting of a strategy reflects frequency, duration, or effort are yet to be addressed.

The MCOPE asks athletes to indicate *how much* they use a particular strategy, but similar to the *extent* rating on the WCC, this may mean individuals use a strategy often, for a long duration, or with great effort. These questions need to be addressed to eliminate sources of variability in the assessment of the coping process.

Smith, Schutz, Smoll, and Ptacek (1995) developed the Athletic Coping Skills Inventory-28 (ACSI-28) to assess psychological coping skills within a sport context. The ACSI-28 is composed of seven subscales measuring coping with adversity, goal setting/mental preparation, peaking under pressure, concentration, freedom to worry, confidence and achievement motivation, and coachability. These seven subscales are then summed to yield a general measure of psychological coping. A strength of the ACSI-28 is it was designed specifically for sporting research and asks sport related questions, illustrating psychological skills in athletes to be multifaceted. However, the ACSI-28 also presents a number of limitations; first, the measure has been criticised for not being developed based on any theory of the coping process, Smith et al. (1995) stated that the factors actually emerged from a range of psychological skills. Thus, the ACSI-28 potentially neglects the possible person-environment transaction that may be critical to the coping process. For example, the questions on the ACSI-28 may be too general to capture the dynamic nature of coping, and therefore the scale may assess general levels of psychological skills, but not necessarily coping itself (Crocker & Graham, 1995).

The ACSI-28 raises two conceptual issues that have significant implications for the measurement of coping in sport. First, it is important to distinguish between choice of coping strategy and the effectiveness of the strategy (Bolger & Zuckerman, 1995). Choice measures (e.g., WCC & COPE) reflect strategies selected by participants to deal with a particular stressful situation. The ACSI-28 measures coping effectiveness and is designed to assess the extent an athlete uses psychological skills to improve performance (Crocker & Graham, 1995). However, as Bolger and Zuckerman (1995) suggested, how individuals manage stress may reflect differences in the choice of coping strategies, the effectiveness of those strategies in particular contexts, or the combination of choice and effectiveness. A second issue is whether psychological skills measured by the ACSI-28 are equivalent to coping skills. Some theorists have argued that coping skills involve effort and that automated skills should be considered management skills, not coping skills (Aldwin, 2007; Lazarus & Folkman, 1984). However, Aldwin (2007) stated that coping strategies and emotional responses may not be fully conscious, and therefore any cognition and behaviour used to manage threatening or challenging person-situation transactions may be considered a coping skill. Considering automated skills within the coping definition raises further measurement challenges.

If coping skills can be both automated and conscious, the accurate assessment of coping becomes a problem using self-report methods because automatic processing is rapid, individuals may not be able to recall the use of these skills (Crocker & Graham, 1995).

Qualitative assessment has increasingly been used to examine stress and coping in a sports setting (e.g., Gould, Jackson, et al., 1993; Scanlan et al., 1991). Qualitative methodologies are inductive in nature and no priori hypotheses are made; instead variables and processes gradually emerge as analysis proceeds. For this reason, qualitative research can be discovery oriented and especially useful when little is known about a phenomenon, for example the coping responses of sports coaches. Furthermore, according to Nicholls and Ntoumanis (2010), if a research aim is directed towards examining individual experiences of coping, interviews are the most suitable method to use, to capture their subjective experiences. There are three types of interviews: structured, semi-structured, and unstructured. Within structured interviews all participants are asked the same questions in the same order. When a semi-structured interview guide is employed, participants are asked the same questions, but the order can fluctuate if and when the researcher wishes to explore different avenues that may arise during the interview (Patton, 2002). Interviews that adopt an unstructured approach are guided by the participant and his/her responses. Most interview studies exploring coping in sport have employed a semi-structured interview (e.g., Gould, Jackson, et al., 1993; Olusoga et al., 2010; Thelwell et al., 2010) where participants respond to questions in an open-ended manner and therefore determine the parameters of the data. The responses are rich in information and not limited by a specific category. However, small sample sizes, case-study formats, and nuances of the researcher make results less generalisable to other groups or setting. Thus, limited generalisability is the price to be paid for the depth of information gathered (Crocker & Graham, 1995).

Although qualitative methods have been deemed superior for understanding personal and situational contextual variables influencing appraisal and the choice of coping strategy employed; Locke (1989) suggested social desirability, the tendency to give outsiders a difficult time, the need to protect sensitive information, and the inclination to be guarded around strangers may compromise qualitative data. Therefore, prolonged engagement with potential interview candidates is considered fundamental for establishing trust and collecting authentic information (Lincoln & Guba, 2007). Furthermore, literature urges qualitative researchers to actively seek confirmation and disconfirmation of explanations. Early suggestions from Lincoln and Guba (1985) highlighted the need for auditing by people external to the research team; researcher bias is possible when investigators verify their own decisions and may therefore influence the results of qualitative research. A further limitation of interview studies, is whether participants are able to accurately remember how they coped when recalling coping strategies.

Previous research suggests participants may forget, under-report, or over-report when retrospectively recalling coping strategies (Folkman & Moskowitz, 2004). Researchers within mainstream psychology literature (e.g., Ptacek, Smith, Espe, & Raffety, 1994; Smith, Leffingwell, & Ptacek, 1999) have also found that with passage of time, individuals provide less accurate accounts for coping.

2.2.3 Coping effectiveness.

Coping includes all consciously and deliberately executed attempts to manage appraised demands (Lazarus, 1999). It is therefore possible that some forms of coping will be more effective than others (Folkman & Moskowitz, 2004). Although a coping strategy is considered a “plan of action that we follow, either in anticipation of encountering a stressor or as a direct response to stress as it occurs” (Martin, Carlson, & Buskist, 2009, p. 765), coping effectiveness in the sports domain has been defined by Nicholls and Polman (2007) as “the extent to which a coping strategy, or combination of strategies, is successful in alleviating the negative emotions caused by stress” (p. 15).

However, a shortcoming of existing sport psychology research is that what constitutes coping effectiveness remains relatively unknown. Coping effectiveness has been reported as the type of coping strategies used by athletes (Nicholls, Polman, Levy, Taylor, & Cobley, 2007). However, just because a coping strategy is implemented by an individual more regularly does not automatically mean it is more effective. Nicholls et al. (2007), reported that coping effectiveness was associated with the choice of coping strategy employed. According to Folkman's (1992) goodness-of-fit model, when a stressor is perceived as controllable, problem-focused strategies (e.g., strategies directed towards the stressor, such as goal setting) would be more effective. Alternatively, emotion-focused strategies (e.g., techniques employed to regulate emotional distress, such as deep breathing) would be more effective in responding to uncontrollable stressors. Folkman (1992) argued that when this fit is not achieved, coping is ineffective. Gould, Eklund, and Jackson (1993) proposed that coping strategies employed automatically by individuals are more effective than those that require increased conscious effort. Lastly, Nicholls and Polman (2007) found individuals who practiced their coping strategies were more likely to adopt such responses more readily and effectively. However, despite these theoretical attempts to account for coping effectiveness, it remains little understood. Expanding the study of coping effectiveness to wider population groups (i.e., elite coaches) may help further develop a better understanding of this construct (Levy, Nicholls, Marchant, & Polman, 2009). Furthermore, little is also known about coping effectiveness in terms of whether there are any differences between the coping strategies employed before, during, or after competition.

For coaches to perform at optimal levels, especially in increasingly demanding situations, it is essential they are able to cope effectively. To date there is limited published literature that has examined coping effectiveness among elite coaching populations.

In a recent qualitative investigation, Thelwell et al. (2008) explored the use of psychological skills in 13 elite-level coaches from the UK. The results demonstrated that world-class coaches use a variety of psychological skills (e.g., imagery & self-talk) in limited fashion. It is essential that world-class coaches become aware of what coping skills they require if they are to maximise their use across their wide-ranging coaching roles. Perhaps coaches could learn to accept the symptoms of stress as a natural part of competing, making use of pre-competition stress to aid performance and mental preparation. Therefore, the implementation of numerous coping strategies may be unnecessary for coaches who channel stress as motivation and to facilitate their performance. It could be beneficial to inform new coaches as to why they experience various symptoms in high-pressure situations. Similar to the athlete perhaps such mental skill acquisition involves gradual developmental stages, taking advice from more experienced individuals and via natural learning (competing at different standards, home/abroad, & against different opponents). Regular coach education workshops focused on performance profiling, effective communication and the implementation of numerous psychological skills, such as goal setting and self-talk would likely reduce the debilitating effects of stress and the occurrence of coach burnout (Woodman & Hardy, 2001). Governing bodies should consider incorporating psychological skills training within their accredited coach qualification programmes. As research progresses and sport psychologists become increasingly aware of all of the challenges faced by athletes and coaches, they can work together with sports organisations to monitor and improve the effects of increased stress on performance.

2.2.4 Personal, situational, and interpersonal aspects of coping.

According to Lazarus and Folkman (1984), personal factors such as commitment and beliefs can affect an individual's appraisal of a situation and consequently their coping options. Commitment is what the individual considers to be important; the greater the sense of commitment, the more stress likely to be experienced. The strength of commitment can greatly determine the individual's efforts in attempting to cope during a stressful event. General beliefs regarding one's ability also influence appraisals and coping. Lazarus and Folkman (1984) hypothesised that greater levels of perceived controllability would be associated with lower levels of stress. However, the individual's preferred coping style and available coping resources also play a key role in the appraisal stage.

Coping resources refer to conditions or attributes that either increase or decrease the likelihood that demands will be perceived as a stressor or improve the effectiveness of coping behaviours.

In addition, the dynamic transactional model of stress and coping (Lazarus & Folkman, 1984) suggests the coping process is also influenced by situational factors. Situational factors that may influence coping include the novelty of the task at hand, event uncertainty, and the imminence, ambiguity, and duration of the stressful event. Novelty refers to how familiar the stressful event feels to the individual, and as most people are somehow familiar with most stressful events, novelty is not considered to play a significant role in the coping process, but is a factor individuals and psychologists should be aware of when approaching coping. Uncertainty refers to the likelihood that an event will occur and is referred to as a significant characteristic in influencing coping. According to Lazarus and Folkman (1984) most individuals prefer to know when stressful events will occur, so they have the opportunity to use anticipatory coping options to deal with the demands. The amount of time before a stressful event has also been highlighted as a situational factor affecting coping. The more imminent the event, the more stress caused (Lazarus & Folkman, 1984). In addition, how much information the individual has regarding the event has also been suggested to influence coping. The more ambiguous the event, the more stress caused. Lastly, the duration of the stressful event has been identified as a key situational-factor affecting coping. Chronic stress can be detrimental to an individual's psychological well-being and prolonged stress is associated with burnout (Freudenberger, 1974; Smith, 1986). However, coping involves transactions between the individual and the environment, and even though personal and situational can be distinguished, they are not mutually exclusive, but rather, related and influenced by each other. An individual's appraisal and coping response to a situation is affected by personal and environmental demands.

Researchers exploring coach stress have reported that not all coaches respond or cope in the same way to stress. Consequently, the personal, situational, and interpersonal factors that influence coping have been addressed, albeit briefly, in literature exploring coach stress. For example, the personality construct of hardiness has received notable research attention. The "hardy personality" was characterised by Kobasa (1979) as one that encompasses high levels of commitment or involvement in day-to-day activities, the perception that one has control over life events, and a tendency to view unexpected change as a challenge rather than a threat to well-being. Previous research has suggested coaches high in hardiness are less susceptible to developing burnout due to more positive appraisals of environmental demands (Hendrix, Acevedo, & Hebert, 2000; Kelley, 1994; Kelley et al., 1999). According to Fletcher and Scott (2010), coaches with a hardy disposition are committed to their work, focused on tasks they can control, and approach obstacles as challenges.

In addition to hardiness, trait anxiety is another personality construct that has received research attention. A study by Vealey et al. (1992) revealed that a coach's tendency to respond anxiously to demands was the strongest predictor of burnout in coaches. More specifically, the findings suggested that coaches with high trait anxiety scored higher on emotional exhaustion and depersonalisation and lower on personal accomplishment. Among the situational and interpersonal variables that are reported to enhance coping responses in coaches, support from others has received growing attention in the literature. Research suggests coaches with greater access to social support are better able to handle the stressors they encounter and respond more positively (Hendrix et al., 2000; Kelley, 1994; Kelley & Gill, 1993; Kelley et al., 1999). According to Taylor (1992), a coach's primary sources of social support are: upper level management, coaching staff, a sport psychologist, and family and friends. Researchers investigating coaches' experiences of burnout have also identified social support as a powerful protective factor (Hendrix et al., 2000; Kelley, 1994; Kelley & Gill, 1993; Vealey et al., 1992). Consistent with previous findings (e.g., Kelley, 1994; Kelley & Gill, 1993), Hendrix et al. (2000) found that coaches reporting low social support demonstrated higher perceived stress and burnout, whereas those with greater social support and more social satisfaction reported less perceived stress and burnout. Although these findings provide invaluable insights into the factors affecting coping in sports coaches, specifically the role of social support, more research is required to provide valuable information for the development and design of stress management interventions for coaches.

2.2.5 Coping in sport.

The ability of sports performers to self-regulate their behaviours, feelings, and thoughts before, during, and after their sport activity is crucial in determining proficiency. According to Kowalski and Crocker (2001), self-regulation is critical in sport and exercise, as participants must manage and adapt to ever-changing physical, cognitive, emotional, and social demands. Effective self-regulation can produce performance success, positive physical and mental well-being, and positive social functioning (Kowalski & Crocker, 2001). Coping is a critical process in managing stress (Lazarus, 1999; Nicholls & Polman, 2007) and involves co-ordinating many self-regulating systems composed of cognitive, emotional, physiological, and motor behaviour processes (Zimmer-Gembeck & Skinner, 2011). Psychologists, coaches, and performers strive to find approaches to overcome the various stressors facing sports performers (Nicholls & Polman, 2007). In studies involving athlete populations, an inability to cope with stressors has been linked to reduced quality of performance (Lazarus, 2000), athletes not being able to pursue careers in professional sport (Holt & Dunn, 2004), and withdrawal from sport (Smith, 1986).

A more recent study involving world-class coaches discovered that stress negatively affected their thoughts, behaviours, and emotions (Olusoga et al., 2010). Coaches reported that as part of their own responses to stress, their standard of work dropped, they would fail to get the best out of their athletes, and the quality of communication between themselves and their athletes would suffer. Therefore, the study of coping in sport offers researchers the opportunity to identify effective and ineffective coping, which can then help the development of coping interventions.

Previous research has examined coping and gender differences among athletes and the results suggest men and women exhibit different coping behaviours. Several studies have indicated that males use more problem-focused coping and females use more emotion-focused coping (e.g., Anshel, Porter, & Quek, 1998; Campen & Roberts, 2001; Goyen & Anshel, 1998; Hammermeister & Burton, 2004). Evidence also suggests females are more likely to use social support to cope with stress (e.g., Campen & Roberts, 2001; Crocker & Graham, 1995; Philippe, Seiler, & Mengisen, 2004). However, others have only found partial support for gender differences in coping. For example, Pensgaard, Roberts, and Ursin (1999) and Antoniou and Bebetos (2003) found no gender differences in coping with stressful events in sport. Further research is required to clarify possible gender differences (Nicholls & Polman, 2007), not only to enhance the teaching and application of effective coping techniques, but also for coach-athlete dyads to better understand how each other is likely to respond to stress.

Athletes participating in individual sports have reported using self-talk and blocking (Nicholls et al., 2006). In contrast, athletes from team sports have reported goal setting and seeking social support (Nicholls et al., 2006; Park, 2000). In addition, Park (2000) reported that athletes of individual based sports used more coping strategies. However, it is unclear whether individual sport athletes report different or more stressors, to explain why they would require more coping strategies. Although additional research is required to examine specifically the stressors and coping differences among individual and team sport athletes, no previous research has explored the coping responses of sports coaches based in individual sports compared to team sports. These findings may offer some assistance in applied practice whereby psychologists develop specific interventions based on the type of sport pursued. Even though sport psychology literature has examined stress and coping among athletes of elite (e.g., Anshel, 2001; Dale, 2000; Holt & Hogg, 2002; Nicholls et al., 2006) and club/recreational standard (e.g., Anshel, 1996; Holt & Mandigo, 2004; Poczwardowski & Conroy, 2002), stress and coping literature in sports coaches is limited, and coping research focusing on elite sports coaches is particularly scarce. Understanding the coping responses of coaches, as a function of skill, could be a crucial factor in explaining level of skill reached. Any differences could be used to assist coaches as they progress from club to elite level standard on how to cope with the demands of world-class sport.

Even though sports performers have a number of coping strategies at their disposal, recent attempts have been made to draw some associations between stress sources and coping strategies deployed by athletes in a number of sports. For example, golf (Giacobbi et al., 2004), cricket (Thelwell et al., 2007), and sailing (Weston et al., 2009). Weston et al. (2009) used in-depth interviews to explore the stressors experienced and subsequent coping strategies employed by five single-handed, round-the-world sailors. The stressors experienced by the sailors included environmental hazards (e.g., isolation & sleep deprivation), competitive stressors (e.g., yacht-related difficulties) and personal issues (e.g., family problems). These sailors reported using a combination of problem-focused (e.g., making detailed plans for how to respond to certain scenarios) and emotion-focused (e.g., relying on social support from family & supporters to counteract the feelings of isolation involved in sailing) coping strategies. However, Weston et al. (2009) acknowledged that their research findings did not establish specific causal or temporal links between the stressors experienced and the resultant coping strategies adopted. Although there are applied benefits from understanding sources of stress and coping strategies, further research is required in other sports so that sports psychologists can be more knowledgeable and precise when intervening with performers (Thelwell et al., 2007).

Although research exploring the experience of stress in the lives of sports coaches is increasing, few studies have investigated the coping responses employed by coaches, specifically elite coaches; furthermore, scant research has reviewed the effectiveness of any coping strategies used by elite coaches. A more recent study by Olusoga et al. (2010) was the first to investigate the coping techniques of a sample of world-class UK coaches from a range of sports (e.g., swimming, field hockey). Thematic analysis revealed the most frequently reported coping strategy was ‘structuring and planning’ – a problem-focused approach involving the use of past experience to anticipate and circumvent likely stressors. Attending coaching courses and seeking continuous professional development were also widely cited as preferred coping strategies.

2.2.6 Dyadic coping.

Individual assessments of coping in response to stress are essential to inform effective individual coping interventions and approaches. However, dyadic accounts of appraisal and coping reveal how two people involved in the same stressful incident, evaluate stress and subsequently interact to cope (Folkman, 2009). It could be argued that due to the nature of sport, coaches and their athletes are likely to be involved in the same stressful encounters (i.e., training sessions or competitive performances), yet few research studies have explored how coaches and athletes cope together.

According to Berg and Upchurch (2007), dyadic coping relates to the way in which a couple interacts to cope, where the primary purpose is to reduce stress for both members (Bodenmann, 2005). Dyadic coping is triggered when one member of a dyad communicates stress to the other via verbal or non-verbal communications, with the other partner responding with some form of dyadic coping (Bodenmann, 1995, 2005). As such, Bodenmann (2005) proposed that dyadic coping is interactive and reciprocal. According to Bodenmann (2005) dyadic coping can be both positive and negative. Whereas positive dyadic coping includes three distinct types of coping: (1) supportive dyadic coping (i.e., one partner helps the other in their coping efforts, such as providing practical advice or empathy), (2) delegated dyadic coping (i.e., one person assumes responsibility of different tasks to reduce the other's workload), and (3) common dyadic coping (i.e., both partners partaking in the same strategies together, such as relaxing or problem solving). Negative dyadic coping involves hostile, ambivalent, or superficial responses to the other person and represents support that is insincere or unwillingly provided (Rottmann et al., 2015). However, while outlining the different types of dyadic coping is beneficial to further understanding, the fundamental precursor which determines whether the appropriate dyadic coping response is adopted, is whether individuals are able to accurately understand their partner's feelings. That is, whether members of a relationship have the ability to perceive and understand what their partner finds stressful and the likely emotions such stress evokes (Bodenmann, 2005). Thus, correctly identifying and interpreting other people's feelings is a fundamental pre-requisite for providing dyadic coping that a partner perceives as helpful (Bodenmann, 2005).

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, recognise, 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.

2.3 Conceptualising Empathy

According to Stotland (1969), discussions of empathy date back to the foundations of philosophical thought. Despite this extensive history, or perhaps because of it, the notion of empathy has experienced confusion and a lack of consensus regarding how the concept is defined, operationalised, and measured (Eisenberg & Morris, 2001).

Although “there is no way to ascertain which definition is correct” (Eisenberg, Shea, Carlo, & Knight, 1991, p. 64), it is possible to compare and contrast how empathy is conceptualised, examining the competing viewpoints in light of the current knowledge-base. This review explores the conceptualisation of empathy, and presents how the concept applies to the current thesis. Empathy has been investigated extensively from early fields of social (e.g., McDougall, 1908), developmental (e.g., Piaget, 1929), and clinical psychology (e.g., Rogers, 1957), and as such literature from these fields is referenced throughout this review. However, where appropriate empathy is discussed within a sports context.

Introduced at the turn of the 19th century by Titchener as an adaptation of the German word *einfihlung*, the term empathy was defined as a “process of humanising objects, of reading or feeling ourselves into them” (Titchener, 1909, p. 417). Theories of empathy in the field of psychology were largely influenced by this view (Downey, 1929; Kohler, 1929), until Mead (1934) recognised the self-other differentiation in empathy and added a cognitive component, an ability to understand, to empathise with another. Later and in accordance with Mead’s (1934) interpretation, Feshbach and Roe (1968) defined empathy as a shared emotion concordant with that of another person. Eisenberg and Strayer (1987) termed empathy as understanding and sharing in another’s emotional state or context, while Davis (1983) stated that empathy is the ability to comprehend another person’s state of mind. Although these definitions have some degree of overlap, there is a lack of operational clarity amongst them. Definitions vary in their reference to the sharing of one’s emotional state (i.e., Eisenberg & Strayer, 1987; Feshbach & Roe, 1968); the understanding of other’s emotional state (i.e., Eisenberg & Strayer, 1987); the communication of this understanding, and the prosocial acting on this understanding (Hoffman, 1977). However, despite this diversity in definitions, researchers tend to agree on two clear distinctions of empathy; first, affective empathy, which describes empathy as an affective response, that it is elicited by an emotional stimulus. Second, cognitive empathy, which suggests empathy is concerned with the ability to accurately perceive others feelings, related closely to theory of mind (Blair, 2005). Some definitions are based on only affective (e.g., Albiero, Matricardi, Speltri, & Toso, 2009; Decety & Lamm, 2006; Hein & Singer, 2008) or cognitive (e.g., Clark, 2010; van der Weele, 2011; Wispé, 1986) components. However, many definitions include both (e.g., Barker, 2008; Barnett & Mann, 2013; Colman, 2009).

Affective empathy is concerned with the experience of emotion, caused by, and congruent with the perceived feelings of another (Eisenberg & Strayer, 1987). That is, identifying and sharing the emotions of others. It includes concern for others’ suffering and a desire to reduce suffering that does not necessarily involve imitation of others’ feelings, often called ‘empathic concern’ (Batson & Ahmad, 2009).

Thus, affective empathy is commonly confused with the construct of sympathy. According to Eisenberg (1991), affective empathy is “an emotional response that stems from another’s emotional state or condition and is *congruent* with the other’s emotional state or condition”. Sympathy is defined as “a vicarious emotional state or situation, one that involves feelings of general *sorrow* or *concern* for the other” (Eisenberg, 1991). The distinction between empathy and sympathy has been described as “feeling *as* and feeling *for* the other”, respectively, (Hein & Singer, 2008, p. 157). For example, according to Singer and Lamm (2009) when perceiving sadness in another, empathy will cause sadness in the observer (same emotion; feeling *as*), while sympathy will entail feelings of concern (different emotion; feeling *for*). This is consistent with reported differences in the neurological processes underlying the two constructs (Decety & Michalska, 2013). Therefore, due to these distinct emotional implications, empathy and sympathy are considered separate concepts within this thesis. Cognitive empathy, on the other hand, is the intellectual understanding of another’s experience, it is defined as the skill of perceiving and interpreting verbal and nonverbal cues and information, which are then used to decode others’ thoughts, feelings, intentions, and characteristics (Losoya & Eisenberg, 2001). Although affective and cognitive empathy have been discussed separately, some scholars see the emotional and cognitive aspects of empathy as more overlapping than separate (Hoffman, 1984). According to (Davis, 1994), empathy is a process that includes affective and cognitive elements which may enhance the accuracy of an individual’s interpersonal perspective. For example, Losoya and Eisenberg (2001) argue that for affective empathy to be present, an observer must be able to identify the source of their emotional arousal. Thus, the perceiver must on some level, consciously or unconsciously, form an initial judgement or inference about the target individual; implying the importance of cognitive empathy.

Within this affective-cognitive empathy framework, Leslie, Friedman, and German (2004) provided a further description of cognitive empathy to include two key components; role taking, and application of knowledge. Role taking represents the ability to put oneself in another’s place, to view the world through their eyes, while application of knowledge refers to the ability to employ appropriate knowledge to make an educated guess. According to Fletcher (2002), levels of such knowledge range from general to specific: 1) an individual’s general knowledge of people or social context (e.g., “I know when people adopt an abrupt tone, they are generally angry”); 2) knowledge regarding a particular population or context (e.g., “I know when athletes go quiet just before competition, they are generally trying to focus”); and 3) knowledge about a specific individual or context (e.g., “I know when Grant, the athlete, goes unusually quiet in training he is generally frustrated or upset about something”). The more specific knowledge an individual uses, the more accurate his/her inferences are likely to be (Fletcher, 2002).

However, according to Funder's (1995) Realistic Accuracy Model, the accuracy of an individual's empathic inferences can be determined by: 1) the availability of relevant information, and 2) the ability of the perceiver to appropriately use this information. Thus, the more information a person has, the more resource they have to form their empathic inferences. This notion is associated with the aforementioned application of knowledge and the argument that more specific knowledge results in increasingly accurate empathic inferences (Fletcher, 2002). However, Funder (1995) reports this is moderated by an individual's motivation. Thus, even if specific knowledge is employed, if the individual lacks motivation to apply it, their empathic inferences will be less accurate. Conversely, a highly motivated individual with general knowledge, may still make accurate inferences. The importance of accurate inferences in relation to desirable social outcomes are discussed in more depth later in this review.

Another relevant distinction in existing literature is between 'dispositional' (Davis, 1983) versus 'situational' empathy (Batson, 2009). The dispositional view implies that some individuals are more empathic than others, with this ability being stable over time (Cuff, Brown, Taylor, & Howat, 2016). Anatomical differences (Banissy, Kanai, Walsh, & Rees, 2012), as well as genetic and developmental factors (Eisenberg & Morris, 2001), account for some variability in empathic abilities. Further support emerges from studies into the empathy deficits found in autistic and psychopathic individuals (Cuff et al., 2016). Other effects of dispositional factors such as gender (e.g., Derntl et al., 2009) and education (Thomas, Fletcher, & Lange, 1997) have been reported. Thus, there is little doubt that empathic responding is subject to trait, individual difference factors. Nevertheless, considerable evidence supports the importance of situational empathy. For example, Fernandez, Marshall, Lightbody, and O'Sullivan (1999) revealed sex offenders do not have generalised empathy deficits, but are able to avoid empathy for certain individuals or groups of people. Similarly, violent men have decreased empathic accuracy towards their spouses, compared to female strangers (Clements, Holtzworth-Munroe, Schweinle, & Ickes, 2007). Moreover, a number of situational factors have been demonstrated to influence empathic responding, such as observer-target similarity (Eklund, Andersson-Stråberg, & Hansen, 2009), how much the observer values the target (Batson, Eklund, Chermok, Hoyt, & Ortiz, 2007), mood (Pithers, 1999), blame (Rudolph, Roesch, Greitemeyer, & Weiner, 2004), perceived power (Galinsky, Magee, Inesi, & Gruenfeld, 2006), perceived need (Lishner et al., 2012), and cognitive load (Rameson, Morelli, & Lieberman, 2012). Thus, this evidence suggests empathy is a result of the interaction between both dispositional and situational influences.

Finally, although largely ignored in conceptualisations of empathy, is whether empathy is automatically elicited or subject to control. Hodges and Wegner (1997, p. 312) stated that empathy, like other states of mind, "can be produced by variables beyond our control".

Indeed, according to the neuroscientific findings of Singer and Klimecki (2014) empathy is automatically activated upon sensory-driven perception of an emotional other. However, empathy is also considered a state of mind that we can reflect upon, control, and modify (Hodges & Wegner, 1997), using methods such as reframing (altering one's perspective or cognitions), suppression (not thinking about the situation), and exposure control (avoiding emotional situations); all of which require cognitive effort (Hodges & Biswas-Diener, 2007). Thus, the evidence suggests the influence of both automatic and controlled processes on empathy.

Despite a lack of conceptual clarity, the majority of research on empathy finds desirable correlates and outcomes, whether for empathic individuals themselves, or their social interaction partners. Davis (1994) explored the notion of interpersonal outcomes of empathy; that is, the behaviours an observer exhibits towards a target. These interpersonal outcomes are similar to emotional intelligence and to applying knowledge in assisting thought and managing social responses (Mayer & Salovey, 1997). Davis (1994) suggested the most significant influence on the interpersonal outcomes of empathy are the intrapersonal outcomes of empathy. That is, how an individual thinks and feels about a target, after forming an empathic inference about them, is the strongest factor in deciding how they subsequently behave towards them. It could therefore be argued that empathic accuracy forms the most important of these intrapersonal outcomes. Accurately inferring others' thoughts and feelings facilitates our understanding of other people's intentions, aids us in discerning truth from untruth, and helps us anticipate the needs or desires of those with whom we interact (Laurent & Hodges, 2008). Poor accuracy, on the other hand, can spark disappointment or disaster, causing misunderstandings or conflicts.

According to Mayer and Salovey (1997) to effectively interact with others requires the ability to: 1) perceive other people accurately, and 2) use this knowledge to assist thought. If a coach forms an inference about an athlete, (e.g., the athlete is over doing it), this triggers an affective intrapersonal outcome (e.g., the coach becomes frustrated with the athlete), which results in an interpersonal outcome (e.g., the coach shouts at the athlete). Yet, if the initial inference had been more accurate, then the interpersonal outcome could have been more appropriate (e.g., the athlete is over doing it because they have received some bad news in their personal life). Thus, to interact and behave appropriately and effectively with each other, coaches and athletes must continuously monitor and accurately interpret thoughts and feelings as they are expressed through words, expressions, and postures within the current context (Mayer, Salovey, & Caruso, 2000). This level of understanding requires the ability to see things from the other person's view, as well as perceive their thoughts and feelings, and their psychological state.

Given the significance of accuracy, for this body of work empathy is conceptualised as the process of perceiving others moment-to-moment and the accuracy of these perceptions (Losoya & Eisenberg, 2001).

2.3.1 Empathy and stress.

As discussed in Chapters 2 and 3, elite sport can be highly stressful for both coaches and athletes. Although extensive research has outlined how experiencing stress shapes the intrapsychic aspects of behaviour, cognition, and affect, much less is known about specific interpersonal aspects at times of stress, for example does the accuracy of empathic inferences made by members in a relationship change at times of stress? Accumulating evidence suggests prosocial behaviour such as altruism and cooperation increase under acute stress (e.g., Batson, 2009; Buchanan & Preston, 2014; Takahashi, Ikeda, & Hasegawa, 2007; Vinkers et al., 2013; von Dawans, Fischbacher, Kirschbaum, Fehr, & Heinrichs, 2012). Findings support the notion of a ‘tend-and-befriend’ stress response; that affiliative behaviour increases under stress to secure support from others (Taylor et al., 2000). However, the psychological and neural mechanisms which cause such increases in affiliative behaviour are largely unexplored. Empathy as the ability to share emotions of others is considered a potentially promising mechanism, given it enables the ability to emotionally connect to and understand others’ emotions.

As discussed earlier in this chapter, research exploring neuro-cognitive models of empathy suggest it entails both an automatic, sensory-driven component which relies upon emotion contagion and vicarious sharing of another person’s affect, and a more deliberately controlled component such as cognitive appraisal, self-other distinction, and perspective taking (Singer & Klimecki, 2014). Literature exploring the impacts of stress suggest it increases automatic response tendencies and decreases control processes (e.g., Hermans, Henckens, Joels, & Fernandez, 2014; Phelps, Lempert, & Sokol-Hessner, 2014; Starcke & Brand, 2012). Therefore, one could argue the automatic sensory-driven processes related to empathy will be promoted under stress, while more effortful processes, such as deliberate cognitive appraisals and self-other distinction, will be compromised. However, a study by Rimmele and Lobmaier (2012) found acute stress increased self-focused attention which in turn could impair the emotion contagion aspect of empathy, as under such stress individuals might simply pay less attention to the emotions of others. Research also suggests people tend to be more egocentric when they are distracted by a concurrent task (Lin, Keysar, & Epley, 2010; Schneider, Lam, Bayliss, & Dux, 2012), are under pressure to respond quickly (Epley, Keysar, Van Boven, & Gilovich, 2004), or occupy high-power roles (Galinsky et al., 2006; Overbeck & Droutman, 2013). For example a head coach trying to respond to multiple requests during a major competition.

Yet, increased reliance on one's own egocentric perspective can undermine understanding others' mental states (Kraft-Todd et al., 2017) and lead to potential misunderstandings and conflicts (Ross & Ward, 1996). Furthermore, across a series of six experiments Kraft-Todd et al. (2017) found converging evidence that anxiety can also increase egocentrism. These experiments revealed the more anxious or surprised participants were, states associated with stress, the more egocentric they became. Doubts about one's ability to cope with a given stressor are likely to reflect in feelings of anxiety (Hardy et al., 1996), it could therefore be argued the experience of certain stressors might increase reliance on egocentric self-knowledge when trying to understand other's differing perspectives and thus impact the accuracy of empathic judgements. But stress is a natural human response to threatening situations and some people are more prone to feelings of anxiety than others. A study by Tibi-Elhanany and Shamay-Tsoory (2011) found that increased trait anxiety is positively associated with increased cognitive empathy (i.e., identifying the inner states of others), but these same participants were not as accurate at affective empathy (i.e., feeling the emotion themselves). Evidence clearly suggests a large amount of work remains to explore empathic accuracy at times of stress, specifically within the unique environment of elite sport where coaches and athletes are working together while responding to a vast number of stressors in different environments (i.e., training & competition).

2.3.2 Measurement paradigms.

In a review of previous empathy research, Ickes (1997) highlighted four paradigms related to the measurement of accuracy of empathy: target accuracy, meta accuracy, affective accuracy, and empathic accuracy. Each is based on measuring an individual's judgement of others and then comparing this judgement against specific criteria to examine their accuracy.

Target accuracy.

Concerned with individuals' ability to form accurate judgements about the personality traits of others, target accuracy was identified as the most prevalent paradigm in early investigations, due to the basic nature of the methodology employed. Participants simply observed a target and then completed a questionnaire as if they were that person. Thus, inferences formed by individual's regarding another person could be readily explored. However, target accuracy investigations have since received strong criticism for the criterion employed to examine the accuracy of inferences; namely *interjudge agreement* and *self-judgement agreement*. Interjudge agreement deemed consensus between observers to equal accuracy (Taft, 1955). The fundamental problem with this method is high consensus amongst observers does not necessarily mean they were accurate.

This argument was supported by the findings of Shweder and D'Andrade (1980) who found individual's often formed inferences regarding others' using superficial characteristics such as appearance, dress, and ethnicity. Thus, highlighting the potential influence of widely held and shared stereotypes on the agreement between observers. The self-judgement agreement criterion has also received heavy criticism. The direct comparison of inferences formed by an observer with what a target thinks about him or herself have been proven statistically biased and unreliable (Kenny, 1994).

Meta-accuracy.

Employed in more recent literature, meta-accuracy is an individual's judgement about how others view them. It evolved as a measurement paradigm when researchers started to report that individuals are not passive beings to be observed; rather, while observers are forming judgements and inferences about them, they are in turn attempting to understand and judge how they themselves are being perceived (Kenny & Depaulo, 1993). This paradigm is therefore based on the belief that individuals view themselves and the world around them in at least two perspectives; a direct-perspective and a meta-perspective (Laing, Phillipson, & Lee, 1966). The direct-perspective refers to an individual's own point of view; that is, how they see themselves and others. Conversely, the meta-perspective refers to how that individual believes others sees them. The methodologies employed are similar to target accuracy, by comparing both observer's and target's responses. An observer typically rates how they view a target, and the target subsequently rates how they believe the observer rated them. Thus, this paradigm is also limited by biases and social desirability issues (self-judgements might be how individuals wish others to perceive them, or be subject to a reluctance to report negative judgements about others). In addition, the use of questionnaire instruments can limit inferences being made (i.e., limited items & restricted response scales) and therefore restrict results aiming to report the empathic process as it occurs naturally.

Affective accuracy.

Investigations exploring an individual's ability to accurately infer the emotional state of others formed the focus of more recent empathy research. According to Argyle (1994), to accurately infer the psychological state of others enables us to interact and react appropriately during social interactions. The questionnaires employed in target and meta accuracy research explored stable characteristics and were therefore deemed unsuitable for capturing inferences about more fleeting psychological conditions (Ickes, 1997). Thus, researchers investigating affective accuracy had to develop their own methods and instruments. Researchers have subsequently presented observers with videos, audio clips, and photographs portraying target individuals expressing a range of emotions.

Such methods enable individual differences in observers or targets to be explored, and the subsequent effect of these individual differences on the accuracy of the observers' judgement to be investigated (Marangoni, Garcia, Ickes, & Teng, 1995).

However, a fundamental weakness of such standard stimulus investigations is that researchers are unable to explore the relationship between observer and target, as in most instances no relationship exists. The stimulus materials used typically depict target individuals considered as strangers to the observer. Furthermore, this approach has received criticism for not capturing the fleeting nature of affect, because observers are often given as much time as they require to observe the stimulus and respond (Nowicki & Duke, 1994). Lastly, affective accuracy researchers have typically adopted two methods of capturing observers' inferences. The most common is to capture responses using a number of pre-set choices, either selecting emotions or identifying the circumstances under which affect was being experienced (e.g., Nowicki & Duke, 1994). Yet, such tools suffer from the same limitations as those employed in target and meta accuracy research. Observer responses are limited and therefore do not capture naturally occurring empathy processes. In addition, observers are aware that at least one of the responses listed is correct. Allowing observers to respond in an unrestricted open-ended manner would increase the ecological validity of such approach. Perhaps because of the fixed response methodology, affective accuracy has typically been limited to research which aims to easily categorise emotional labels.

Empathic accuracy.

Ickes (1993) argued that a valid methodological approach to assess accuracy of empathy must satisfy three criteria: 1) it should explore empathy as an ongoing *moment-to-moment* process as interactions unfold, 2) observers should be able to make open-ended and complex inferences regarding the psychological state of the target, and 3) the accuracy of these inferences should be determined by directly contrasting them with the target's actual psychological state. Having argued that no existing accuracy paradigm fulfilled these criterion, Ickes et al. (1990) developed an assessment of empathic accuracy termed "the dyadic interaction paradigm".

In this approach, two individuals, a dyad, are led into a waiting room and purposefully left alone. During this time, the verbal and non-verbal interaction between the dyad is unobtrusively filmed. The researcher returns at the end of the assigned observation period and debriefs the dyad, requesting their consent to proceed with the investigation. They are asked to watch the film back, pausing it at points where they remember having a specific thought or feeling and to make a written, time-logged listing of these actual thought/feeling entries.

Subsequently, the individuals are asked to watch the film for a second time, and the video is stopped for them at time points their partner had reported a thought or feeling. The individual's task during this phase is to infer the content of their partner's thoughts and feelings, providing a written time-logged listing of these inferred thought/feeling entries. Empathic accuracy is calculated by comparing each individual's self-reported thought and feelings with their partner's empathic inferences. A team of independent raters then determines the similarity of each pair of inferences on a 3-point scale ranging from 0 (*essentially different content*) through 1 (*similar but not the same content*), to 2 (*essentially the same content*).

The dyadic interaction paradigm permits a temporally extended assessment of empathic accuracy, allowing participants to generate their own detailed and complex inferences, instead of selecting responses from a limited list. Furthermore, the criterion for accuracy are based on the target's own self-selected moments and self-reports. According to Ickes et al. (1990), empathic accuracy is perhaps one of the more valuable methods for exploring dyadic relationships as it focuses on actual interaction between partners, allowing the perception of both partners to be explored. However, a shortcoming of this approach is that the number of inferences a participant can make is dependent upon how many incidences of thoughts and feelings are initially reported by their interaction partner. One individual may only be asked to make a handful of inferences, resulting in few data points. Thus, making the determination of accuracy increasingly difficult and potentially reducing the validity of the measure. Furthermore, Wilhelm and Perez (2004) reported suspect ecological validity within findings using this paradigm. First, they argued the laboratory environment may have an influence on the dynamics of any interactions, with the experimental setting resulting in participants feeling imposed upon; or participants being influenced in non-spontaneous interaction investigations where they are filmed discussing a prescribed issue such as marital problems (e.g., Kilpatrick et al., 2002). Second, by exploring short interactions (e.g., 5 or 10 minutes), they suggested this methodology does not capture those changes that can occur throughout extended interactions. Lastly, they highlighted restricted range and intensity of thoughts and feelings in prior studies with participants' engaging predominantly in 'small talk'. Consequently, Wilhelm and Perez (2004) proposed future studies using the dyadic interaction paradigm should sample real interactions in real contexts, those which have meaning and importance to participants.

However, despite these ecological validity disputes, the dyadic interaction paradigm would seem of all the aforementioned methods to be the most valid; assessing empathic accuracy in a way that most closely resembles how empathic inferences are made in real situations, focusing on the ability of individuals to accurately perceive specific thoughts and feelings of another *moment-to-moment* (Ickes, 1997).

In fact, previous research has employed this paradigm extensively over the last two decades, exploring levels of empathic accuracy in a variety of relationships including strangers (Thomas & Fletcher, 2003), friends (Stinson & Ickes, 1992), romantic partners (Kilpatrick et al., 2002), siblings (Neyer et al., 1999), and more recently in the coach-athlete relationship (Lorimer & Jowett, 2009a, 2009b). Although previous studies using the dyadic interaction paradigm have been conducted within social psychology laboratories (e.g., Ickes et al., 1990), Lorimer and Jowett (2009a, 2009b) validated the use of this approach to measure empathic accuracy moment-to-moment between coaches and athletes in actual interactions within the context of a sports training environment, providing insight into how accurately coaches and athletes understand each other during interactions potentially impacted by training equipment, clothing, and practices. Thus, making this approach far more ecologically sound than the aforementioned questionnaire methodologies. Further research using the dyadic interaction approach to explore coach-athlete empathic accuracy, in different contexts (i.e., training vs. competition), over-time, and in different sports is required to further test the validation of this methodology.

2.3.3 Dyadic research design.

Dyadic research design supports the investigation of processes that take place among dyads, for example: husband and wife, co-workers, parent and child, teacher and student, doctor and patient, or coach and athlete. Such approach enables researchers to capture the true interpersonal nature of phenomena such as empathy (Kenny, Kashy, & Cook, 2006). The dyad is arguably the fundamental unit of interpersonal interaction and relations. However, to study interpersonal processes requires the collection of data and use of analytical procedures that permit the assessment and testing of interpersonal processes.

The analysis of interdependent data presents unique issues because the covariance across individuals must be addressed in the analyses. Failure to account for interpersonal correlations can introduce biases into analysis. For example, the inclusion of both individuals from a dyad raises the matter of non-independence (Kenny et al., 2006). In the context of measuring empathic accuracy in coach-athlete dyads, non-independence refers to two associated members producing scores which are increasingly similar than those from two individuals who are not members of the same dyad (Ackerman, Donnellan, & Kashy, 2011; Kenny et al., 2006).

According to Kenny et al. (2006), there are three main reasons for increased similarity and thus non-independence of data when investigating dyads: 1) a pre-existing similarity such as beliefs, attitudes, and values, in addition to socio-economic and/or educational variables which may have attracted both members of a dyad in the first instance.

For example, coaches and athletes from the same training group may have similar beliefs, values, and interpersonal communication styles. 2) The issue of ‘mutual influence’. That is, individuals within a particular group context mutually influence each other. This mutual influence can result in similarities in behaviours, affect, and cognitions (Kenny & Judd, 1986). Kenny et al. (2006) argued that mutual influence can be positive (e.g., when one member gets excited, the other member gets excited) or negative (e.g., when one member stops talking, other members stop talking). Lastly, 3) ‘common fate’ is responsible for non-independence when both partners are affected by the same causes; that is participants operate or coexist within the same environment. Common fate occurs when the environment provides an influence on the behaviour of individuals who operate within it, even though they may not be aware of it. For example, a specific environmental context such as a particular sport discipline or the environmental condition of elite sport. All individuals who operate within such an environment are exposed to some common condition and such shared environmental influences can result in non-independence of data for individuals who exist within that context (Grawitch & Munz, 2004). The presence of non-independence violates the independence-of-observations assumption that is the basis of many traditional statistical methods, such as analysis of variance (ANOVA) and regression (Ackerman et al., 2011). Non-independence can also bias estimates of the standard errors and can result in an increase in either Type I or Type II errors in significance testing (Ackerman et al., 2011). Researchers interested in dyadic interaction must therefore prepare and control for non-independence.

Study two and study three presented in this project of research employed the aforementioned dyadic interaction paradigm to explore coach-athlete empathic accuracy. Both studies recruited coach-athlete dyads from elite individual based sports and both studies required preparation and control for issues surrounding non-independence. Exploring a unique context and purposively selecting participants from elite level sports automatically restricted access to large numbers, simply because there is a smaller elite population of coaches and athletes compared to non-elite. Further access restrictions came from selecting participants from individual based sports. In the UK, full-time paid coaches working in individual based sports are typically employed by governing bodies to coach a small number of elite athletes. So one coach working with a small group of world-class athletes. Thus, to improve sample size numbers a one-with-many design was employed for studies two and three. That is, one coach and the multiple athletes involved in their small training groups were recruited. A one-with-many design provided a unique insight into levels of empathic accuracy achieved by the same coaches with the different athletes in their small training groups. However issues surrounding non-independence had to be taken into account when exploring dyadic interaction as the same coach was represented more than once in the data sets.

Both studies took into account the non-independence of dyadic data by arranging data in individual groups (i.e., coaches vs athletes) and then making comparisons of sub-groups, a necessary precondition for this kind of methodological approach (Kenny et al., 2006).

2.3.4 Empathic process.

The precise process of empathy is not yet fully understood. However, the majority of researchers agree the mechanisms involved are established in a series of complex deductions based on observation, memory, knowledge, and reasoning (Ickes, 1997). According to the Theory of Mind (Leslie et al., 2004), these deductions are moderated by the application of general, specific, and situational levels of knowledge and are essential for communication and social coordination.

Similarly, Funder's (1995) Realistic Accuracy Model maintains accurate empathic inferences rely on the availability of relevant behavioural cues, and the ability of the perceiver to detect and appropriately use such cues. Thus, empathic accuracy is determined by information regarding a target, the situation, and/or wider social knowledge. According to Pelham and Neter (1995), key elements to consider are: 1) factors that impact the amount of information available to the perceiver (e.g., relationship & length of interaction with the target), or 2) factors that influence how effectively this information is used (e.g., motivation & effort). These elements are believed to be somewhat interrelated and so it is important to consider the limitations of available information and motivation on their own to increase the accuracy of empathic inferences (Pelham & Neter, 1995). For example, even if an individual is highly motivated to make an accurate judgement, if they have limited knowledge or information on which to base the judgement, then accuracy will be restricted. The following section highlights different sources of information available to an observer, factors that can influence their ability to use such information, and how these relate to the accuracy of inferences they form.

Immediately available information.

What a target says and does is perhaps the most obvious source of immediately available information presented throughout any interaction. A combination of verbal and nonverbal messages offer a source of immediate insight into a target. For example, during a session close to competition an athlete believes her coach is annoyed at her for continually under performing a skill. The athlete thinks it is the coach's mistake for not introducing the skill in enough time and becomes angry and withdraws. In response, the coach's behaviour and comments imply an element of surprise at the athlete's behaviour.

The surprise shown by the coach leads the athlete to conclude it is unlikely the coach was annoyed with her. It is this realisation that changes the athlete's initial inference regarding the psychological condition of the coach.

In a meta-analysis of 38 studies adopting the affective accuracy paradigm, Ambady and Rosenthal (1992) argued simply paying close attention to immediately available information is enough to form highly accurate judgements. However, the amount of immediately available information is heavily dependent on the target's behaviours. For example, it is more challenging to make accurate inferences regarding individuals who do not communicate well, or who are subtle in their reactions. Ickes, Marangoni, and Garcia (1997) asked 80 students to view three different clips of counselling sessions. The results suggested students were increasingly accurate with their inferences when observing clips of an individual who was articulate, compared to a target who was closed. Further evidence reinforcing the significance of immediately available information for the formation of accurate inferences came from Marangoni et al. (1995). In their study, participants were required to watch videos of counselling sessions and infer the depicted psychological state of patients at fixed intervals. They discovered participants' accuracy improved closer to the end of viewing a clip. This finding indicated the more time participants had to observe a target, the more accurate their inferences became, thus intimating that an accumulation of available information resulted in an increase in inferences.

In addition, previous research has suggested limited access to available information can result in the frequent use of intuitive strategies to guide inferences about others' mental states. One such strategy involves consulting the contents of one's own mind (Goldman, 2006; Mitchell, 2009). Although one's perspective can be a good proxy for making social predictions (Dawes, 1980; Hock, 1987), it has been argued people can often rely too heavily on accessible self-knowledge during mental state reasoning (e.g., Birch & Bloom, 2004; Keysar, Lin, & Barr, 2003; Sommerville, Bernstein, & Meltzoff, 2013). Failing to adjust to ways in which other's perspectives might differ from our own can set the stage for potential misunderstanding and conflict (Ross & Ward, 1996). In addition, although a degree of insight into a person or situation gained through knowledge or previous experience can be useful, this insight may not generalise to other people or situations (Ickes, 1993). Knowledge may not be directly transferable without careful consideration of the specifics of the current situation (Lorimer & Jowett, 2009b). The findings of Lorimer and Jowett (2010) revealed that more experienced coaches, those who had been coaching on a regular basis for a longer period and with a closer understanding of their sport and its requirements and demands, performed worse in empathic accuracy than inexperienced coaches.

They concluded that coaches who are more experienced may believe they ‘have seen it all before’, leading them to make incorrect assumptions on the thoughts and feelings of their athletes simply because they do not pay attention to the available information.

Despite these studies highlighting the importance of available information, Stinson and Ickes (1992) argued that a thorough understanding of the internal condition of another requires prior knowledge of the target’s situation and past experiences; knowledge not always immediately available and that would be more readily available with increased levels of familiarity or association. Research by Thomas and Fletcher (2003) suggested that complex empathic judgements, those involving the inference of specific thoughts and feelings, require an association with the target to achieve high levels of accuracy.

Relationships.

The relationship between perceiver and target offers an additional source of information for making accurate inferences. According to Thomas and Fletcher (2003), this relationship is defined as the degree of association between two people; a factor that can be measured in terms of quality (e.g., relationship type; strangers, friends, romantic partners etc.) and quantity (e.g., relationship duration). Stinson and Ickes (1992) explored how varying degrees of association, conceptualised by strangers versus friends, affected empathic accuracy. Findings suggested friends were significantly more accurate than strangers at judging each other’s specific thoughts and feelings. They concluded a closer association led to increased knowledge about the target, which led to greater accuracy. Thomas and Fletcher (2003) also found increased association, conceptualised by relationship type (stranger>friend>dating partner), resulted in increased empathic accuracy. Taken collectively, this research suggests the association between two individuals is a key contributor to forming accurate empathic inferences. However, Ambady and Rosenthal (1992) argued in interactions where there is a vast amount of relevant immediately available information, extra information acquired through association may not be required. Yet, there are situations where immediately available information is minimal and it is in these circumstances it is believed individuals with a greater degree of association will exhibit increased accuracy than those who are unfamiliar.

Increased empathic accuracy in relationships typically has a good reputation. For example, research investigating empathic accuracy in married couples has found increased accuracy to be related to increased commitment and willingness to compromise and accept incidences of negative behaviour from a partner (Kilpatrick et al., 2002). According to Thomas and Fletcher (2003), higher empathic accuracy is correlated with greater relationship satisfaction in long-term dating relationships, which are seen as more secure by virtue of their endurance.

Thus, more satisfied longer-term couples are more accurate in their interpretations of each other's thoughts and feelings. However, the concept of association and the positive effect it has on empathic inferences is less clear when the association is conceptualised as quantity (i.e., relationship duration). According to Funder's (1995) Realistic Accuracy Model, information will only be of value if it is recognised and used appropriately. For example, the findings of Kenny and DePaulo (1993) revealed over long periods, individuals involved in relationships became complacent and fell into habitual behaviours and reactions around their partner. In their conclusions, Kenny and DePaulo (1993) suggested that a couple's familiarity and knowledge of each other, results in reduced motivation to monitor any immediately available changes in verbal and non-verbal cues and thus leads both members to form assumptions. In addition, Kilpatrick et al. (2002) examined couples empathic accuracy during the first six years of marriage. They found levels started to decline after the first year and continued to do so throughout the duration of the study. This decline was attributed to an increased complacency and greater dependency on stereotypes and habitual assumption, along with decreased motivation to monitor and interpret available information. Similarly, in an investigation exploring meta-accuracy of coaches and athletes relationship satisfaction, Jowett and Clark-Carter (2006) found athletes in newly developed relationships (0.5-2years) were more accurate in their inferences than athletes in more established relationships (3-12 years).

It could be suggested during the early stages of a relationship, when interactions between partners are new, partners pay closer attention to one another as they are more motivated to get to know each other. This offers more information and knowledge and allows new partners to achieve increased accuracy. Thus, it would appear a relationship can influence empathy both in terms of the degree of information available and the perceiver's motivation to identify and use such information.

Motivation to make accurate inferences.

Existing research has found motivation to be an influential component in determining the use of available information when forming empathic inferences. A perceiver who has access to information about a target but who lacks motivation to use it, will likely make less accurate empathic inferences. Alternatively, if the perceiver were to place increased importance on making a more accurate inference, then his/her effort may increase. For example, Ickes et al. (1990) discovered strangers of the opposite-sex achieved greater accuracy when they deemed the stranger to be attractive. They suggested the individual's desire to form a positive relationship with the attractive stranger increased their motivation and effort to form accurate inferences.

Alternatively, there are claims that in certain circumstances individuals may be motivated to be inaccurate in their judgements (Thomas & Fletcher, 2003), suggesting effort is made to be wrong on purpose. For example, at times of uncertainty or threat in a relationship, accurately interpreting a partner's thoughts might offer a view into their doubts, or desire to end the relationship. Thus, in such situations an individual might be motivated to be inaccurate in their perceptions to save themselves from this potentially threatening information. In addition, a strong association has been found between motivation and the nature of a relationship itself (Simpson, Ickes, & Blackstone, 1995). Particularly in such instances where members have committed for a prolonged time (e.g., an 8-month competitive season), or where few alternatives to the relationship exist, for example coach-athlete relationships in professional sports.

Authority.

Although previous research suggests relationship quality and duration play significant roles in obtaining information and how it is employed to form accurate inferences, a number of other elements linked to relationships have been found to impact empathic accuracy. According to Snodgrass, Hecht, and Ploutz-Snyder (1998), in relationships where there is an imbalance of power, where one partner has some form of authority over the other, the superior partner will achieve decreased levels of empathic accuracy, while the subordinate member will exhibit increased levels. For example a study by Lorimer and Jowett (2009b) revealed coaches displayed a large degree of error in their inferences about their athletes' thoughts and feelings during a typical training session. That is, the coach-athlete relationship is often perceived as one in which the coach's control is indisputable and absolute, the role of the athlete being to submit without question to the control and instruction of the coach (Burke, 2001). Magee and Smith (2013) reported people with increased power can perceive social interaction partners as a means to an end and assert themselves by talking a lot and interrupting others.

Fiske (1993) suggested a number of explanations for why an imbalance in power can affect empathy. First, individuals in a position of power are seen to have a degree of control over their partner and are perhaps less dependent on them. An accurate understanding is not necessarily required to accomplish their desired goals and therefore individuals in a position of power are less motivated to make accurate empathic inferences of their partners. Second, those in a position of power often have multiple demands on their attention at any given time. Such demands provide them with less resources on which to base their inferences and effects the time they have spare to form a more complete understanding (Fiske, 1993). Conversely, those in the subordinate position, have little or no power over their partner.

Rather, they are required to be increasingly sensitive to how their partner thinks and feels, as their own well-being and achievement depends on their ability to modify their behaviour and react appropriately to their partner (LaFrance & Henley, 1993).

Previous research exploring empathy in relationships with an imbalance of power, for example doctor-patient, teacher-pupil, or parent-child, have typically focused on the dominant member, using an individual as opposed to a dyadic paradigm to measure empathy, making comparisons of a partners' empathy impossible. However, in an investigation exploring the meta-accuracy paradigm, Jowett and Clark-Carter (2006) employed a dyadic methodology comparing coaches and their athletes. The findings suggested athletes were significantly more capable of accurately inferring their coaches' feelings of closeness, than the coach was at inferring the athletes.

Still, previous research by Snodgrass (1992) suggests these reported influences of authority may not be this simple. In two studies employing a series of social interaction tasks exploring empathic accuracy based on allotted roles (e.g., teacher & student or manager & employee), Snodgrass revealed the effect of authority had a two-way interaction dependent upon the thoughts and feelings being described. Although, like the aforementioned studies, subordinate partners were found to be more accurate at inferring their partner's thoughts and feelings about them (e.g., my coach likes me) than superiors, superior partners were found to be increasingly accurate at forming inferences regarding their partners' thoughts and feelings about themselves (e.g., I am a good athlete) than the subordinates were at inferring theirs. The conclusions suggested these findings were related to the roles superiors and subordinates play in a relationship. For example, subordinates are required to understand what their superior thinks and feels about them so to respond appropriately. However, the superior's role is often to evaluate the subordinate. This is acutely apparent in pedagogical relationships such as teacher-student or coach-athlete, where the superior is required to share their opinions on improvements the subordinate needs to make. In such circumstances, it might be beneficial for the superior to know how their subordinate views themselves and their abilities.

Gender.

Gender presents a number of significant issues related to authority and motivation. According to Ickes, Gesn, and Graham (2000), it is a common perception that women possess a greater insight and sensitivity into the feelings of others than men. Snodgrass (1985) argued that the traditional subordinate status of women in society may have resulted in them exhibiting increased empathy, thus re-affirming the stereotype and suggesting any gender differences are primarily due to differential motivation rather than ability.

However, in a review of ten qualitative investigations using the empathic paradigm Graham and Ickes (1997) noted that in 7 early studies, no differences between men and women were found, but in 3 later studies, women were significantly more empathically accurate than men. Having searched the methods for an explanation, the only difference they found was in the form participants used to record their inferences about a target's thoughts and feelings. In the later 3 studies, the form asked perceivers to rate how accurate they felt their thought/feeling inferences had been. This differed from the earlier investigations that asked perceivers to judge the emotional valence of the target's thoughts or feelings. Next, Ickes et al. (2000) conducted a meta-analysis that included the original ten studies and an additional five studies that used one of the two versions of the inference form. They concluded this minor adjustment was indeed the reason why women were sometimes more accurate than men, that such gender differences could be attributed to women participants being aware that their empathic abilities were being assessed. Previous discussions surrounding gender differences in empathy by Eisenberg and Lennon, (1983) offered an explanation. They suggested that when women were made aware that a component of empathy was being assessed, it activated a stereotype-related prescription about women's empathy, thus motivating women – but not men – to try harder at the task. According to Gilligan (1982) women view higher levels of empathy as a more important self-concept. Snodgrass (1985) suggested this is because of the traditionally perceived subordinate role played by women, perhaps where women believe they should be more empathic.

Similarity.

According to Hock (1987) a perceiver forming inferences regarding a target will employ any perceived similarities between them, to help in understanding the others' perspective. Previous research has found a positive association between the similarities of individuals and the accuracy of judgements formed (e.g., Neyer et al., 1999). However, there is an ongoing debate surrounding this association. If, as presented by Hock (1987), it is the result of thorough evaluation of similarity between perceiver and target, then it represents a significant empathy mechanism. However, if a perceiver struggles to view the world from another's point of view, then any increase in accuracy is purely coincidental.

Jowett and Clark-Carter (2006) suggested similarity may also play a significant role in empathy within the coach-athlete relationship. They discovered greater similarities in how coaches and athletes view the quality of their relationship were related to increased accuracy of empathic inferences. Furthermore, more recent research has shown sport context can influence perceptions of similarities in sport. For example, in individual sports the coach and the athlete operate on a one-to-one basis, and even though the coach may train with several athletes, focus is on individual development and progression (Lorimer & Jowett, 2009a).

In contrast, in team sports the focus is on 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 (Lorimer & Jowett, 2009a). The findings of Lorimer and Jowett (2009a) revealed coaches in individual sports exhibit higher empathic accuracy than coaches in team sports; this effect was mediated by the shared cognitive focus of coaches and athletes, with coaches and athletes in team sports more frequently displaying a divergence in thoughts and feelings than coaches and athletes in individual sports.

Identifying similarities and employing them to aid the formation of empathic inferences may be particularly significant in circumstances where the perceiver is adopting a different role, or is exposed to different stressors to the target. For example, if an athlete injures themselves during a match, both members will experience different thoughts and feelings. However, if the coach were to employ perceived similarity to access additional information, such as their own personal experiences of being injured as an athlete, the accuracy of empathic judgements in that moment may increase.

Expectancies.

According to Lewis, Hodges, Laurent, Srivastava, and Biancarosa (2012) a significant source for empathic accuracy comes from within the perceiver's own mind. Based on the findings of previous literature, they proposed perceivers may effectively use prior knowledge to go beyond immediately available information, to form accurate inferences of another's thoughts and feelings. For example, Stinson and Ickes (1992) found friends had higher accuracy for other's thoughts than strangers. This study linked such effect to a level of understanding among friends that went beyond the immediate context and drew upon stored knowledge from previous interactions. Similarly, Thomas and Fletcher (2003) found that empathic accuracy increases with intimacy; dating partners were more empathically accurate than friends, and friends more than strangers. Interpretation of these findings suggested that perceivers who were closer to a target had accumulated more extensive person-specific schemas to inform empathic inferences. Thus, previous studies suggest empathic accuracy can increase if a perceiver's schema of a target become more extensive with accumulated knowledge (Lewis et al., 2012).

Expectancies are derived from knowledge available either before or in the early stages of an interaction (Buscombe et al., 2006), it could therefore be suggested expectancies may influence levels of empathic accuracy in some way. However, no previous research has exclusively examined the influence of expectancies on empathic accuracy, specifically within the coach-athlete relationship. Coaches' expectancies of their athletes and the impact these have on subsequent levels of empathic accuracy remains unknown.

For example, do coaches achieve higher levels of empathic accuracy with athletes considered high expectancy, compared to low expectancy athletes? Related research and theories of interpersonal perception suggest empathic accuracy requires willingness and motivation to attend to verbal and nonverbal cues and to process information (Cohen, Schulz, Weiss, & Waldinger, 2012). In addition, Chaiken et al. (1996) maintained whether information is to be processed objectively, or be subject to expectancy effects is dependent upon an individual's motivation, with the goals perceivers and targets bring to their encounters moderating the likelihood of expectancy effects (e.g., Hilton & Darley, 1991; Snyder & Stukas, 2011). Thus, it could be suggested a coach may maintain lower levels of motivation to accurately infer thoughts and feelings during interactions with low expectancy athletes, given their limited performance potential. Comparatively, coaches may be more motivated to accurately understand high expectancy athletes given the perceived increase in performance potential. Finally, previous research suggests immediately available information is important for the making of accurate empathic inferences (e.g., Marangoni et al., 1995). What a target says and does is a key source of immediately available source of information. However, extensive research exploring the effects of expectancies on coach behaviour have found coaches communicate less with low expectancy athletes (e.g., Solomon et al., 1998). Moreover, high expectancy athletes receive more time with coaches (e.g., Wilson & Stephens, 2007). So it could be said with fewer opportunities to access immediately available information, levels of empathic accuracy achieved with low expectancy athletes is impacted.

2.4 Conceptualising Expectancies

Categorised as “beliefs about a future state of affairs” (Olson et al., 1996, p. 211), expectancies represent the process of using past experience and knowledge to predict the future and develop a set of rules about the world. At any one time, perceivers can develop and hold a variety of these rules and predictions, ranging from expectancies about themselves, expectancies about other individuals or groups, and expectancies about specific situations or events (Olson et al., 1996). Arguably the most important tool in a social perceiver's cognitive repertoire, expectations greatly simplify the difficult task of understanding and interacting with others (Olson et al., 1996).

Expectancies have been categorised in a number of ways. Jones and McGillis (1976) highlighted the distinction between target-based expectancies (i.e., expectancies derived from knowledge about the target's prior behaviour) and category-based expectancies (i.e., expectancies derived from knowledge about the categories or groups of which the target is a member).

Later, Anderson (1983) classified expectancies according to the specific types of knowledge on which they are based. Anderson argued that expectancies could be based on declarative knowledge, derived from factual information and/or beliefs about a target (e.g., this athlete will win today's race because they have won their last three races), or procedural knowledge, the perceiver's awareness of rules and strategies (e.g., this athlete won't win today's race because they are against stronger opponents who weren't competing in any of the races they have won recently).

For simplicity, Jussim (1990) later categorised expectancies as intrapersonal and interpersonal in reference to expectancies about the self and others, respectively. In a sports context, Olson et al. (1996) proposed expectancies about the self may consist of performance expectancies (e.g., "I expect to perform well at tomorrow's competition"), self-efficacy expectancies (e.g., "I have done well getting my athletes to today's competition"), or affective/sensation expectancies (e.g., "I believe that I will feel nervous as my athlete's line-up on the start line"). Alternatively, interpersonal expectancies (e.g., "I think that my athlete's performance will be strong") prevent us having to gather considerable amounts of individuating information about others, to gain an apparent understanding of them (Biesanz, Neuberg, Smith, Asher, & Judice, 2001). This is achieved by using information available either before an interaction or in the early stages of an interaction, to make judgements about the characteristics and mental states of another person and to form expectancies for the interaction (Buscombe, Greenlees, Holder, Thelwell, & Rimmer, 2006). When interpersonal expectations are accurate, they allow functional shortcuts in cognitive processing and behavioural decision making, providing perceivers with substantial information. However, in cases where expectations of others are inaccurate, expectation-based information processing and behavioural decision making can become a liability, resulting in a rapid, yet flawed understanding of the target individual (e.g., Fiske & Neuberg, 1990; Hamilton, Sherman, & Ruvolo, 1990; Hilton & Darley, 1991).

2.4.1 Expectancy effects.

According to Cook (1971), interpersonal perception is defined as "the study of the way people react and respond to others, in thought, feeling, and action" (p. 14). The effect of expectancies on interpersonal perception and social interaction became a major topic for discussion in the 1960s, following the 'Pygmalion in the Classroom' study (Rosenthal & Jacobson, 1968). Rosenthal and Jacobsen (1968) demonstrated how simple manipulations of teachers' expectancies could influence teacher behaviour towards students and ultimately impact student achievement.

Having falsely highlighted certain students as “bloomers” (i.e., those most likely to show dramatic intellectual growth throughout the school year), they found teachers’ positively adjusted their behaviour towards these students based on their manipulated expectations. As a result, the intellectual performance of the bloomers increased. Since the publication of their results, there has been much controversy over the true nature of Rosenthal and Jacobsen’s (1968) study. The magnitude of the Pygmalion effect was questioned and possible methodological flaws of the study were highlighted (Eden, 1984). However, Miller and Turnbull (1986) concluded that after fifteen years of research, teacher expectancy effect was noted in almost two-thirds of 345 studies conducted. That is, the expectations teachers formed about the ability of their students served as prophecies that dictated or determined the way they treated them and thus, the level of achievement the students ultimately reached (Horn et al., 2010). Therefore, the phenomenon of expectancy confirmation effects explains a situation in which an individual’s potentially flawed perception of another, influences behaviour and shapes interactions towards that person and consequently encourages actions from the individual which confirms the initial judgement (Merton, 1948). This degree of confirmation can come in two forms: 1) perceptual confirmation, whereby the perceiver interprets the target’s actions as consistent with their expectation; and 2) behavioural confirmation, in which the target’s behaviour becomes objectively consistent with the expectation (Weaver, Moses, & Snyder, 2016). Thus, erroneous expectations can go beyond influencing an individual’s own cognitions and behaviours, they may also influence the cognitions and behaviours of others. For example, the self-fulfilling prophecy (Merton, 1948) suggests a perceiver’s inaccurate expectations can result in the target behaving in an expectation-consistent manner (Darley & Fazio, 1980; Jussim, 1986; Miller & Turnbull, 1986; Rosenthal & Rubin, 1978).

2.4.2 Four-step model of expectancy in sport.

Based on the findings of educational research Horn et al. (2010) developed the four-step model of expectation-performance interaction to illustrate the expectancy confirmation effect in a sports setting (Figure 2.2, p. 63). This model has encouraged researchers to explore expectancies in interactions between coaches and their athletes. The first step involves coaches forming initial expectations of their athletes’ ability based on available information such as personal (i.e., ethnicity, gender, physical appearance), performance (i.e., past performance, skill test scores), and psychological (i.e., confidence, anxiety) impression cues (Horn et al., 2010; Martinek, Crowe, & Rejeski, 1982; Solomon, 2001). Second, influenced by these initial expectations, coach behaviour may differ in the amount, type, and quality of feedback, depending on their perception of the athlete’s competence.

For example, coaches tend to give more instructional feedback and praise to those athletes deemed as high expectancy compared to those deemed low expectancy (Solomon, 2002, 2010, Solomon & Kosmitzki, 1996; Solomon, DiMarco, Ohlson, & Reece, 1998; Wilson & Stephens, 2007). Thus, the initial expectancy shapes the way coaches interact with their athletes. Once the coach begins to act based on their expectations, it is presumed that the coach's behaviour can be seen and felt by the athlete (Solomon, 2002). In the third step, when coach expectations are communicated to an athlete in a consistent manner, they can positively or negatively impact the athlete's psychological growth and performance. Fourth, if the athlete's resulting behaviour conforms to the coach's expectations, it will serve to reinforce the original expectancy assessment and foster a cyclical self-fulfilling prophecy. For example, a high expectancy athlete performs well and so reinforces the coach's expectations about them being high expectancy; while a low expectancy athlete's performances diminishes, confirming the coach's initial expectations of them being low expectancy.

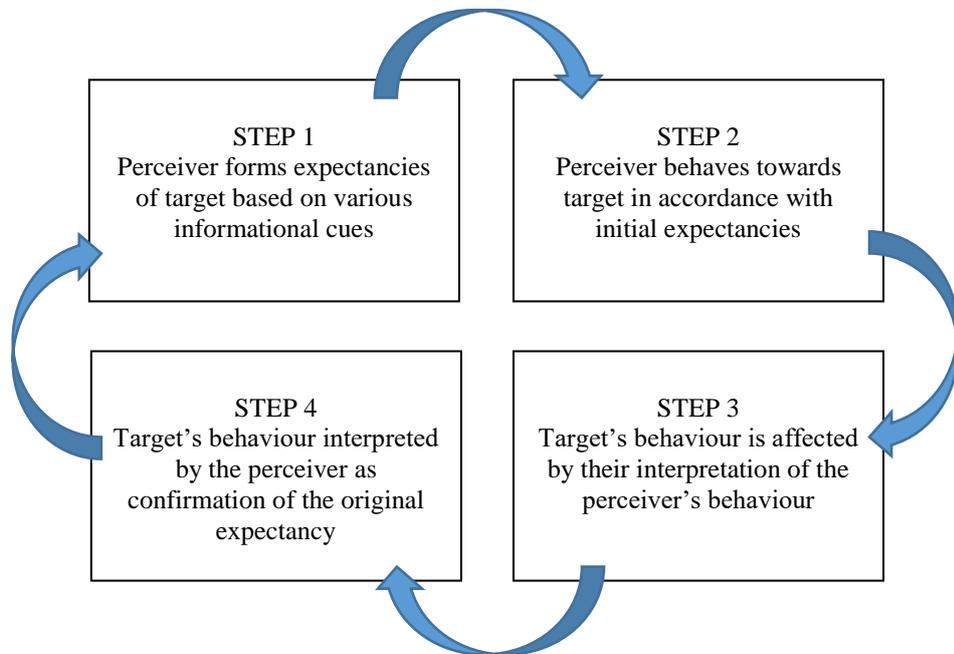


Figure 2.2. The four-step expectancy cycle (Horn, Lox, & Labrador, 2010).

2.4.3 Sources of expectancies.

Following a review of the broad array of expectancy research conducted in social psychology, Olson et al. (1996) proposed three categories of informational cues from which expectancies can be developed: 1) direct personal experience, 2) indirect experience, and 3) other beliefs.

Direct personal experience.

Direct personal experience is defined as target-related information that is perceived or experienced directly by the perceiver (Olson et al., 1996). For example, a cyclist who is fouled by an opponent during a race, may form the expectancy from such direct personal experience that the offender is aggressive and is willing to break racing rules. On the other hand, a spectator who observes a coach consoling one of his athletes after a disappointing performance, may apply such direct experience to develop expectancies regarding the personal qualities of the coach (e.g., he is kind & empathetic). In support of this view, Jussim (1990) proposed that expectancies are at first formed using background information, which he defined as anything a perceiver uses as a basis for their beliefs about a target (e.g., witnessing past behaviour, group membership, previous achievements). Furthermore, according to Fazio and Zanna (1981) expectancies formed on direct personal experience are mostly more robust or confidently held, more accessible, and more predictive of future behaviour than expectancies derived from alternative sources.

Indirect experience.

Defined as communication from others, indirect experience is information conveyed about a target without the perceiver's direct observation, contact, or experience (Olson et al., 1996). For example, a cyclist with no prior direct personal experience of their newly appointed coach, may still form expectancies of the new coach from reports shared by fellow riders who have had direct contact with them. According to White, Jones, and Sherman (1998), "expectancies may be derived from information provided by a credible third party agent" (p. 15). Thus, the extent to which information obtained from indirect experience influences an individual's expectancies, is determined by the degree of credibility the individual gives to the source.

Other beliefs.

According to Olson et al. (1996), expectancies can also be developed from inferences based on other beliefs held by the perceiver. For example, an athlete may base their expectancies of the new coach on the belief that more mature coaches are more knowledgeable about their sport. Cook (1971) also proposed that expectancies may be formed by similarity, where the perceiver assumes that actions of a limited sample of people, reflect all individuals in that particular class. A number of researchers agree that expectancies of others are significantly influenced by stereotypes (e.g., Hamilton et al., 1990; Macrae & Bodenhausen, 2000; Solomon, 2002). According to Solomon (2002), it is a normal and natural cognitive process to categorise people; we rely on a form of stereotyping to assist our categorisations because it is not cognitively possible to organise all information we perceive regarding a person.

2.4.4 Sources of expectancy information within the coach-athlete relationship.

The coach-athlete relationship has received particular research attention for the exploration of expectancies. Horn et al. (2010) proposed two main sources of information that coaches use to form expectancies of athletes. The first type, person cues, reflects information that remains stable during interactions between coach and athlete (e.g., socio-economic status, race or ethnicity, & gender). The second source of information, performance information, includes cues that are more dynamic or changeable over the course of coach-athlete interactions and observations (e.g., athletes' results on physical tests, past performances, & direct observation or athletes' performance & behaviour). In addition, Becker and Solomon (2005) proposed that performance information could be further separated into three distinct categories: 1) personal cues (e.g., body language, facial expressions), 2) performance cues (e.g., past achievements, physical test scores), and 3) psychological cues (e.g., confidence, anxiety).

There appears to be consensus amongst researchers to the extent to which each source of information influences coaches' expectancies of their athletes. For example, Horn et al. (2010) maintained that dynamic and changeable behavioural cues appeared to be the major determinant in the formation of coaches' expectancies of athletes, and were most likely to result in the development of accurate expectancies. Similarly, Becker and Solomon (2005) stated that coaches did not view static, stable, unchangeable cues (e.g., gender & nationality) as particularly salient sources of information when developing expectancies of athlete ability, and that athletes' psychological cues were perceived by coaches to be the most influential source of information during expectancy formation. However, it has been argued that psychological cues (e.g., confidence & determination) are themselves beliefs that are inferred from information available from the environment, instead of pure sources of information (Jones, 1988; Knapp & Hall, 2002). Despite this apparent agreement that expectancies based on dynamic behavioural cues are more influential on coach expectancies than static sources, further research has demonstrated the significance of static cues in expectancy formation. In the sports domain, gender (Coulomb-Cabagno, Rasclé, & Souchon, 2005), race (Jowett, Frost, & Timson-Katchis, 2006), and physique (Lubker, Watson, Visek, & Geer, 2005) have been found to shape perceivers' expectancies of a target.

Manley et al. (2010) extended research exploring expectancies within the coach-athlete relationship to the athlete population. They found coach reputation information to be significantly more influential than the static cue of coach gender in terms of athletes' initial expectancies of coaches.

Furthermore, Thelwell, Weston, Greenlees, Page, and Manley (2010) went on to examine how athletes form their beliefs and expectancies of coaches, using non-verbal cues that would be considered static or stable during short-term interpersonal interactions. Using a series of static photographs to depict variations in clothing (sporting vs. academic) and physique (lean vs. large), the findings revealed coaches with a lean physique and wearing either sporting or academic clothing were perceived to be more competent in terms of their ability to motivate athletes. A lean physique combined with sports clothing was shown to enhance athletes' evaluations of a coach's technical and character-building competence. Lastly, Thelwell, Page, Lush, Greenlees, and Manley (2013) used video footage to explore if coach reputation influenced athletes' expectancies of coaches. In line with previous studies (e.g., Manley et al., 2010; Thelwell et al., 2013), coaches alleged to have a 'professional' reputation were rated as significantly more competent than those with an 'in-training reputation' or 'no reputation'.

2.4.5 Conditions for expectancy effects.

Jones (1988) asked "...what are the conditions necessary for [expectancy effects] to happen?" (p. 43). In response, previous research has suggested the cognitive demands of the situation (e.g., Darley & Fazio, 1980; Fiske & Neuberg, 1990; Plessner, 2005) and motivation (e.g., Le Poine & Yoshimura, 1999; Petty & Wegener, 1998; Towler & Dipboye, 2006) are primary factors in the occurrence of expectancy effects. Characteristics of the perceiver (e.g., cognitive rigidity, status) and characteristics of the target (e.g., self-concept) have also been shown to influence the degree to which expectancy effects occur (Jussim, 1993; Jussim & Harber, 2005).

Cognitive demands of the situation.

Previous studies have revealed expectancy-based processing most likely occur under conditions of increased cognitive load (Darley & Fazio, 1980; Fiske & Neuberg, 1990; Plessner, 2005). According to Sweller (1988), cognitive load presents the total amount of mental activity imposed on attention and working memory at any one time. Conditions of increased cognitive load are characterised by situations where the perceiver lacks time, ability, and/or motivation to consider all available information when making a judgement (Spears & Haslam, 1997). In their study Gilbert, Pelham, and Krull (1988) asked high cognitive load and control (low-load) participants to make person perception ratings of a target individual. This study revealed increased cognitive load caused participants to be less accurate in their perception of the target based on available information. In such instances, perceivers relied more heavily on their expectancies.

In a more recent study, Biesanz et al. (2001) manipulated levels of distraction during a job interview scenario, where interviewers were urged to form accurate impressions of the interviewees. Results demonstrated that under higher levels of distraction, interviewers displayed stronger expectancy bias towards applicants. Moreover, the highly distracted interviewers led interviewees to perform in a manner consistent with their erroneous expectancies. Other researchers have found similar results in exploring the use of stereotypes (e.g., Bodenhausen, 1990; Macrae, Bodenhausen, Milne, & Ford, 1997; Pendry & Macrae, 1994). These studies demonstrated when individuals experienced a cognitive load, felt tired, or were under time pressure, they relied more heavily on stereotypes and thus formed less accurate impressions of others.

Motivation.

According to Chaiken, Giner-Sorolla, and Chen (1996), people are motivated tacticians and will only cognitively process information as much as is required to become sufficiently confident in their decision. Thus, whether available information will be processed objectively or be subject to expectancy effects depends on an individual's motivation. Previous research suggests the goals perceivers and targets bring to their encounters moderate the likelihood of expectation confirmation effects (e.g., Hilton & Darley, 1991; Snyder & Stukas, 2011). For example, Petty and Wegener (1998) argued perceivers with an increased involvement with a target (e.g., a coach acquiring a new athlete in the upcoming season) may be more motivated to make accurate judgements than those with lower involvement (e.g., athletes who the coach is unlikely to acquire). Therefore, the degree of interdependence between perceiver and target results in an increase in the perceiver's motivation to form accurate expectancies, and a consequential decrease in the chance of perceptual bias and the occurrence of expectancy effects (Jussim, 1993; Neuberg & Fiske, 1987).

Characteristics of the perceiver.

According to Jussim (1986, 1993), specific attributes or personality traits of the perceiver may also determine whether expectancy effects occur during interpersonal interactions. For example, perceivers high in cognitive rigidity are deemed more likely to prompt expectancy effects, than those low in cognitive rigidity (Jussim, 1986, 1993). In support of this view, the findings of Babad, Inbar, and Rosenthal (1982) indicated teachers considered high in cognitive rigidity behaved in a more critical and less friendly manner towards low-expectancy students compared to high-expectancy students. In contrast, teachers classed as low in cognitive rigidity displayed similar levels of critical and friendly behaviour towards both high and low expectancy students.

The balance of power between perceiver and target has also been found to influence expectancy effects during social interaction. Previous research suggests when perceivers play a superior role during interactions (e.g., teachers, doctors, & coaches), they are more likely to elicit expectancy effects (Smale, 1977). Thus, where the coach-athlete relationship is perceived as one in which the coach's control is indisputable and absolute, the role of the athlete being to submit without question to the control and instruction of the coach (Burke, 2001), it could be argued the coach may exhibit expectancy effects. However, Copeland (1993) argued the difference in power between perceiver and target influences the extent of expectancy effects. For example, coaches working with a group of young, low-level athletes may influence the athletes' expectancies to a greater degree, compared to coaches working with a group of elite athletes (i.e., where the coach-athlete relationship is possibly more like a partnership).

Characteristics of the target.

Researchers remain unclear of the characteristics a target must have to influence the degree of expectancy effects during social interaction. The findings of McNatt (2000) reported increased expectancy effects amongst targets classified as disadvantaged or underachievers, or those considered (by themselves &/or their perceivers) with low expectancies. However, Madon, Guyll, Spoth, and Willard (2004) found children with high self-esteem were more susceptible to expectancy effects than those with low self-esteem. Moreover, Jussim (1986) argued expectancy effects would be increasingly powerful, when the type of feedback shared by the perceiver reinforced the target's self-esteem or self-concept. For example, a coach providing positive feedback to an athlete with high self-esteem will emphasise the behavioural confirmation effect exhibited by the athlete. Alternatively, a coach providing negative feedback to an athlete with low self-esteem will have the same behavioural confirmation effects.

2.4.6 Expectancy effects in sport.

This next section discusses the findings of previous research that has revealed expectancy effects in different roles within a sports context. For example, referees and sports judges who are required to be subjective may have different expectations of athletes while officiating or scoring them (e.g., Mascarenhas, O'Hare, & Plessner, 2006; Plessner, 1999). In addition, coaches may perceive athletes as having different levels of skill and expect them to perform accordingly (e.g., Wilson & Stephens, 2007). Athletes themselves may hold a perception of expected performance against their actual capability (e.g., Miki, Tsuchiya, & Nishino, 1993).

Referee and sport judges' expectancy effects.

It is the role of a referee and sports judge to look for information to facilitate a fair and accurate evaluation of athletes and events (Plessner & Haar, 2006). However, previous research has revealed these individuals are often powerless against the effects expectancies they have previously formed have on their performance (Mascarenhas et al., 2006).

In their study exploring expectancy effects within soccer referees, Jones, Paull, and Erskine (2002) played an identical series of video clips of different games to referees and requested they report the action they would have taken if they had been officiating the game. Before viewing the videos, half the referees were told one of the teams had a reputation for aggressive play, while the remaining referees received no information. The findings revealed referees with expectations regarding the aggressive team perceived more challenges as illegal and dispensed more severe punishments compared to referees who did not hold such expectations.

In addition, research (e.g., Plessner, 1999; Scheer & Ansorge, 1979) has found gymnastics judges hold an expectancy that gymnasts who appear last in their team's order are better than those who appear first. The findings of these investigations indicated judges typically rated routines performed at the end of the team order significantly higher than the same routine presented first. Plessner (1999), argued when faced with a complex information-processing task, for example judging a gymnast performing a rapid action, judges rely more heavily on their expectancies (i.e., gymnasts performing last are better) to inform their judging verdict. This offers support to the notion that situations requiring increased cognitive load increase expectancy-based processing (Darley & Fazio, 1980; Fiske & Neuberg, 1990).

Coach expectancy effects.

The effects of expectancies on coach behaviour, specifically when providing feedback to athletes, has been examined extensively. Solomon et al. (1998) examined differences in coaches' feedback as a function of coaches' expectations of athletes' skill level in collegiate basketball. The results reported that low expectation athletes received less feedback overall than high expectation athletes. In fact, from youth to elite samples, regardless of experience, gender, or sport type, research has revealed high and low expectancy athletes experience differential treatment (e.g., Solomon, 2002, 2010; Solomon & Kosmitzki, 1996; Solomon et al., 1998; Wilson & Stephens, 2007). Generally, these investigations demonstrated athlete's labeled high expectancy to be afforded an environment more conducive to learning and improvement than those labeled low expectancy. High expectancy athletes were also issued more praise and instruction compared to their low expectancy counterparts.

Furthermore, in a more recent investigation exploring expectancy effects, Wilson and Stephens (2007) interviewed basketball coaches to determine their expectations of player's abilities, and also interviewed players to determine the amount of negative feedback and workload they received from their coach. They found coaches gave less negative feedback and more workload to players expected to have high ability, compared to those whom they expected to have low ability. In addition, high-expectancy athletes perceived they received more time with coaches as well as greater privileges and trust. Athletes deemed low-expectancy believed they experienced more admonishment, were afforded less time to master drills, and described the coaches as less helpful in raising their athletic expectations. Wilson and Stephens (2007) argued this differential treatment could lead athletes to withdraw from sport. They suggested an effective coach is one whose athletes do not perceive any difference in coach treatment that might be detrimental to performance; recommending positive behaviour and communication to all athletes. Moreover, Solomon et al. (1998) revealed that athletes playing for more successful coaches were aware of how they are being evaluated, whereas athletes playing for less successful coaches were not cognizant of how they are being evaluated. Thus, suggesting the ability to communicate expectations differs for the elite vs. non-elite.

In addition, although previous research suggests coaching experience does not influence coach feedback patterns (Solomon et al., 1998), Solomon (2002) reported coaches rely on different impression cues to evaluate athletes depending on their coaching role. For example, head coaches were found to form expectancies of an athlete's actual performance based on psychological qualities (e.g., confidence), whereas assistant coaches formed expectations of an athlete's actual performance based on physical ability (e.g., speed). However, head and assistant coaches were both inflexible in their perceptions of initial expectations (Solomon & Rhea, 2008). Thus, once an athlete has been labeled high or low expectancy, that categorisation remains stable from pre- to post-season. Therefore, because the cycle of expectancy (e.g., Horn et al., 2010) begins with the evaluation of the athlete, which then informs the coaches' actions, Solomon and Lobinger (2011) argued the ability to make accurate inferences informs a coach's evaluation of their athletes and provides the foundation of appropriate instruction. Thus, helping to create an environment where athletes are most likely to reach their full potential.

Moreover, expectancy effects have been rendered more powerful through accumulation processes, either over time or across perceivers (Trusz & Babel, 2016). For example, the expectation a coach holds about an athlete at the beginning of the season, may have a stronger effect on the athlete's performance at the end of the season, than it had at the beginning. Furthermore, psychological theory also hypothesises that expectancy effects can accumulate across perceivers (Madon et al., 2004).

According to this idea, small expectancy effects of multiple people combine. For example, in a typical day, an athlete can interact with several different support staff (e.g., coaches, physiologists, nutritionists), each of whom may hold a similar belief about them. When multiple perceivers simultaneously hold similar beliefs about the same target, their separate expectancy effects can accumulate, such that their combined expectancy effect is more powerful (Madon et al., 2004).

Athlete expectancy effects.

Like referees, judges, and coaches, athletes are also open to the effects of expectancies. Previous research has suggested judgements formed by athletes based on their expectancies can have a detrimental effect on their subsequent athletic encounters. For example, Miki et al. (1993) explored the impact of expectancies on attention in sport. Student participants were informed they would be competing against an opponent on a golf task. Bogus record sheets were then distributed to participants disclosing details about their opponent's past performance (i.e., three wins, two losses, or no record), and their self-evaluations of ability on the task (i.e., positive or negative). The findings revealed record sheets that contained no past performance detail received increased attention (i.e., students spent more time reacting to these sheets) than those which did present past performance details. These results suggested participants relied on the information offered by the past performance record to form a more rapid expectancy of their opponents.

This line of enquiry was extended by Buscombe et al. (2006), who examined whether specific non-verbal cues could lead to expectancy effects during athletes' evaluations of potential opponents. A sample of male tennis players viewed a video of a supposed opponent warming up. Participants were then requested to make judgements on specific elements of the target's performance and to rate their expectancies of success against the opponent. Findings revealed participants perceived opponents displaying positive body language and wearing tennis specific clothing as better than those who presented negative body language and wore either tennis specific or general sports clothing.

Coach-athlete relationship expectancy effects.

According to Jowett and Poczwardowski (2007) the coach-athlete relationship can be defined as "a situation in which a coach's and athlete's cognitions, feelings, and behaviours, are mutually and causally interrelated" (p. 4). Thus, the coach-athlete relationship can be considered dynamic in nature and shaped by the interactions that occur between the members within it. Olson et al. (1996) suggested expectancies have the potential to effect cognitive, affective, and behavioural consequences of social encounters, it could therefore be argued expectancies may be significant factors influencing the relations between coach and athlete.

Thus, the expectancies held, presented, and responded to by coaches and athletes could have both positive and negative effects on performance and psychological well-being within the relationship. According to Manley et al. (2010) expectancy effect research within the context of the coach-athlete relationship is crucial to generate knowledge that may enable coaches and athletes to satisfactorily manage their interpersonal interactions, thus allowing for the development of an effective working alliance.

Youth sports provided the focus for early research exploring expectancy effects in the coach-athlete relationship (e.g., Horn, 1984; Martinek & Karper, 1986; Rejeski, Darracott, & Hutslar, 1979). Similar to experiments exploring teacher-student expectancy effects, early findings revealed high-expectancy athletes received more reinforcement than low expectancy athletes (Rejeski et al., 1979). However, although these results highlighted differential coach treatment, further analysis of the data revealed low expectancy athletes received more technical instruction, more feedback, and more reinforcement following successful skills than high-expectancy athletes. Horn (1984) suggested such results could be due to the coaching context. Because the main focus of youth sports is skill development and maximum participation by all athletes.

Studies exploring the effects of expectancies in elite coach-athlete relationships have been found to reflect the outcomes of self-fulfilling prophecy literature to a greater extent than those investigations conducted in youth sport. For example, Solomon et al. (1998) found that collegiate basketball players considered high expectancy received more overall feedback, praise, and instruction from the coach than low-expectancy players. Wilson and Stephens (2007) offered further support for expectancy effects within the coach-athlete relationship. Having rated their expectancies of athletes in terms of effort and ability, following a four-month observation, coaches were subsequently asked whether athletes had exceeded, met, or failed to meet their initial expectancies. Coach participants perceived the majority of low expectancy athletes had failed to meet their initial expectancies of effort (82%) and ability (93%). Moreover, they believed almost two-thirds (65%) of high expectancy athletes had exceeded their original expectancies for effort.

It is important to note that not all coaches' behaviour is congruent with their expectations, thus they do not all engage in expectancy confirmation processes. Although the aforementioned studies have provided evidence of expectancy effects within the coach-athlete relationship, there is also research which has found no connection between coach expectancies and the behaviour displayed throughout coach-athlete interactions.

For example, Solomon and Kosmitzki (1996) reported no association between coaches' expectancies of athlete ability and coach behaviour over the duration of a season. Furthermore, Solomon et al. (1998) discovered coaches' expectancies based on ethnicity or ability did not cause any observable expectancy effects. However, there is evidence that coaches can (maybe unwittingly) behave in a manner congruent with their high or low expectations. Because the profession of coaching requires the ability to evaluate athletes, provide instruction, monitor improvement, and create an environment where these qualities merge into successful performance, to accurately infer and understand an athlete is considered vital.

2.5 Directions for Future Research

This review has provided an evaluation of knowledge surrounding stress, coping, empathy, and expectancies in sport. This body of work intends to extend this literature and answer some of the many unanswered questions that remain.

2.5.1 Stress and coping in elite sport – from the coaches' perspective.

First, although previous research has explored the stress and coping experiences of athletes and officials, few studies have focused on coaches. Therefore, this research will investigate stress and coping, from the coaches' perspective. Coaches will be recruited from athletics, an individual based sport, to allow for a specific focus on the stress embodiment, emotional expressions, and interpersonal relationships experienced by participants.

Second, only a small number of studies include a sample comprised entirely of elite level participants. Therefore, this research will focus on elite level participants to contribute new knowledge and extend the small existing knowledge base. Furthermore, of the handful of studies exploring elite coaches, few have involved participants based in the UK, the majority have been conducted in the United States. UK based research is required to complement existing findings and so this thesis will recruit only elite athletics coaches currently working in the UK.

Finally, there is no evidence of existing research having investigated the directionality, frequency, or intensity of stress experienced by sports coaches in different environments (i.e., training & competition). Therefore, this research will potentially contribute novel findings to existing literature.

2.5.2 Stress and empathic accuracy in elite sport.

This review has acknowledged the importance of accurately perceiving others' thoughts and feelings, not just in romantic relationships and friendships (Thomas & Fletcher, 2003), but also the coach-athlete relationship (Jowett & Clark-Carter, 2006; Lorimer & Jowett, 2009a, 2009b, 2010). Understanding how accurately coaches and athletes perceive each other moment-to-moment, over time, and in different environments would further enrich this growing body of work. However, although a number of studies have explored empathic accuracy and the coach-athlete relationship, a number of unanswered questions remain.

First, no studies have explored empathic accuracy achieved by coaches and athletes over time, while experiencing stressors associated with different environments (i.e., training & competition). Research into this topic would therefore be unique.

Second, the results of previous coach-athlete relationship empathic accuracy research have been based on a snap-shot of interactions in a single moment of time. It would seem prudent, if we are to establish how empathy exists within the coach-athlete relationship, to examine the inferences made by coaches and the athletes over time and in different environments (e.g., training & competition). Such results would reflect a more precise representation of empathic accuracy and how it might change.

Third, the modified unstructured dyadic interaction paradigm for sport is a new methodology (Lorimer & Jowett 2009a, 2009b) and although it provides a unique approach to the study of empathy within coach-athlete interpersonal dynamics, additional research is required to further validate the use of this method in different sports contexts and athletic samples (i.e., training vs. competition in elite level sport).

Finally, the majority of previous empathic accuracy research has employed a between subjects design. Although this approach supports the comparison of participant sub-groups, such as individual dyads, a one with many design (e.g., investigating one coach working with multiple athletes) would provide a unique insight into levels of empathic accuracy achieved by the coach.

2.5.3 Coach expectancies and empathic accuracy in elite sport.

This review has presented a summary of previous research exploring expectancies of others and their potential impacts on the subsequent quality of social interactions.

This thesis aims to extend existing research by exploring a number of unanswered questions surrounding expectancy effects within the coach-athlete relationship.

First, existing literature has recognised the significance of interpersonal perception within the coach-athlete relationship, placing specific emphasis on empathic accuracy and expectancy effects through separate lines of investigation (e.g., Lorimer & Jowett, 2009a, 2009b; Wilson & Stephens, 2007). However, no previous research has explored the influence of coach expectancies on subsequent levels of empathic accuracy achieved within coach-athlete dyads. Specifically those coaches working in individual based sports where they operate on a one-to-one basis with their athletes. Whether a coach's initial expectancies effects subsequent levels of empathic accuracy achieved within a coach-athlete dyad remains unknown. Such research would potentially inform coaches, athletes, and sport psychologists of ways to harness the beneficial effects, as well as to avoid the detrimental consequences, of expectancies on the important bond between coach and athlete.

Second, given the number of studies which have explored expectancies within the coach-athlete relationship, few have included a sample comprised entirely of elite level participants. Furthermore, the majority of investigations have been conducted in the United States. UK based research is required to complement existing findings. Therefore, this research will focus on elite level participants currently operating in elite level sports in the UK.

Finally, to date there has been a shortage of previous research examining elite level athletes' perception of coach treatment that includes perceptions of coach expectations, feedback, and work-related behaviour. Therefore, this thesis will examine evidence of differences between high and low expectancy elite athletes' perception of treatment received by their coach. Moreover, this research will allow for an exploration into whether there is a relationship between coach treatment and levels of empathic accuracy achieved within elite coach-athlete dyads.

Chapter 3

Study One: Stress and Coping: A Study of World Class Athletics Coaches

3.1 Abstract

The aim of this study was to explore the stress and coping experiences of elite athletics coaches in the UK, from the coaches' perspective. Six male, UK based, elite athletics coaches aged between 32 and 57 years ($M_{\text{age}} = 46.7$, $SD = 11.5$) were purposively recruited for this study. Coaches had between 7 and 30 years ($M = 15.5$, $SD = 9.9$) experience coaching at an elite level and represented eight track and field disciplines: long jump, triple jump, pole vault, high jump, 100m, 200m and 400m sprints, and the 400m hurdles. At the time of participation, all six coaches were in preparation for the World Championships in Daegu and/or were entering the final stages of training ahead of the London 2012 Olympic and Paralympic Games. Previous literature exploring stress and coping in sport provided the rationale and stimulus for questions integrated into a semi-structured interview guide. Specifically, the interview guide focused on three broad sections: identifying coach-related stressors, exploring the consequences, directionality, and intensity and frequency of stress, and investigating coping strategies and their effectiveness. Interviews were transcribed verbatim and analysed using thematic analysis. The findings indicated that coaches experienced a vast array of stressors, with stress increasing around competition. Coaches acknowledged facilitative effects of stress (e.g., increased focus, productivity, & enjoyment), but also reported perceived debilitating behavioural and communication changes towards their athletes at times of stress (e.g., reduced interaction, concealing their true feelings & emotions, increased emotional outbursts, increased physical distance where possible, & defensive posturing). Experience, learning, and support were reported as the most effective coping techniques, and coaches described a limited use of effective psychological skills. While all emerging themes were deemed important, debilitating behavioural and communication changes towards athletes in response to increased stress, specifically around competition, was the most cited theme reported by all coaches. Thus, representing a strong indicator of the potential detrimental impact of stress on the dynamics of interactions between coaches and athletes in elite sport.

3.2 Introduction

A number of studies in sports psychology during the 1980s found that stress experienced by athletes could impede performance (e.g., Burton, 1988; Gould, Petlichkoff, Simons, & Vevera, 1987).

These initial findings fuelled much of the research to date, which has typically explored stress and coping in athletes. The notion that sport psychologists needed a sound knowledge base to provide scientific foundation and empirical support for effective interventions, offers a possible explanation as to why stress and coping researchers prioritised studies focused specifically on the elite athlete (e.g., Gould, Eklund, & Jackson, 1993; Gould, Jackson, & Finch, 1993; Gould, Udry, Bridges, & Beck, 1997; Jackson, Mayocchi, & Dover, 1998; Kreiner-phillips & Orlick, 1993; Park, 2000; Price & Weiss, 2000; Udry, Gould, Bridges, & Tuffey, 1997). Although the rationale is less obvious, a wealth of literature also exists examining the stress and coping experiences of sports officials (e.g., Anshel & Weinberg, 1995, 1999; Goldsmith & Williams, 1992; Kaissidis-Rodafinos & Anshel, 2000; Kaissidis-Rodafinos, Anshel, & Porter, 1997; Kaissidis-Rodafinos, Anshel, & Sideridis, 1998; Rainey & Hardy, 1999; Stewart & Ellery, 1998). However, perhaps the most striking observation of research in this area, is the lack of studies exploring the stress and coping experiences of elite coaches. Even though more recent claims suggest, given the multiple roles coaches must assume, and the technical, physical, organisational, and psychological challenges involved, coaches should be considered and supported as performers in their own right (Thelwell et al., 2008). Research is therefore required to provide empirical support for effective coping interventions specific to the coach.

Furthermore, although the coach-athlete relationship appears to be a central aspect of coaching, the additional roles coaches have to perform highlight the complex and interpersonal process that is coaching. For example, instructor, mentor, friend, organiser, educator, and counsellor (Lyle, 2002). And yet, other professions with a high degree of interpersonal interaction have received significant research attention, with stressors and coping methods identified in occupations such as nursing (Prymachuk & Richards, 2007), the police force (Thompson, Kirk, & Brown, 2005), and teaching professions (Winefield & Jarrett, 2001). It could therefore be argued an in-depth understanding of the stress and coping experiences of sports coaches, would not only support organisations to design appropriate interventions to assist coaches, but also provide a better understanding of stress embodiment, emotional expressions, and interpersonal relationships.

According to Gould et al. (2002), coaches' performances and future employability are often judged by the success of their athletes. It is therefore not surprising that coaches experience stress as a result of the growing demands they encounter. Indeed, the findings of Kroll and Gundersheim (1982) revealed each coach, from a sample of 93 male high-school coaches, perceived his job to be stressful, with interpersonal relationships (e.g., disrespect from players & not being able to reach athletes) identified as the most significant stressor.

Pastore (1991) found stress factors such as having less time available to spend with family and friends, lack of financial incentives, and increased intensity of recruiting to be the most important reasons given by collegiate level coaches for leaving the profession. The results of a more recent study by Frey (2007), indicated that communicating with athletes, lack of control over athletes, and the pressure of having multiple roles and responsibilities were commonly reported as stressors by collegiate coaches. Furthermore, such stressors had a negative impact upon the coaches' performance, in particular their concentration, decision-making, and proneness to emotional outbursts (Frey, 2007). Although these studies highlight stressors experienced by coaches, the samples examined are narrow. The majority of existing research into coaching stress has sampled high-school and collegiate, dual-role teacher-coaches in North American educational institutions, whose experiences of stress might be tempered by the dual-role nature of their jobs (Capel, Sisley, & Desertrain, 1987). It could be argued the stressors experienced by coaches immersed in the unique culture of world class sport in the UK differ considerably. For example, Thelwell et al. (2008) published the first study examining stressors in elite sport from a coach perspective: 1) struggling to meet outcomes, 2) having to make decisions, 3) getting results, 4) delivering to athletes at the highest level, 5) expectations of self/stakeholders, and 6) poor officiating were the most frequently cited sources of performance-related stress. Yet, despite coaching being considered an inherently stressful occupation (Kelley & Gill, 1993), coaches have often mistakenly been regarded as "problem solvers", rather than those who can succumb to stress (Frey, 2007). This presumption might offer an explanation as to why stressors experienced by coaches operating within the unique environment of world class sport have not been studied in depth.

In addition, the concept of increased stress has traditionally been viewed as detrimental towards performance in existing sports literature. To date, research investigating coaches' responses to stress has typically focused on burnout (Goodger et al., 2007). Burnout, "a syndrome of emotional exhaustion, depersonalisation, and reduced personal accomplishment" (Maslach et al., 1997), has been identified as a possible response to chronic stress or a persistent imbalance between demands and coping resources (Smith, 1986). However, other, more immediate stress responses have been under researched. For instance, Hanton and Jones (1999) suggested if athletes can learn to interpret their thoughts and feelings toward focusing on what they must do to improve performance, pre-competition stress may not necessarily have a debilitating effect on their performance. According to (Csikszentmihalyi, 1990), having stress is important for generating a flow state, stress can therefore facilitate performance. Although directionality of stress has been the focus of more recent athlete research, there is no evidence of the study of directionality of stress in elite coaches.

Frey (2007), reported several positive responses and effects of stress, including heightened awareness, energising effects, and increased motivation in collegiate coaches. And thus, if sports psychologists are to develop interventions to help coaches cope effectively with stress, how coaches interpret stress warrants further investigation.

In studies involving athlete populations, an inability to cope with stress has been linked to reduced quality of performance (Lazarus, 2000), athletes not being able to pursue careers in professional sport (Holt & Dunn, 2004), and withdrawal from sport altogether (Smith, 1986). There is no reason to suggest that the same outcomes would not extend to coaching populations. In a recent study involving world-class coaches, (Olusoga et al., 2010) reported that as part of their own responses to stress, the coaches' standard of work dropped, they would fail to get the best out of their athletes, and the quality of communication between the coach and the athlete would suffer. Furthermore, McCann (1997) suggested that it was easy for athletes to recognise when their coach was experiencing strain, and that this could have a detrimental influence on the athlete's confidence. Perhaps nowhere more apparent than in individual based sports where coaches tend to work on a one-to-one basis with athletes; in this context, responses to stress may even be heightened as there is 'nowhere to hide' for either athlete or coach.

Existing literature has suggested stressors can have a negative impact, not only on the coach, but also indirectly on the athletes they work with. It is therefore essential to better understand the coping strategies employed by coaches. However, the ways in which coaches manage stress is still relatively unknown (Frey, 2007). The results of Thelwell et al. (2008), explored the use of psychological skills in 13 elite-level coaches from the UK. The results demonstrated world-class coaches used a variety of psychological skills (e.g., imagery & self-talk) in limited fashion. It is essential that world-class coaches become aware of what coping skills they require if they are to maximise their use across their wide-ranging coaching roles. In addition, although there are applied benefits from understanding sources of stress and coping strategies, no existing research has established specific temporal links between the stressors experienced and the resultant coping strategies adopted by sports coaches. Further research is required to enable sports psychologists to be more precise when intervening with sports coaches.

Coping is defined as "constantly changing cognitive and behavioural efforts to manage specific external and/or internal demands that are appraised as taxing or exceeding the resources of the person" (Lazarus & Folkman, 1984, p. 141). Coping includes all consciously and deliberately executed attempts to manage appraised demands (Lazarus, 1999). It is therefore possible that some forms of coping will be more effective than others (Folkman & Moskowitz, 2004).

A limitation of previous sport psychology literature is that little is known about what actually constitutes coping effectiveness, for example this has been reported as the type of coping strategies used most often by athletes (Nicholls et al., 2007). In addition, according to Folkman's (1992) goodness-of-fit model, when stressors are perceived as controllable, problem-focused strategies (e.g., strategies directed towards the stressor, such as planning or goal setting) would be most effective. Alternatively, when a stressor is perceived by an individual to be uncontrollable, emotion-focused strategies (e.g., strategies directed at regulating emotional distress, such as deep breathing or acceptance) would be more effective. When this fit is not achieved coping will be ineffective (Folkman, 1992). Gould, Finch, and Jackson (1993) proposed that automatic coping strategies are more effective than less automatic coping responses in alleviating stressors. Lastly, Nicholls and Polman (2007) recognised individuals who practiced their coping strategies are more likely to deploy such responses more readily and effectively. However, despite these theoretical attempts to account for coping effectiveness, it remains little understood. Expanding the study of coping effectiveness to wider population groups (i.e., coaches) may help further develop a better understanding of this construct (Levy et al., 2009). Furthermore, for coaches to perform optimally, especially when encountering demanding situations, it is imperative that they are able to cope effectively. To date there is very limited published literature that has sought to explore the notion of coping effectiveness among elite coaching populations.

3.2.1. Research aims and objectives.

Aims

To explore the stress and coping experiences of elite athletics coaches in the UK, from the coaches' perspective.

Objectives

1. To identify, describe, and understand the sources of stress experienced.
2. To understand the nature and characteristics of the consequences of stress identified.
3. To examine the directionality of stress experienced.
4. To identify, describe, and understand the intensity and frequency of stress experienced in training compared to competition.

5. To identify, describe, and understand the coping strategies employed.
6. To investigate the perceived effectiveness of specific coping strategies in dealing with the sources of stress identified.

3.3 Methodological Approach

According to Bryman (2013), the research aims should determine the appropriate method of data collection. However, some researchers believe the adopted research methodology should be determined by the researcher's personal values and beliefs about the nature of social reality (i.e., ontology) and the way it should be investigated (i.e., epistemology). For example, Lincoln and Guba (1985) stated "we are dealing with an *either-or* proposition, in which one must pledge allegiance to one paradigm or the other" (p. 80). This current study adopted a more pragmatic stance.

Rather than positioning oneself as a distanced observer, relational researcher, or socially and historically contextualised researcher, a pragmatist is free to "study what interests them and is of value to them, studying it in different ways that they deem appropriate, and utilise the results in ways that can bring about positive consequences within their value system" (Tashakkori & Teddlie, 1998, p. 30). The criterion for judging the appropriateness of a method is if it achieves its purpose (Maxcy, 2003). Furthermore, Denzin and Lincoln (2005) acknowledged the fluid nature of producing a work of research, as one draws on new tools and techniques as the need arises. A review of existing literature revealed interpretive, qualitative assessments as the favoured method in examining stress and coping in a sports setting (e.g., Gould, Jackson, et al., 1993; Olusoga et al., 2009; Thelwell et al., 2010). Moreover, a dearth of previous research exploring the stress and coping experiences of coaches involved in elite sport offered further support to employing a qualitative methodology for this study. According to Denzin and Lincoln (2005), such approach provides depth and detail in capturing the subjective meanings of concepts in a new context. Therefore, this current study adopted a qualitative method to gain a rich source of primary data, and place emphasis on understanding the participant's perspective. In addition, adopting qualitative methods enabled the implementation of thematic analysis, allowing key variables and themes to emerge from the data.

3.4 Defining Key Terms

A number of key terms associated with the research topic were developed to provide conceptual clarity.

Elite coach.

For the purpose of this study an elite coach was identified as an individual who had coached at an Olympic Games, European Championships, World Championships, and/or Commonwealth Games. Because this was a study of stress and coping in elite athletics coaches, the most important criteria used when selecting the sample was that the participants had experiences of coaching at this level.

Stress and coping.

Lazarus and Folkman's (1984) transactional model of stress and coping (see Chapter 2) was used as the theoretical frame of reference for the present study. The transactional model is widely accepted in the stress and coping literature and has been adopted in studies of stress and coping in sport (e.g., Fletcher et al., 2006; Olusoga et al., 2009). Therefore, for the purpose of this study, stress was defined as "a relationship between the person and the environment that is appraised by the person as taxing or exceeding their resources and possibly endangering their well-being" (Lazarus & Folkman, 1984, p. 19). In addition, coping was defined as "constantly changing cognitive and behavioural efforts to manage specific external and/or internal demands that are appraised as taxing or exceeding the resources of the person" (Lazarus & Folkman, 1984, p. 141).

Coach-athlete relationship.

According to Jowett and Poczwardowski (2007) the coach-athlete relationship is defined as a situation in which the coaches and athlete's cognitions, feelings, and behaviours are mutually and causally interrelated; thus suggesting the coach-athlete relationship is dynamic and shaped by the interactions that occur between the two members (Manley et al., 2010).

3.5 Method

3.5.1 Participants.

Six male, UK based, elite athletics coaches aged between 32 and 57 years ($M_{\text{age}} = 46.7$, $SD = 11.5$) were purposively recruited for this study. Coaches had between 7 and 30 years ($M = 15.5$, $SD = 9.9$) experience coaching at an elite level and represented eight track and field disciplines: long jump, triple jump, pole vault, high jump, 100m, 200m and 400m sprints, and the 400m hurdles. Purposive sampling was employed, thus the small sample were deliberately selected (Denscombe, 2007). Purposive sampling, a common approach for qualitative research (Creswell, 2009), was deemed appropriate to ensure participants were relevant to the topic of study and most likely to produce valuable data (Denscombe, 2007).

For this study, an individual based sport (i.e., athletics), as opposed to a combination of team and individual sports, was purposefully selected to aid a more specific focus on the stress embodiment, emotional expressions, and interpersonal relationships experienced by participants. Thus, there were two considerations when approaching participants to explore the stress and coping experiences of elite coaches in the UK: 1) they were at least 18 years of age, and 2) they were currently working as a high performance coach affiliated with UK Athletics (UKA). At the time of participation, UKA employed 12-14 salaried events coaches for the London 2012 Olympic cycle. Thus, the six elite coaches who agreed to take part represented a significant proportion of this coaching population. As part of the selection criteria, coaches were considered elite if they had coached at an Olympic Games, European Championships, World Championships, and/or Commonwealth Games. In addition, five of the six coaches had competed as elite senior athletes in their respective athletic disciplines prior to embarking on their coaching careers. At the time of participation, all six coaches were in preparation for the World Championships in Daegu and/or were entering the final stages of training ahead of the London 2012 Olympic and Paralympic Games, arguably the pinnacle events in the careers of both the coaches and their athletes.

3.5.2 Interview guide.

The data collection for the present study involved conducting interviews. This was considered appropriate for the following reasons: 1) interviews provided an opportunity for the open searching and probing necessary to explore a new topic, elite coaches' individual experiences of stress and coping; 2) interviews enabled the researchers to learn and understand the terms coaches used to discuss stress and coping topics; and 3) it was believed interviews scheduled at times and locations convenient for the coaches' would increase the likelihood of participation, given the short time that remained ahead of the London 2012 Olympic and Paralympic Games. Furthermore, according to Kvale and Brinkmann (2009) interviews encourage individuals to provide in-depth information that resonates at a personal level and captures the subjective meaning in contextual situations. Therefore, a review of procedures employed in previous stress literature (e.g., Frey, 2007; Lemyre, Trudel, & Durand-Bush, 2007; Scanlan et al., 1991; Bloom et al., 1997) led to the development of a semi-structured interview guide (see Appendix B) to ensure each participant was asked the same set of major questions. This procedural flexibility enhanced the fluency of the interview and richness of the information gathered, while still retaining the systematic nature of the data collection between the participants.

Previous literature exploring stress and coping in sport provided the rationale and stimulus for many of the questions integrated into the semi-structured interview guide (e.g., Hanton et al., 2005; Olusoga et al., 2009; Thelwell et al., 2007; Thelwell et al., 2008; Woodman & Hardy, 2001). Specifically, following a set of introductory questions designed to facilitate recall and encourage descriptive talking (Patton, 2002), the interview guide was divided into six sections:

Section 1 – Introductory comments and initial experiences.

This section included a general introduction to the present study which served a number of key purposes. First, to familiarise participants with the interview process (i.e., how long it would likely take) and to establish a rapport, a variety of issues were discussed, including how the data would be used, reasons for audio-recording the interview, confidentiality (establishing trust as a researcher was considered essential), and the issues to be addressed throughout the interview. Second, during the introduction the interviewer answered any questions asked by the participants surrounding the aims and practical implications of the study or anything that had been discussed. The interviewer used the introduction to re-emphasise that the interview was about their experiences as elite athletics coaches. Participants were informed that there were no right or wrong answers and that they were free to decline to answer any question. They were told to take as much time as they needed to answer the questions, to allow them to reflect. This section also included questions surrounding the coaches initial experiences, to aid recall, make participants feel comfortable, and facilitate them talking in a descriptive manner. Information was gathered concerning their coaching careers to date and their current coaching situation (e.g., full-time/part-time, number of elite athletes in their squad etc.).

Section 2 – Identifying stressors.

The questions asked in this section referred to the coaches' current roles and the environment they were operating in at the time of the interview. It was important to first ensure participants had their own interpretation of what was meant by stress, or if they had any questions prior to proceeding with the questions included in this section. The interviewer then continued with questions to establish whether participants considered their job as a coach to be stressful and if levels of stress varied or remained constant throughout the coaching season. This section persisted to identify coach's sources of stress, why they considered the named stressors to be a source of stress, and what they perceived to be the most stressful part of their coaching roles. The interviewer used the clarification and elaboration probes to ensure the correct meaning had been understood.

Section 3 – Consequences of stress.

Participants were then asked to reflect on their careers coaching elite athletes and to describe a time/s that had been particularly stressful for them. Once participants had identified a stressful experience, the interviewer asked questions surrounding the effects of stress on the participant at this time, including the perceived impact on the coach's performance and the performance of their athlete/s.

Section 4 – Directionality of stress.

The interviewer emphasised to participants that previous research has suggested sources of stress may be perceived as facilitative (i.e., challenging) and debilitating (i.e., threatening, harmful). With this in mind, coaches were asked questions surrounding their experiences of stress as being facilitative or debilitating to their coaching performance.

Section 5 – Intensity and frequency of stress in training and competition.

Participants were first asked if they understood or had any questions about the concept of intensity and frequency of stress. Once the interviewer was sure coaches understood what was required, they were asked questions surrounding their experiences of stress in training compared to competition, specifically whether intensity and frequency of stress varied.

Section 6 – Identifying coping strategies and their effectiveness.

It was important to ensure participants had their own interpretation of what was meant by coping, or if they had any questions, prior to proceeding with the questions included in this section. Specifically, participants were asked how they cope at times of increased stress, if these coping strategies differ before, during, and after competition and where they learnt these strategies. The interviewer wanted to establish whether coach participants had ever been taught any coach specific coping strategies. Once participants had identified the coping strategies they would use to deal with a particular source of stress, they were asked to describe how effective they perceived the strategies to be.

3.5.3 Procedure.

Following institutional ethical approval, ten elite athletics coaches employed by UKA were contacted directly via email and invited to participate in the present study. 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 (See Appendix A).

Out of the initial ten participants, two coaches responded explaining they were too busy to participate, as they were working under pressure to finalise preparations for the London 2012 Olympic and Paralympic Games, two coaches did not respond, and six coaches agreed to volunteer and contribute to the research. Convenient times and locations for the interviews were agreed and contact details for the interviewer were distributed to the coaches.

3.5.4 Pilot interview.

A pilot interview was conducted with a recently retired high performance coach. The purpose of this was two-fold. First, to ensure the questions asked were unambiguous and the structure of the interview process was clear; and second to enable the interviewer to practice and refine their interview skills and techniques. There were a number of revisions required as a result of the pilot investigation. First, the interview took too long and having listened back to the audio recording, it became clear this was due to the interviewer ‘over probing’ and encouraging the participant to elaborate and clarify when a point had been adequately explained. Second, to enhance clarity, minor amendments were made to the appropriateness of the elaboration probes used for Question 2. For example, probes asked in the pilot interview included: ‘What positions have you held? How has your career progressed? How long have you spent in each position? However, for the purpose of the interviews these probes were updated to: ‘What coaching positions have you held? How has your coaching career progressed? How long have you spent in each coaching position?’

3.5.5 The interviews.

The same semi-structured interview guide was used for all six interviews. However, participants were encouraged to elaborate throughout the interview, as the interviewer was free to explore issues unique to each coach’s experiences in greater depth as they arose (Patton, 2002). A variety of clarification probes (e.g., I am not sure I understand what you mean by...can you just go over that again for me please?) and elaboration probes (e.g., Has it always been that way...please explain in more detail?) were employed to elicit in-depth information surrounding the key variables (i.e., stress & coping). All interviews took place face-to-face at a time and location best suited to the working schedules of each coach. A private setting with little distraction was purposefully chosen on site at each location (McNamara, 2009). No text book definitions of any of the key variables were provided to ensure responses were based purely on the participant’s interpretation.

The interviewer was familiar with the method of interviewing as outlined by Patton (2002). Specifically, asking one question at a time, attempting to remain as neutral as possible throughout (i.e., not showing strong emotional reactions to responses), encouraging responses and maintaining respondents' motivation with occasional nods of the head, and providing translation between major topics (e.g., "we've been talking about X, & now I'd like to move on to Y"). In consideration of situatedness and reflexive issues surrounding context, all interviews took place during the final lead up to major competitions such as the World Championships in Daegu and the London 2012 Olympic and Paralympic Games.

At the end of the final section, all participants were given the opportunity to reflect on the interview experience and asked whether there was anything else they would like to add concerning what had been discussed. In conclusion, participants were asked questions relating to their interview experience including; "Did you enjoy the interview?", "Did you feel you were able to tell your experiences fully?", and "Did you feel you had been led or influenced by the interviewer?" All six participants reported enjoying the interview, concluding that this was one of few opportunities they had had to share their experiences as elite coaches and that it was cathartic. All participants said they did not feel they had been led and that they had been able to tell their experiences fully. The interviews lasted approximately 60 minutes and were tape recorded in their entirety via a digital Dictaphone (Olympus, DS-2400). All interviews were transcribed verbatim producing 114 pages.

3.5.6 Controls for bias.

The potential for interviewer bias in the present study was addressed in several ways. First, the use of a semi-structured interview guide provided a structure to the interview and ensured all topics were treated in a standard way. Second, direct observational checks to monitor interview bias were made early in the study. Specifically, an experienced qualitative researcher sat as a silent observer throughout the pilot interview. Furthermore, the quality control measure for the interviewer came in the form of interviewee feedback or member checking. At the conclusion of each interview, each coach was asked, "How did you think the interview went?", "Did you feel you could tell your story fully?" and "Did I influence your responses in any way?"

The absence of bias was inferred from the following indices: 1) the fact the sole interviewer adhered to the semi-structured interview guide format; 2) the fact none of the coach participants reported they were influenced or biased by the interviewer; 3) the fact the respondents (elite coaches) would insist on making sure the interviewer clearly understood their experiences.

For example, “No, it wasn’t quite like that (following a probe), let me explain”; and 4) the fact after transcription, all interview transcripts were sent to the six coaches for review, and they all confirmed these accurately represented their accounts and perceptions. Furthermore, the interviewer found these elite coaches to be highly self-directed, autonomous, and often assertive in presenting their responses and clarifying their views. These interviews were one of few opportunities the elite coaches had had in sharing their anonymous experiences of stress and coping, therefore it was believed it would have been extremely difficult to manipulate the responses of these high level achievers. This impression is supported by previous research with high performing athletes. For example, Rychta (1982) found that athletes who were involved at an elite level, tended to be independent minded and acted according to their own principles, and that the longer the athlete was at the top level, the more independent minded they were likely to be. Werthner and Orlick (1986) found that athletes ranked within the top six in the world expressed their views in a self-directed manner and appeared almost immune to interviewer bias. There is no reason why the same could not be said for the high performing coaches, who had between 7 and 30 years’ experience working alongside some of the best athletes in the world, and where five of the six coaches had competed as elite senior athletes in their respective athletic disciplines, prior to embarking on their coaching careers.

3.6 Data Analysis

According to Henwood and Pidgeon (1995), there is no one correct way of handling qualitative data, however researchers exploring stress and coping in sport have typically used thematic analysis (e.g., Dale, 2000; Fletcher & Hanton, 2003; Olusoga et al., 2009; Olusoga et al., 2010; Thelwell et al., 2007; Thelwell et al., 2008). Thematic analysis goes beyond simply counting phrases or words in text and moves on to identify and analyse implicit and explicit ideas within the data. Thomas (2012) suggested a comparison of the latent and manifest patterns may provide a richer and deeper understanding of the case. Thus, both inductive and deductive methods of data analysis are employed. Inductive analysis allows relationships and theories to emerge from the data, whereas deductive analysis organises quotes around pre-determined themes. According to Liamputtong and Ezzy (2005), theory building occurs in an ongoing dialogue between pre-existing theory and new insights generated as a consequence of empirical research. Therefore the interplay of induction and deduction took place throughout the code development, data searches, and analytic comparisons for the present study.

Additional justifications for thematic analysis were supported by the purpose of the present study, which was focused on understanding elite coaches’ subjective experiences, including the possible situated, social, cultural, and political issues.

Such features may have been overlooked in Interpretative Phenomenological Analysis (Smith, 2004), which focuses on elucidating the ‘essence’ of the meanings that people ascribe to their lived experiences (Smith, Flowers, & Larkin, 2009). In addition, a discourse analysis was rejected because this approach places emphasis on the micro-processes of interaction, which would have neglected the narrative content of coaches’ stories (Smith & Sparkes, 2005). To implement a systematic approach to thematic analysis, in support of the guidance of Braun and Clarke (2006), six phases were implemented: 1) data familiarisation, 2) generating initial codes, 3) searching for themes, 4) reviewing themes, 5) defining and naming themes, and 6) producing the report. Although these steps infer a linear approach, in practice thematic analysis involved an iterative process of analysis and data collection (Braun & Clarke, 2006). To enhance familiarity of the data, the audio-recordings of each interview were listened to several times and the verbatim transcriptions were read and re-read. Data analysis then involved two key phases: 1) code development, and 2) theme development, encapsulating the aforementioned guidance from Braun and Clarke (2006):

1. Code development.

An initial list of deductive codes was generated using the topics from the interview guide, derived from concepts and theory from existing stress and coping literature. The adoption of codes developed in previous studies has the advantage of supporting the accumulation and comparison of research findings across multiple studies. For example, exploring the concurrent stress and coping experiences of elite athletes and coaches. The inductive codes came directly from the data and were developed from reading the data and noting the issues raised by participants. Inductive codes were extremely valuable as they reflected the issues of importance to participants themselves. Once the codes had been developed they were recorded in a codebook (see Appendix C). The codebook listed all of the codes relevant to the present study; it included the name, type, and description of each code along with an example from the data. Code development was considered to be an evolving process whereby new codes were added, code definitions were refined, and codes were combined throughout analysis. Any doubts concerning any part of the code development process were discussed with a qualitative researcher independent from the data collection.

2. Theme development.

Following the initial code development, the entire dataset was coded. First, the meaning units were extracted from each individual transcript and brought together into one document. For the purpose of this study a meaning unit was identified as a single word, phrase, sentence, or paragraph. The extracted meaning units were then condensed and labelled with the relevant code.

To prevent an idiosyncratic sense of what the codes meant (Schilling, 2006), the codes employed were repeatedly checked and the whole context was considered when condensing and labelling meaning units with codes. Code development and the final coding process were peer reviewed by an independent researcher experienced in qualitative analysis methods. The intent here was not to simply verify that the data had been labelled and sorted correctly, but instead to confirm whether the supporting researcher agreed with the way in which the data had been processed.

Theme development enhanced the elaboration and understanding of the findings. The process of comparison enabled the researcher to explore issues, identify patterns, and begin to notice any associations within the data. The original theme development represented lower-order themes and these were labelled to highlight their underlying meaning. The grouping process was continued with the lower-order themes so that a greater degree of abstraction was obtained. This resulted in the identification of higher-order themes. This process was considered complete when no further themes could be formed and the entire condensed data set was assigned to a theme.

The final phase of analysis was dependent upon triangular consensus between the first two researchers and a third independent researcher who acted in the capacity of a “critical friend” (Sparkes & Smith, 2013). The third researcher was not involved with either the data collection or initial analysis, instead they were required to thoroughly examine all steps taken by the first two researchers, specifically, reviewing a random selection of raw-data responses and categorising them into lower-and higher-order themes.

3.6.1 Enhancing the trustworthiness of the analysis.

In acknowledgment of the guidelines of high quality qualitative research advocated by Sparkes and Smith (2009) and Tracy (2010), the researchers ensured that the 8 criteria: worthy topic, rich rigour, sincerity, credibility, resonance, significant contribution, ethics, and meaningful coherence, were adhered to. Elite coaches experiences of stress and coping was perceived a worthy topic, given the study’s relevance, timeliness, significance, and interest. With regards to rich rigour, the investigation was characterised by complexity, face validity, and due diligence, given the substantial amount of time, care and thoroughness committed throughout data collection, participant debriefing, and member checking. Sincerity was observed through the honesty and openness displayed by the researchers and “critical friend”, who was introduced to monitor changes within the researchers’ approach to data collection and increase the trustworthiness of the overall analysis. The use of a “critical friend” and member checking increased credibility and limited subjective bias throughout data collection and analysis.

Thematic analysis also provides emergent themes that can be logically traced back to the raw data. The use of direct content-rich quotations supported the narrative and also demonstrated resonance, providing representation of the participants' complex experiences of stress and coping. In evaluating the significance of contribution offered by the research, it is understood that the theoretical (e.g., implications for conceptual understanding), heuristic (e.g., stimulation of curiosity, discourse, & further exploration), and practical (e.g., providing knowledge for Governing Bodies & sports psychologists) developments extend existing knowledge and understanding surrounding this topic. The research strictly adhered to procedural (i.e., institutional ethical approval was granted), situational (i.e., reflection on methods employed & data worth exposing), relational (i.e., reflection surrounding the researcher's actions and potential consequences on participants & their organisations), and exiting (i.e., avoiding unjust or unintended consequences of presented findings) ethical obligations. Lastly, the quality of this study should be assessed by its meaningful coherence. In an attempt to accomplish this, it is believed that this study achieved its stated purpose, employed methods and analysis processes that closely matched the domain and research paradigm, and attentively connected extant literature with its focus, methods, and findings.

3.7 Results

The results are presented in two sections: The data pertaining to the sources, consequences, and characteristics of coach stress are presented first, followed by coaches' coping strategies and effectiveness. In accordance with previous research (e.g., Frey, 2007; Olusoga et al., 2009; Olusoga et al., 2010; Thelwell et al., 2010), raw data responses are illustrated, with the number of elite coaches reporting each raw data response in parentheses. The numbers of coaches cited in each lower and higher order theme are also included. Findings are supported by descriptive quotes (McKenna & Mutrie, 2003) to enable the reader to gain a sense of the context of the data.

3.7.1 Sources, consequences, and characteristics of coach stress.

The present study aimed to identify sources of stress in elite athletics, from the coaches' perspective. First, at the time of interview all six participants reported they found their current coaching roles to be stressful. Specifically in the lead up to the London 2012 Olympic and Paralympic Games, for example:

...this year, I feel, even more stress because it is a huge year. Second is fantastic at a home Olympics but it is not a first, I cannot afford to be average at the Games...I think for me, as a personal thing it would be a failure really.

Yeah, I mean look, we will get fired after the Olympics if we don't produce anything. Full-stop. It doesn't matter how many people you develop, if you don't get anyone good at the Olympics they don't care...now that generates huge stress.

In discussing with coaches “what makes your job stressful?” 56 raw data themes were identified and organised into 11 lower-order themes. These lower-order themes were then organised into the following higher-order themes representing the elite coaches' stressors: 1) pressure and expectation, 2) coaching responsibilities, 3) conflict, and 4) competition stress (see Figure 3.1, p. 94-95).

1. Pressure and expectation.

This higher-order theme encompassed 18 raw data responses from all six participants and reported on the internal self-induced pressure and external performance-outcome pressure they identified as specific stressors in their current elite coaching roles.

Internal self-induced pressure.

In this lower-order theme, all six coaches discussed the demands and pressures they placed upon themselves. Specifically, feeling responsible for a poor performance, fear of letting the athletes down, and increased pressure to deliver a high standard of work on time were reported as examples of internal self-induced stressors. As one coach described:

...the goal of athletics is to achieve your best performance of the year, at the biggest show of the year. We are only a few weeks away from the World Championships and half the athletes are right where I want them and the other half are like in the back pastures somewhere...it's my job to make sure they're all ready to perform on time, so that's stress.

External performance-outcome pressure.

Responses from all six coaches also described pressure from external sources to achieve performance outcomes as another stressor. Coaches most often referred to the pressure placed upon them by the governing body to achieve results and the fact that the athletes' funding allocation was dependent upon performance outcomes. As one coach explained:

...there's only one World Championships this year so if we get it wrong, not only did we fail in the objective but there's funding issues, the athlete can lose their funding, there's sponsorship issues, and so this failure is not only a failure in sport but it effects the athlete's entire life...if you've got a dozen athletes, that's a huge pressure.

2. Coaching responsibilities.

All six participants felt the responsibilities they had in their coaching roles were stressors for them. Specifically, 15 raw data themes were organised into three lower-order themes: meeting athletes' training requirements, managing the athletes' mind-set, and collaborative working.

Meeting athletes' training requirements.

Two coaches reported demands associated with meeting athletes' training requirements, composing training programmes to meet all individual needs and committing vast amounts of spare time to video analyses were reported as being particular stressors. As one coach described:

...if you've got 11 athletes who are training six days a week and you are trying to individualise their programs, for any given week you've got 66 programmes or sessions to write...you have to make sure you have taken into account what races they've got, what they need to do to peak for those races, what injuries they need to take care of, what exams might come into it, it's relentless.

Managing the athlete's mind-set.

This lower-order theme consisted of responses indicating that coaches found it stressful having to manage their athletes' mind-sets. Three coaches described how helping athletes to 'turn-up' at competition was a stressor, for example "I have training sessions with some of my athletes and they perform world-class, but then they go to competition and don't 'turn-up', they just fire blanks...it can be so unpredictable". In addition, two coaches reported having to provide negative feedback to athletes during the toughest stages of training to be a stressor. As one coach explained:

...do you know how hard it is to tell someone they're bad when they're in their worst, most tired period of their training, 5 months before their season starts and they've got 4 and half more months of training to go and you say it just ain't good enough. Now you think that's not stressful?

Collaborative working.

Coaches discussed specific stress surrounding the collaborative working involved in their coaching roles. Three coaches mentioned working with elite athletes with high ego strength was a stressor. For example, "...people are here because they're good and if you're good there is usually a certain dose of ego. As coach you try to massage egos, providing each athlete what they need to succeed, and so, some days it feels like trying to herd cats and that can be difficult".

Working alone with multiple athletes and working as part of a multi-disciplinary team were also highlighted as stressors. As one participant reported:

...we use three team doctors all from different cultural and medical training backgrounds, our nutritionist has always worked with teams, where athletics is predominantly individual, we have strength and conditioning coaches, psychologists, and therapists and trying to get these people's gifts, talents, and strengths and mould them into a unified vision that everyone is comfortable with is a lot of work and it can be extremely stressful at times.

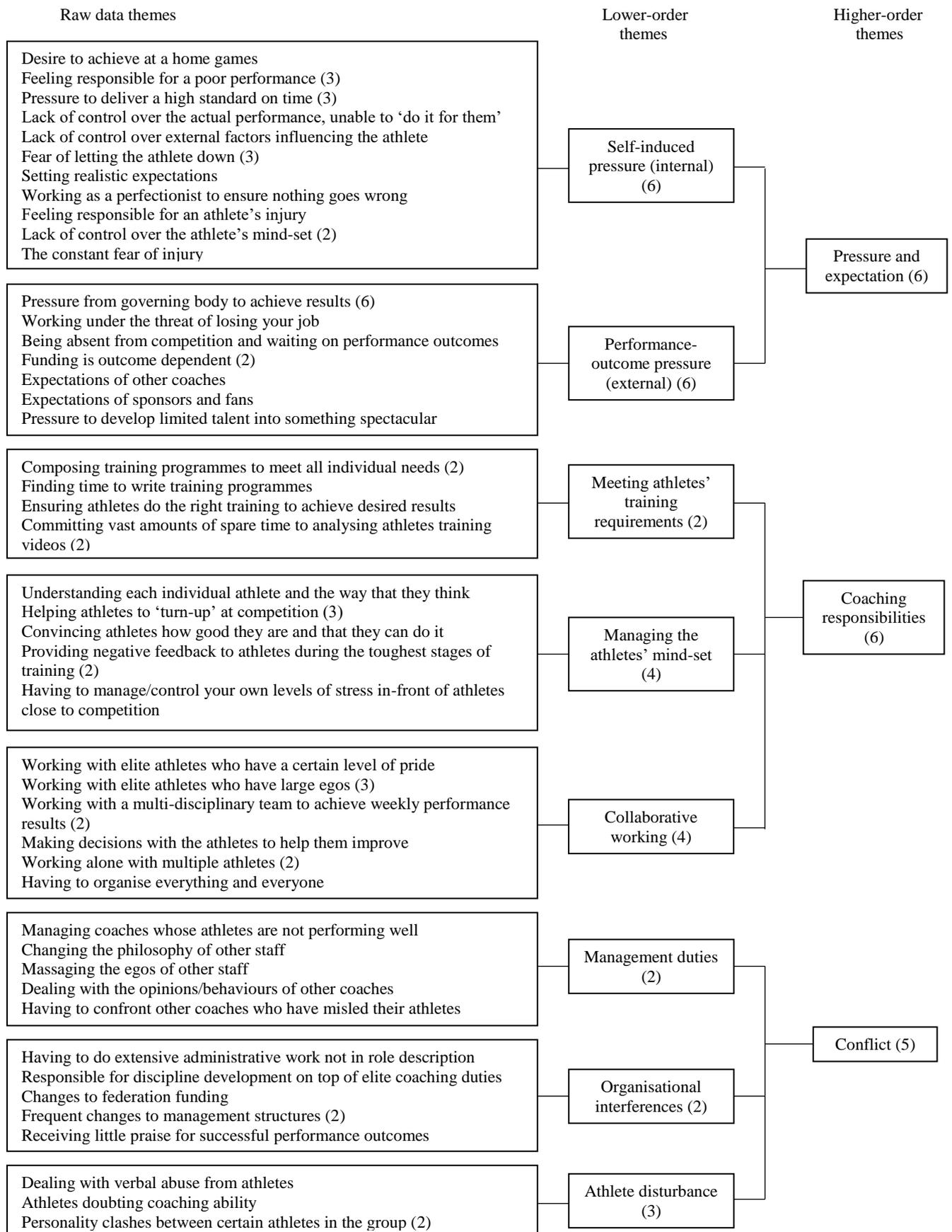


Figure 3.1. Stressors identified by elite athletics coaches.

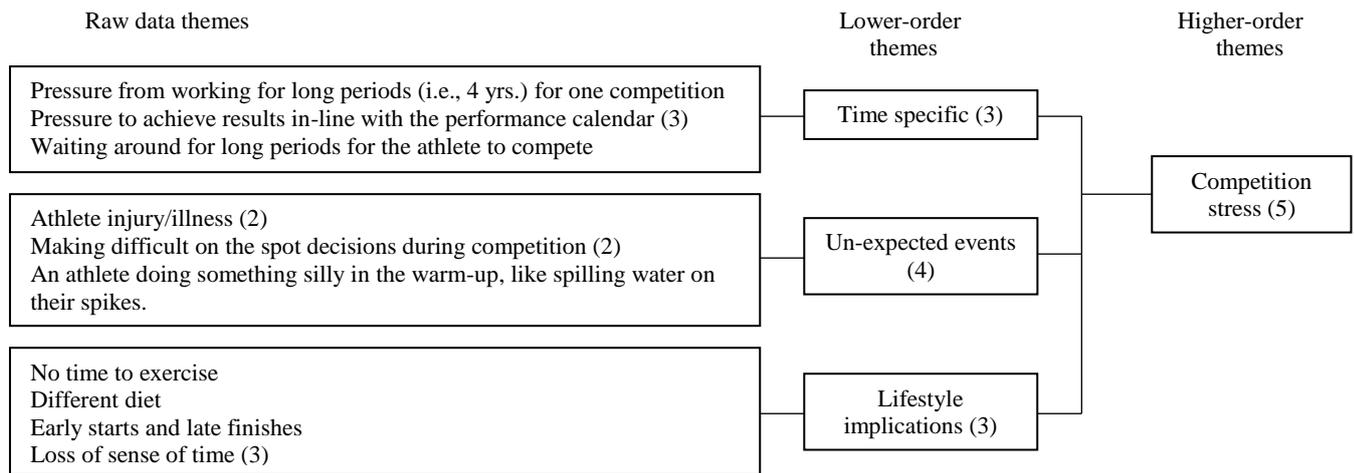


Figure 3.1. Stressors identified by elite athletics coaches (continued).

3. Conflict.

This higher-order theme incorporated responses from five of the six coaches and highlighted various themes of conflict identified as stressors in their coaching roles. Specifically, 13 raw data responses were organised into three lower-order themes labelled management duties, organisational interference, and athlete disturbance.

Management duties.

This lower-order theme contained responses from two participants who described managing coaches whose athletes were not performing and changing the philosophy of other staff were stressors. One coach explained, “People have a tendency to rely on their academics, their studies, or their limited network, so when presented with a problem it can be hard for different paradigms to coalesce, trying to change a man’s philosophy is like changing a religion”. In addition, dealing with opinions and behaviours of other coaches was also highlighted as a stressor. As one participant described:

...at the beginning of the Summer when my athlete started really well I am golden bollocks...now coming up to the trials they haven’t really improved, you know, there is definitely a comment here and a comment there from other coaches and you feel it.

Organisational interferences.

Two coaches discussed organisational interferences as stressors. For example, changes to federation funding and frequent changes to the management structure, “UK Athletics has been through several regime changes and UK Sport and the management structure of this federation has changed several times. This is a new outfit, if you will. Gutting everything and then building things out on the run, is stressful. People bring a lot of baggage with them”.

Receiving little praise for successful performance outcomes was also identified as a stressor:

...if an athlete doesn't do well, they will either leave the coach and move onto something else, it is the coach that is the problem, if an athlete does do well, they do well because they are talented and they would have done that anyway. And so as a coach you receive little recognition, you don't get a medal and you lose either way.

Athlete disturbance.

In this lower-order theme, three coaches discussed stressors surrounding athlete disturbances. For example, athletes doubting the coach's ability and receiving verbal abuse from athletes were reported as stressors, as evidenced in the following quote:

It can be really stressful when an athlete gets frustrated and takes it out on you. I was at a National Championships and an athlete went bananas at me, it was quite embarrassing because people were watching, I just listened as they ranted and raved. It makes you feel bad at the time, you can do without that kind of rubbish.

Two participants also reported stress caused by working with athletes with certain personality characteristics. As one coach highlighted:

...there is one athlete, it is quite stressful coaching them, you don't know what they are going to be doing, what they are going to be like mentally or physically...they regularly clash with other athletes in the group which creates a negative vibe, it can be really hard to deal with.

4. Competition stress.

Five coaches discussed specific stress caused by competition. This higher-order theme comprised of 10 raw data responses categorised into three lower-order themes: time specific, unexpected events, and lifestyle implications.

Time specific.

Within this lower-order theme containing responses from three coaches, "pressure from working for long periods (i.e., four years) for one competition" and "waiting around for long periods for the athlete to compete" were reported as stressors. Three coaches also discussed the pressure to achieve results in-line with the performance calendar. As one coach explained:

It's not just the Olympics, you have World Championships every 2 years, outdoors, you have World Indoor Championships every 2 years, you have Commonwealth games every 4 years, you have European games which was every 4 years and now it's every 2 years and then you have the Grand Prix meetings and Diamond Leagues...ensuring your athletes peak and achieve expected results in-line with this very busy performance calendar is a constant stress.

Un-expected events.

Four coaches identified that un-expected events at competition were another stressor. Specifically, coaches referred to athletes acquiring injury and/or illnesses, and having to make rapid difficult decisions during competition. For example “For me, making the right decision on the spot during a competition is stressful...a silly call from me and the athlete could fail, the other coaches sat around me are listening, the media is often watching closely, so trying to make quick decisions when there are so many elements to think about is stressful”.

Lifestyle implications.

Within this lower-order theme containing responses from three coaches, “having no time to exercise” and “having to consume a different diet” at competition were reported as stressors. Coaches also discussed the long days at competition and a loss of sense of time as stressors for them. As one coach described:

When you're at a championships, you are in another world, you are in another time zone...you lose track of time, what day it is, it's incredibly full on and not sustainable for long periods.

When describing the consequences of stress 53 raw data themes were identified and organised into six lower-order themes. These lower-order themes were then organised into the following higher-order themes: 1) physiological responses, 2) behavioural responses, 3) psychological responses, and 4) debilitating effects on others (see Figure 3.2, p. 99-100).

1. Physiological responses.

All six coaches interviewed discussed experiencing physiological responses to stress, for example loss of appetite, weight loss, mouth ulcers, and nausea. Coaches most often referred to experiencing head-aches/migraines and increased heart-rate. As one coach highlighted:

...I mean at times of stress the heart rate was high and you know like when you go to Alton Towers on a ride and you feel like your heart is going to come out of your chest, it is that feeling.

2. Behavioural responses

As well as physiological responses, all six coaches described several behavioural responses to the stressors they encountered while coaching. Nine raw-data responses were organised into two lower-order themes: changes to communication and behaviour towards athletes.

Changes in communication.

One of the most cited lower-order themes to emerge in the present study was changes in communication.

Within this theme the majority of coaches referred to changes in their posture and changes to their direct communication methods in response to stress, as evidenced in the following quote:

...there have been moments when it has been really stressful and I have let rip and when that happens, people leave the building. I promise you, when I scream people leave the building...stress can take over, you scream and shout but sometimes you just need to.

All six participants felt their body language became demonstratively more negative. As one coach explained:

...I don't have a very welcoming face, I will wear a constant frown. My arms will be firmly crossed most of the time. I'd say my body language would generally be all negative and defensive.

Behaviour towards athletes.

All six coaches described noticeable changes in their behaviour towards their athletes in response to stressors. Several mentioned having reduced focus on the athletes' activity in training and three coaches reported reduced interaction with athletes at times of stress. For example, "there is a detachment you have, I am usually quite chatty and like to talk, but when I'm experiencing stress, I go into myself, and I go very quiet and don't chat to the squad much at all". Four participants also reported increasing the physical distance between themselves and their athletes in response to stress. As one coach highlighted:

...stress can take over, sometimes you just need to walk away and have some physical space. I will just walk away, just walk the track, and walk the track a couple of times. On a really bad day, I might be absent from a training session and let the athletes get on without me.

3. *Psychological responses.*

This higher-order theme encapsulated responses from all six coaches who described their psychological responses to stress. This theme consisted of two lower-order themes: emotional responses (e.g., frustration, anger, & helplessness) and debilitating cognitions (e.g., irrationality, self-doubts, & dark moods). Emotional responses was also a well cited lower-order theme to emerge in the present study. In this theme, participants described experiencing a range of emotions in response to stressors, the most common being frustration and helplessness. Coaches also discussed experiencing character changes, an increase in emotional outbursts, and how they would try to conceal their true feelings from their athletes. As one coach explained:

...I am pretty good at not showing a lot. I focus and work hard at concealing how I really feel and just work my arse off. I try to keep how I feel hidden from my athletes.

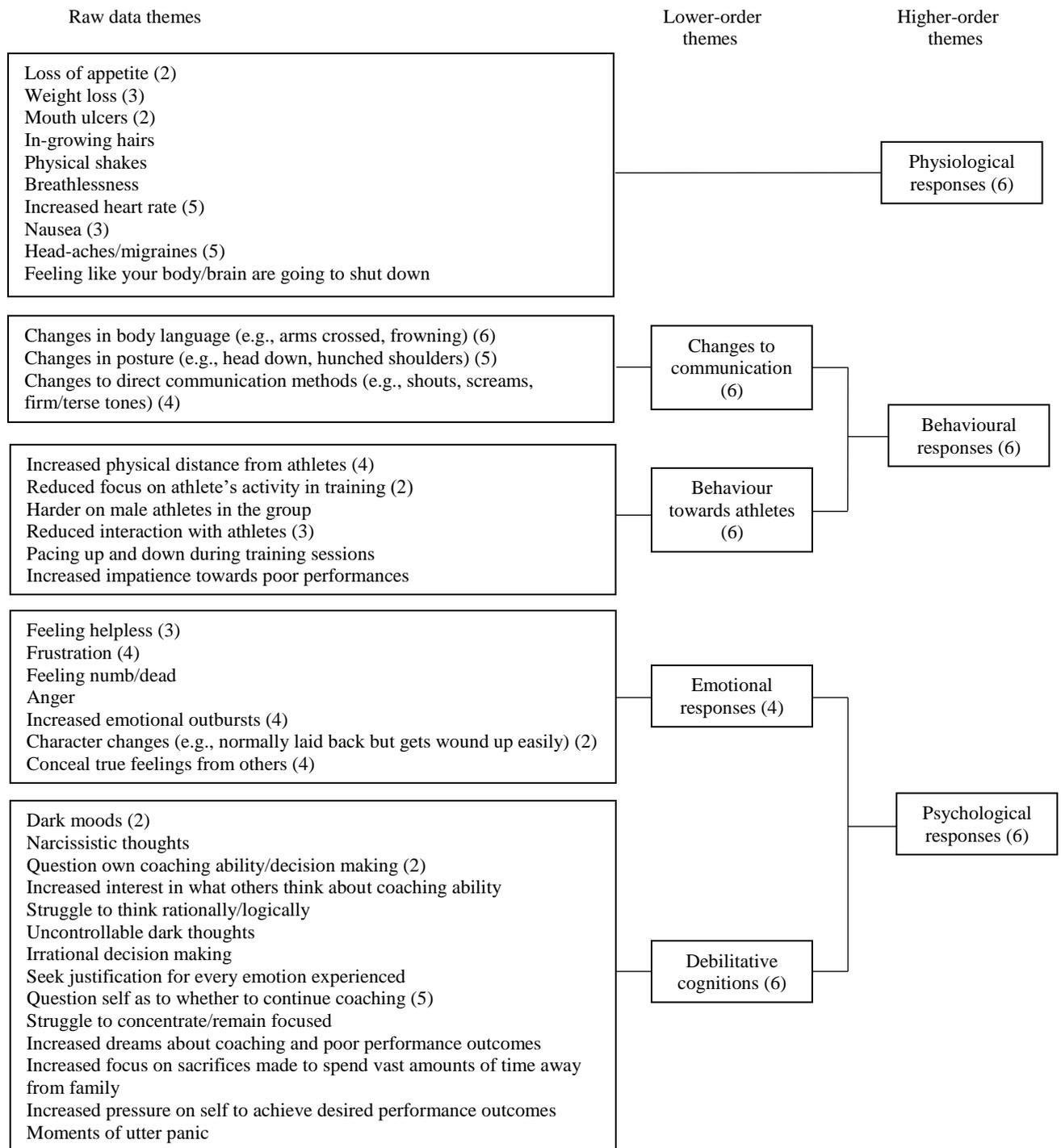


Figure 3.2. Consequences of stress identified by elite athletics coaches.

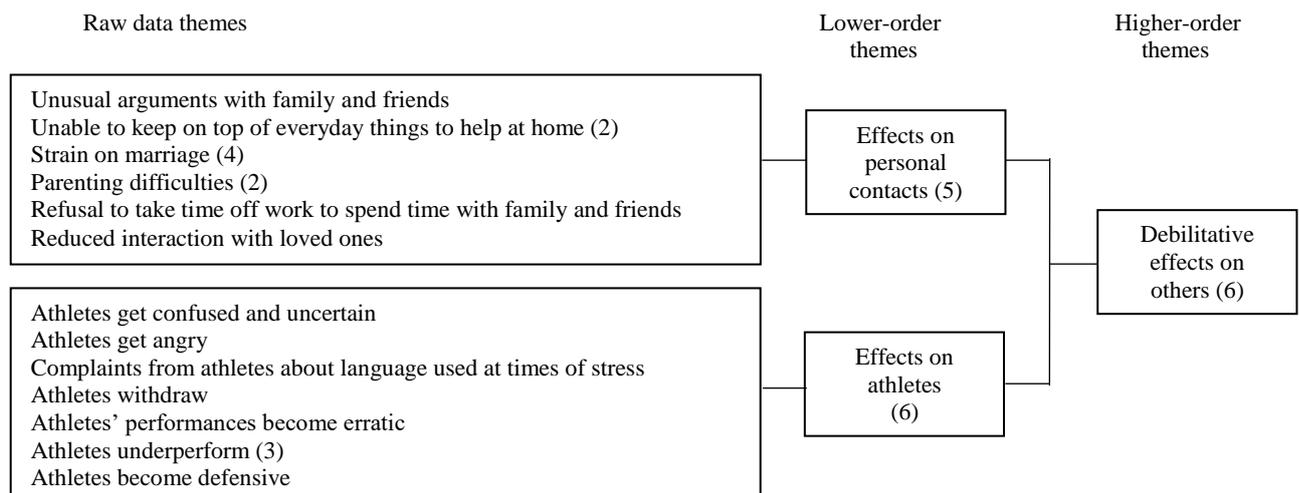


Figure 3.2. Consequences of stress identified by elite athletics coaches (continued).

4. *Debilitative effects on others.*

In this higher-order theme all six coaches described the debilitative effects that they perceived their responses to stress had on others. Specifically, 13 raw-data themes were organised into two lower-order themes: effects on personal contacts (e.g., strain on marriage & parenting difficulties) and effects on athletes. All six participants acknowledged the consequences of them experiencing stress on their athletes. For example, athletes withdrawing, getting angry, and defensive. Three coaches also felt their athletes would underperform. As one coach described:

...I think the number one reaction from athletes to a coach under stress is to try to lift them...with their practice or their performance...and a lot of times that doesn't work. They try too hard, over-compensate, and then under perform.

Although coaches mainly discussed debilitative consequences of stress, all six participants felt that experiencing stress could have facilitative effects. When considering the perceived facilitative effects of stress 17 raw data themes were identified and organised into three lower-order themes. These lower-order themes were then organised into the following higher-order themes: 1) facilitative effects for coaches, and 2) facilitative effects for athletes (see Figure 3.3, p. 101).

1. *Facilitative effects for coaches.*

This higher-order theme incorporated responses from all six coaches. Specifically, 12 raw data responses were organised into three lower-order themes labelled increased responsiveness/productivity, increased focus, and excitement.

Increased responsiveness/productivity.

Two coaches felt that the experience of stress was necessary for them to perform at an optimal level and that “performance elevation was in fact due to stress”. Three participants gave details of how they considered the experience of stress as having a positive impact on their responsiveness and productivity through increasing their motivation, work output, and decisiveness. As one coach reported:

Often at times of high stress things need to be done quickly, things happen quickly, you have got to make quick decisions and be decisive about it. It’s like the saying, grass doesn’t grow on a busy street and you know if you are busy you are going to get stuff done.

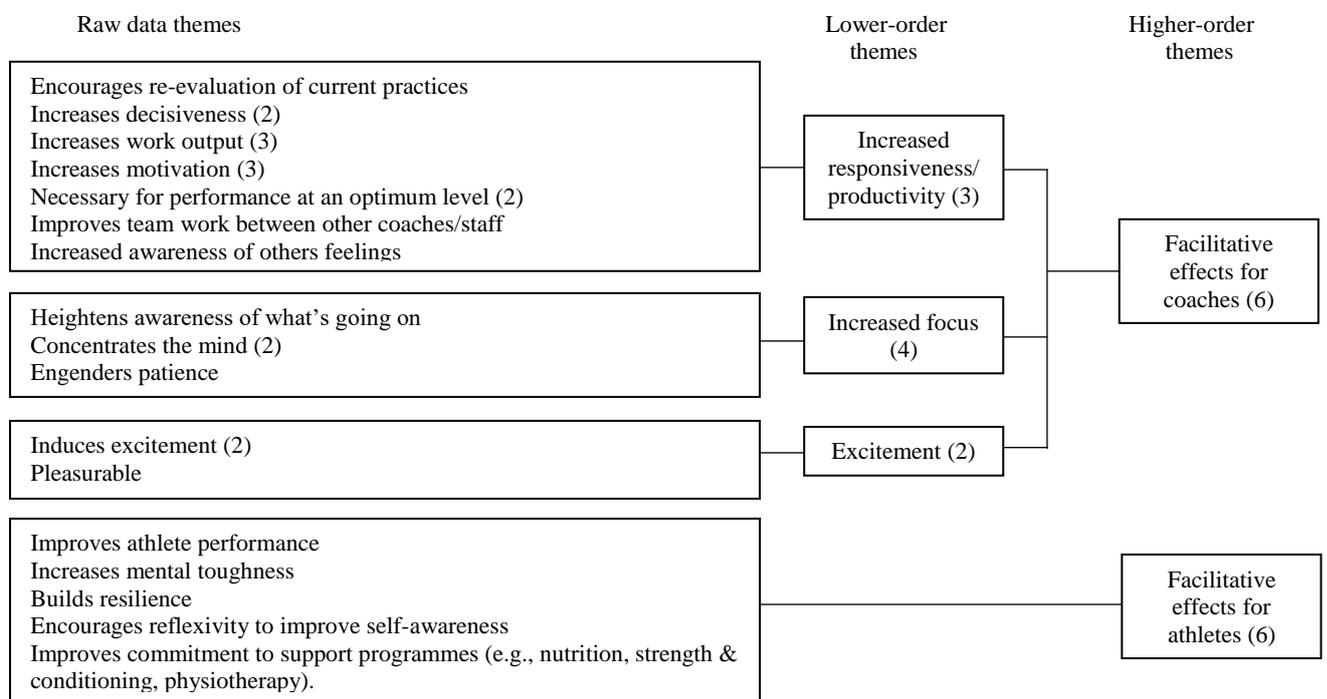


Figure 3.3. Facilitative effects of stress identified by elite athletics coaches.

Increased focus.

In this lower-order theme, four coaches felt the experience of stress helped “concentrate the mind” and gave them a “heightened awareness of what’s going on”. One participant described stress increasing focus specifically during competition:

...sometimes when things go wrong at competition...the stress of it all makes me focus on what I have achieved with the athlete up to now...OK, so we might have had a bad day, but then I step back and look at the whole situation and remember we have achieved a lot!

Excitement.

Responses from two coaches characterising stress as excitement constituted the final lower-order theme for facilitative effects of stress for coaches. One coach described: “Stress definitely facilitates my performance, I like to call it excitement. That buzz, it excites me, nothing beats it”.

2. *Facilitative effects for athletes.*

All six coaches perceived stress as having facilitative effects on their athletes. For example, coaches discussed stress improving an athlete’s performance:

...if a sprinter is winning in club matches by miles and then goes to a Diamond League meet that is being televised all over the world and everybody in that race is as good if not better than they are, that’s stress...and it’s that stress that will raise their game and improve their performance outcome.

Coaches also reported that experiencing stress was necessary for increasing an athlete’s mental toughness and building resilience. One coach described how he believed his athletes’ benefited from experiencing stress:

When my athletes are put into a situation that is awkward or means something, in any area of their lives, they will feel stressed, but gradually over time they will learn how to perform alongside these feelings and that will help them in the long run, they will get tougher.

When discussing the intensity and frequency of stress in training and competition 17 raw data themes were identified and organised into six lower-order themes. These lower-order themes were then organised into the following higher-order themes: 1) training stress and, 2) competition stress (see Figure 3.4, p. 103).

1. *Training stress.*

This higher-order theme encapsulated responses from four coaches who described their perceptions of the intensity and frequency of stress in training. This theme consisted of two lower-order themes: athlete development and performance expectations. Coaches described experiencing less intense and frequent stress in training as the environment was purposefully structured to support athlete development, by aiding performance progression and boosting athletes’ motivation and confidence. As evidenced in the following quote:

...yeah I mean training is pretty generic, you’ll not set sessions up for the athlete to fail...generally you set a session up so athletes will always be successful so they hit targets. You want to boost them and promote a positive mind-set, this makes you feel good...there is very little stress involved in training for me.

Performance expectations was another theme to emerge as coaches reported an increase in intensity and frequency of stress in training close to competition, specifically when the athlete consistently under-performed in training in the lead-up to a meet. One coach described an increase in stress close to competition due to expectations:

...stress will be higher in training usually the last couple of weeks before competition, especially with a World Champion, the expectations are that they will succeed and you have to make sure every stone has been turned in training, you can't re-mediate because the clock keeps ticking, competition is coming whether you're ready or not.

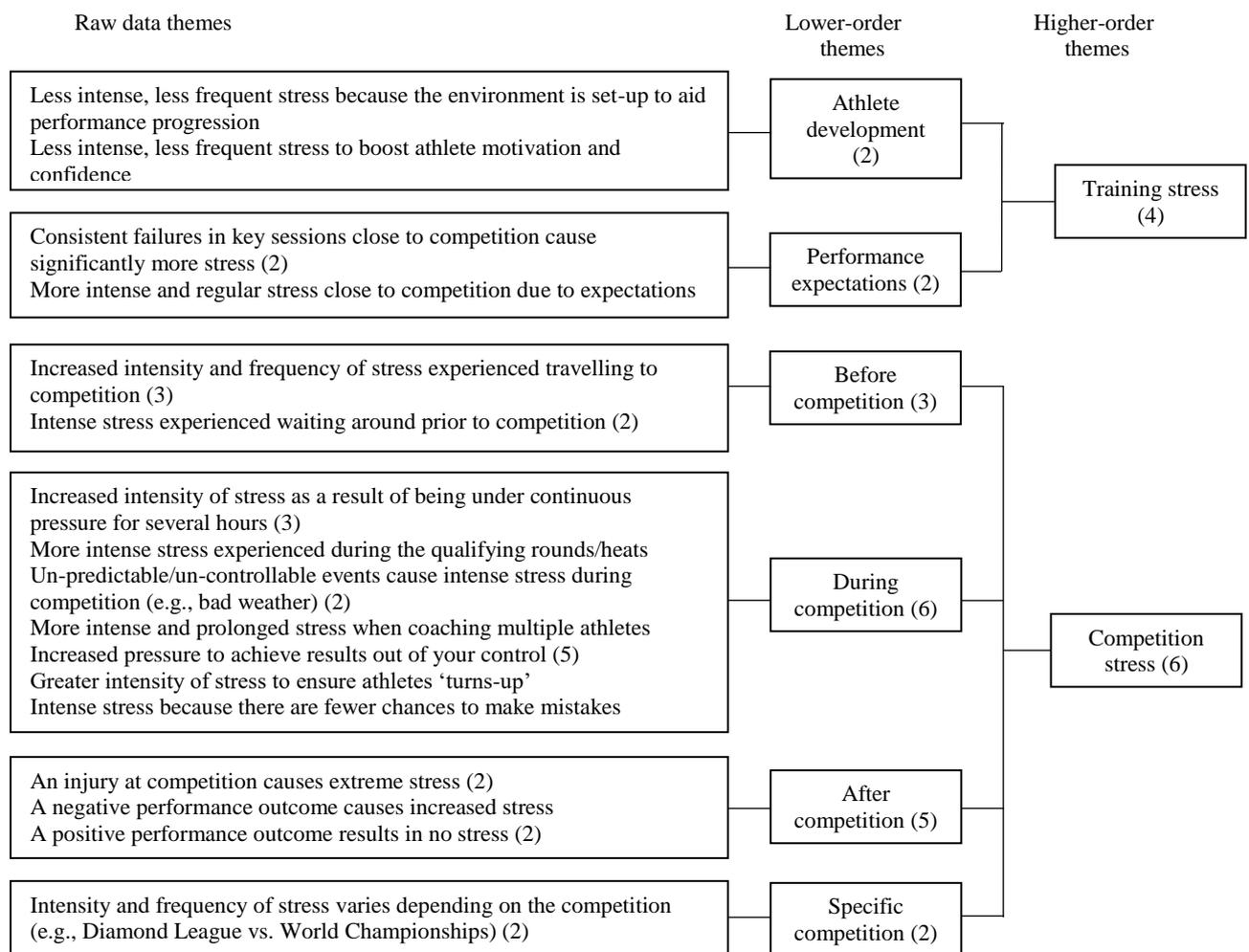


Figure 3.4. Intensity and frequency of stress in training compared to competition identified by elite athletics coaches.

2. Competition stress.

In this higher-order theme, all six coaches reported an increase in intensity and frequency of stress surrounding competition compared to training, with stress peaking during competition.

Stress after competition varied depending on the outcome. Two coaches also reported differences in stress based on the competition itself, as reflected in the following lower-order themes.

Before competition.

In this lower-order theme three coaches explained how stress increased whilst travelling to competition due to the number of things that could potentially go wrong. As one coach explained:

Travelling to competition can be extremely stressful. So much can go wrong that is out of your control, for example delays, missed connections, lost kit, etc. And as Head Coach, you're the one responsible, often for multiple athletes, support staff and getting everyone there on time and in one piece.

Two coaches also explained an increase in stress during the time spent waiting around ahead of competition. As evidenced in the following quote:

...the waiting around, all the faff, I just can't take this...at holding camps, all you do is train once a day for about an hour and a half, so then you get 22 hours to kill. Then at competition, the performance can be elongated over several days, you've got the qualifying rounds and then maybe the finals a day or two later, it's a lot of waiting around. It's a bitch because you're trying to manage the stress and stay focused the entire time.

During competition.

All six participants interviewed discussed how stress increased during competition. Coaches most often referred to increased pressure to achieve results out of their control. As one coach highlighted:

...once the athlete has gone over the white line, there is nothing more I can do for them, they've got to take charge themselves. On the one hand that's a really good thing, but on the other hand, you would like to be able to control that performance, because ultimately you're under pressure to get results. Lack of direct control on the performance is stressful, it's a massive roller coaster.

The increase in stress during competition was also reportedly caused by working under continuous pressure for several hours and un-predictable/un-controllable events (e.g., bad weather). For example, "you could get a bad wind...the athlete could be doing unbelievably well in training, but bad conditions at competition could stop them getting the results on payday and that's frustrating". Participants also reported an increase in stress during competition as there were fewer chances to make mistakes. As one coach explained:

...when you are at a higher level, you are really only talking about 5-6 competitions a year and when you bugger one of those up as a percentage of the work you are doing, that is stressful.

After competition.

When discussing the stress surrounding performance outcomes at competition, two participants reported that a positive result led to no stress following the event. However, an injury or negative outcome resulted in high stress:

...if you have a terrible negative outcome or an injury the stress is unbelievable, because you have to repeat the same journey home but this time with the negative coming back, with an injured athlete or a performance that wasn't very good it was just basically a waste of time. It can be extremely stressful.

Specific competition.

Two coaches explained that the intensity and frequency of stress surrounding competition varied, depending on the competition itself. For example:

...a trials meet is stressful, it's more stressful than a Diamond League meet. If things don't go right at a Diamond league, OK you just lost money and a little bit of ego. But if you blow up at the trials...you can lose a lot.

3.7.2 Coach coping strategies.

Forty-four raw data themes were identified to represent the distinct coping strategies employed by the elite coaches (see Figure 3.5, p. 106-107). These were organised into 11 lower-order themes and then into the following five higher-order themes: 1) psychological skills, 2) distraction, 3) support, 4) experience and learning, and 5) physical coping techniques.

1. Psychological skills.

Five of the six coaches interviewed discussed using some form of psychological skills to help them cope with the aforementioned stressors associated with coaching in an elite environment. Specifically, 19 raw data themes were categorised into five lower-order themes: 1) self-talk (e.g., self-affirmations & speaking positive words to self), 2) relaxation techniques (e.g., mindfulness & carrying out acupuncture on self), 3) visualisation techniques (e.g., mental rehearsal & visualising previous successful performances), 4) rationalisation/perspective (e.g., re-forming thoughts & feelings, accepting stress, & not taking it too seriously), and 5) proactive behaviours (e.g., concealing true feelings & projecting confidence). Proactive behaviours encompassed raw data themes relating to coaches' active psychological efforts to cope with stress. One coach described how they would consciously make the effort to build a trusting relationship with their room-mate at competitions, this then offered the opportunity for someone they trusted to look out for them, and to tell them when their behaviour wasn't effective.

Two coaches suggested they would consciously conceal their true feelings from their athletes to protect them from their stress, while another explained how projecting an air of confidence was a coping strategy they used: “I become an actor at times of stress, I work hard at giving off the impression that I am feeling confident. I pretend I know what I am doing, that I am in control”.

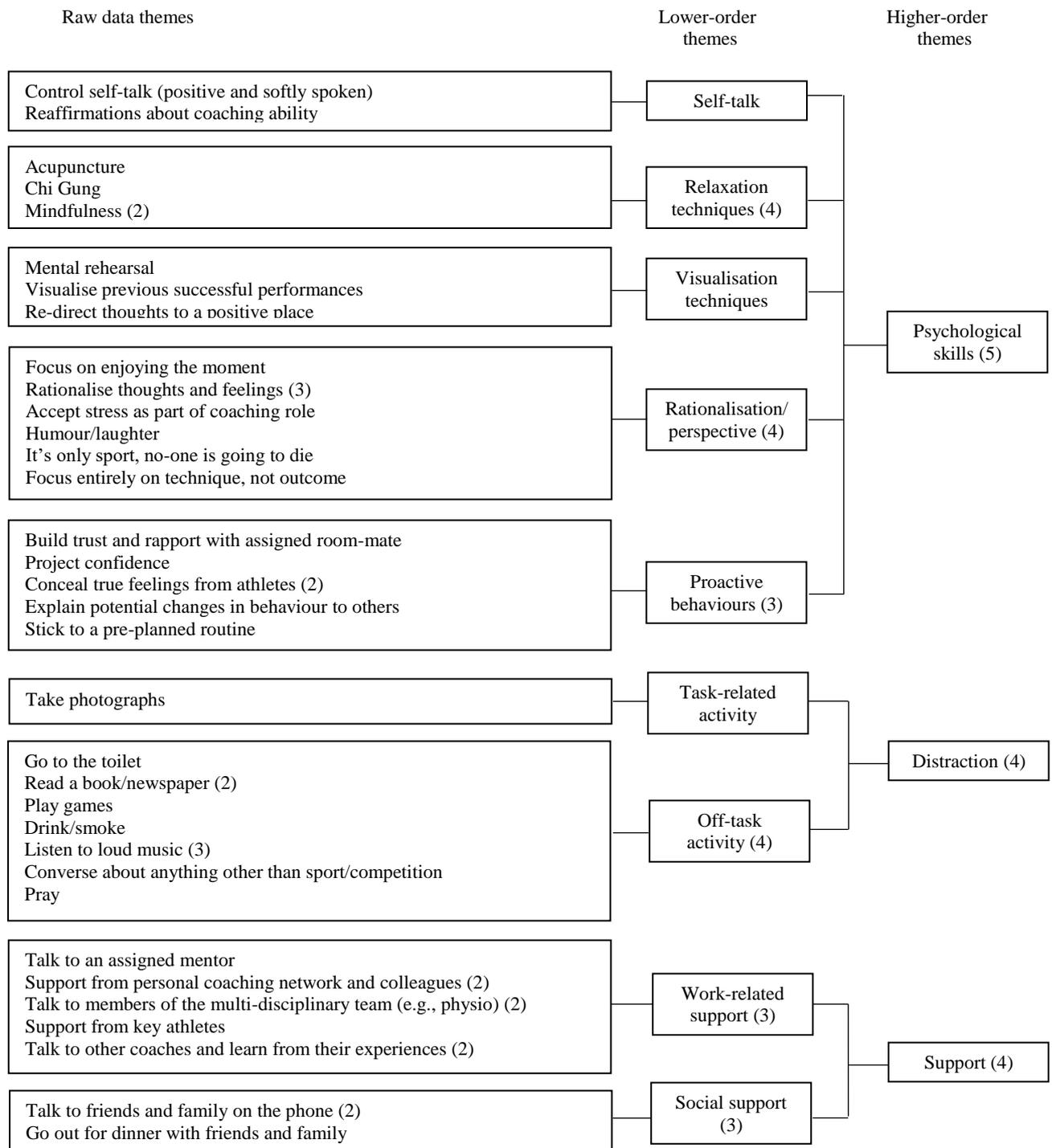


Figure 3.5. Coping strategies employed by elite athletics coaches.

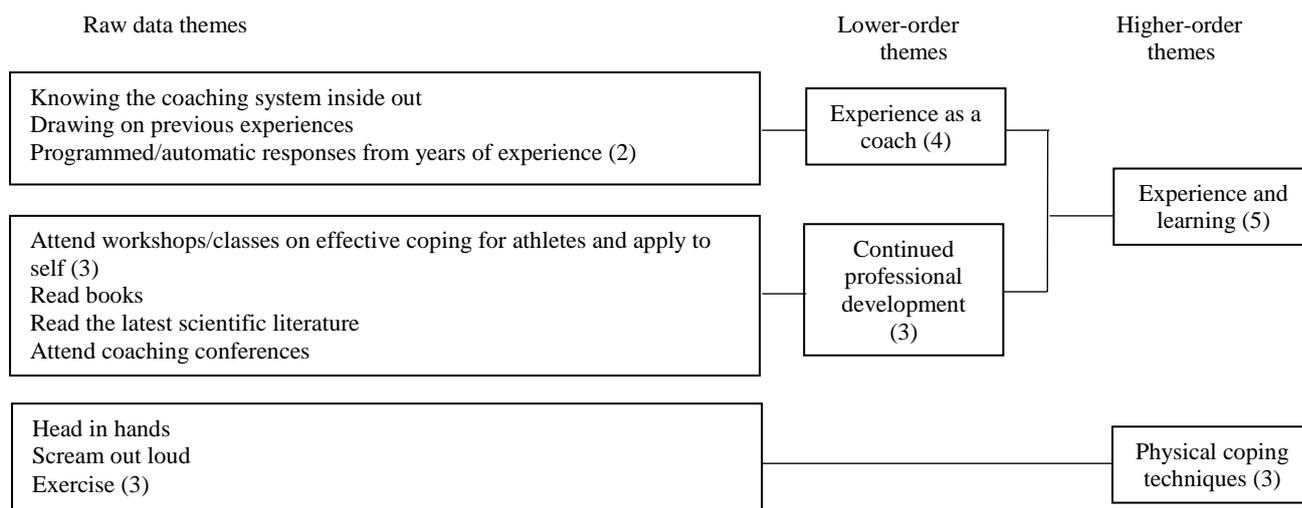


Figure 3.5. Coping strategies employed by elite athletics coaches (continued).

2. *Distraction.*

Eight raw data themes constituted this higher-order theme in which four coaches described how engaging in activities helped them to cope with the demands of coaching. These responses were organised into two lower-order themes: task-related activity (e.g., taking photographs of the competition, using the camera to see the situation differently) and off-task activity (e.g., reading a book/newspaper, playing games, listening to loud music). Four coaches mentioned that off-task activities, such as having a drink or a smoke, praying, or going to the toilet helped them to cope at times of stress. As one participant described:

...I will listen to really loud music, read a book, or go for a beer when we are in a stressful environment, these things distract me and enable me to occupy my mind. If I don't have a distraction it is so intense, you will be amazed how powerful these things are at relieving stress.

3. *Support.*

Four coaches described seeking support from different sources as a means of coping with stress. Specifically, two lower-order themes characterised the sources of this support: work-related support (e.g., talking issues through with a member of the multi-disciplinary team, talking to other coaches at the same event, & reaching out to your personal coaching network), and social support (e.g., talking with friends & family, spending time with friends & family). When discussing work-related support, participants explained how they relied upon support from their personal coaching network to help them cope with stress. As one coach suggested:

I can sit and talk to most of the coaches about the performances of my athletes and sometimes they have an input into what's gone on...there is always someone in my network that I use as a sounding board and this helps to relieve the stress.

In the lower-order theme of social support, two coaches explained the importance of communication with their friends and family on the phone and that this helped them cope with stress. As one coach described:

My partner knows me very well and she knows when she can just prompt me a bit and just make a joke to ease the stress. We will chat over text when I am waiting for competition to start, just receiving the text and knowing she is there and supporting me helps me a great deal.

4. Experience and learning.

Seven raw data themes related to how coaches used their previous experiences, and sought to continue to learn, to help them cope with the demands of coaching. Specifically responses from five coaches were categorised into two lower-order themes: experience as a coach (e.g., automatic responses to situations after years of experience & drawing on lessons learned in previous experiences) and continued professional development (e.g., applying athlete related learnings to self & reading coping related literature). In the lower-order theme experience as a coach, four coaches informed the interviewer that they had never been taught any coach specific coping strategies, as one coach explained: “no, no, absolutely none, no-one has ever taught me coping strategies, I have had to find what works for myself...and even now I don’t know if I know what is best for me as a coach”. When discussing activity related to the lower-order theme of continued professional development, three coaches indicated that as well as having in-depth knowledge of the coaching system, they would take learnings from athlete focused stress workshops and apply them to themselves. As one coach highlighted:

...I attend the odd workshop or class but because it is a coach going on a course, it is always about the athletes and what the benefit is to the athletes, I try to use this information for myself and ask myself how I could use the techniques they are talking about...

5. Physical coping techniques.

Three coaches described how they would use physical coping strategies to help cope at times of stress, for example exercising, the physical action of putting their head in their hands, or screaming out loud. It is also worth noting that one of the elite coach participants reported that they were not aware that they used any specific coping strategies and that they managed to get by without recognising the use of anything:

...I don’t really use any specific strategies...I just cope and if I still have a post at the end of the competition I have done well...

When discussing the effectiveness of the identified coping strategies 9 raw data themes were identified and organised into three higher-order themes: 1) perceived coping strategy effectiveness, 2) most effective coping strategy, and 3) recommended coping strategies for new coaches (see Figure 3.6).

1. Perceived coping strategy effectiveness.

Four of the six coaches reported they understood their chosen coping strategies to be effective at reducing the effects of stress in every given situation. For example: “yeah absolutely, as soon as I get that book or newspaper out or start listening to music, because it is something I enjoy, something I want to hear, I am switched off, immediately the stress is reduced, in every given situation”.

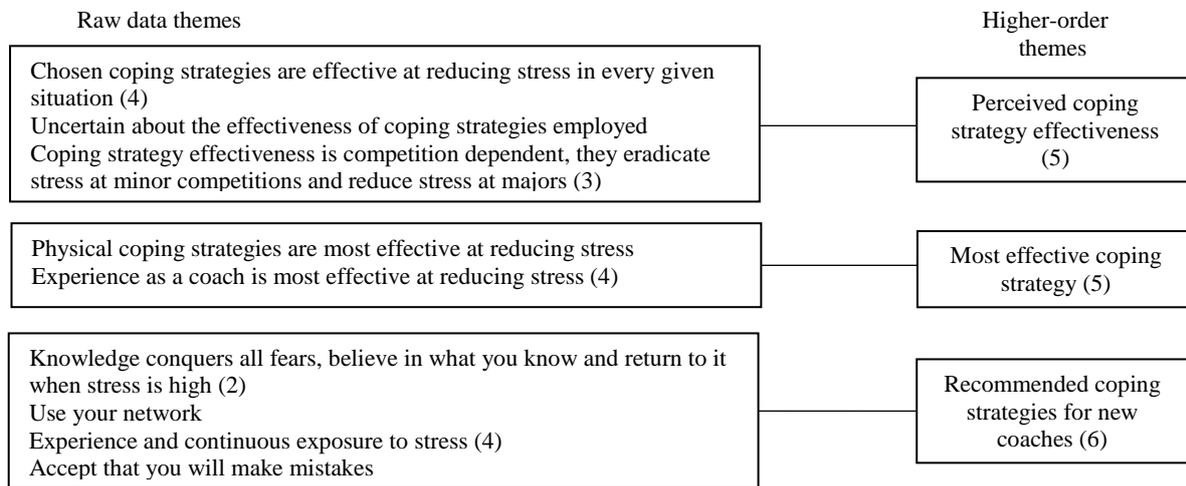


Figure 3.6. Perceived coping strategy effectiveness identified by elite athletics coaches.

Three coaches suggested the effectiveness of the employed coping strategy was competition dependent, with stress being eradicated at small competitions and reduced at majors, as evidenced by the following quote:

...I think my coping strategies bring my stress levels at a small comp maybe to 0 and I don't feel stressed at all or maybe 1 but that is nothing. At a major comp they might bring it to 4 or 5 and I can definitely cope with this. I would say yeah it is a huge change.

One participant was unsure of the true effectiveness of their chosen coping methods:

I don't know...are my coping strategies effective? I honestly don't know...they do help me to a certain extent, I am able to manage and control certain things, but I honestly don't know about their true effectiveness.

2. Most effective coping strategy.

When discussing the coping strategy perceived as the most effective, one coach suggested employing physical coping methods (e.g., exercise) and four coaches highlighted relying on their experience as a coach as their most effective coping strategy. Coaches described how their experience and prolonged exposure to stress had helped them to identify and rehearse how to respond to various stressors in different scenarios.

When you have been on the circuit for as long as I have, you become used to stress and get better at choosing how to cope effectively...you know a lot of coping strategies are only as good as you practice, you have to practice them and exposure to regular stress allows you to do that...

However, even with experience, one coach also mentioned that things could still get out of control before they had realised:

...being a veteran of a lot of battles...hopefully you see the red flag showing up before you get into that zone and use your coping methods to help you out. That said sometimes you are asleep at the wheel and you are butt deep in alligators before you realise you have been walking through a swamp.

3. Recommended coping strategies for new coaches.

When asked about which coping strategies they would recommend as the most effective to a new coach, four participants explained that experience and continued exposure to stress was key. Participants also reported the importance of knowledge and networking (e.g., believe in what you know & return to it when stress is high; use your coaching network to help you to manage your stress).

3.8 Discussion

The purpose of this study was to investigate sources of stress and coping strategies in elite athletics coaching, from the coaches' perspective. A semi-structured interview guide was employed to obtain data from coaches and thematic analysis procedures were used to identify implicit and explicit ideas within the data. In support of the conclusions of previous research into the stress experienced by sports coaches (e.g., Frey, 2007; Kroll & Gundersheim, 1982; Wang & Ramsey, 1998), all six participants reported they found their elite coaching roles to be stressful. Thus, reinforcing the notion that coaching, especially in the arena of world-class sport, is an inherently stressful occupation (Gould et al., 2002).

The stressors identified by the elite coach participants were consistent with the findings of previous literature that indicate sports coaches experience a diverse range of stressors (e.g., Olusoga et al., 2009; Thelwell et al., 2008; Thelwell et al., 2010); this was demonstrated through the higher-order themes that emerged (pressure & expectation, coaching responsibilities, conflict, & competition stress). Few studies have identified the stressors experienced by elite sports coaches, however the present study provided the first to investigate this topic area solely in the field of athletics, an individual sport performing under pressure at the time of investigation in preparation for the London 2012 Olympic and Paralympic Games. The Olympic and Paralympic Games are global media spectacles that attract huge audiences and massive financial investment (Maguire, 1993), with such events so often regarded as being the pinnacle in an athlete's career, particularly in track and field, it is therefore perhaps not surprising that the elite athletics coaches reported experiencing a vast array of stressors.

Although the findings offer coaches, sports psychologists, and the sport's governing bodies an awareness of the diverse stressors experienced by elite athletics coaches, more specifically, the results offer support to the assertion of Fletcher et al. (2006), that stressors from organisational and competitive contexts are salient features for coaches. First, in the present study, the theme that could be considered organisational in nature was 'conflict', in the form of management duties and organisational interferences. Indeed, having to strengthen the egos of other staff, changes to federation funding, and frequent management structure changes emerged as organisational context stressors for coaches. Certain raw data responses encompassed within the theme 'external performance outcome pressure' also pertained to an organisational context. For example, pressure from the governing body to achieve results, funding being outcome dependent, and working under the threat of losing their jobs. This finding provides further validation for previous research promoting the consideration of organisational influences on stress in sports settings (Hanton et al., 2005; Olusoga et al., 2009; Thelwell et al., 2008; Woodman & Hardy, 2001), as well as to recommend sport psychologists have the skills to enable them to effectively deal with the range of coaches' demands spanning beyond the athletic arena (Fletcher & Hanton, 2003; Woodman & Hardy, 2001).

Second, the stressors deemed in relation to competitive contexts included the themes of: 'self-induced pressure' and 'competition stress'. Frey (2007) reported inappropriate expectations of self as a stressor experienced by collegiate level coaches. The findings of the present study support the presence of such stress in an elite coach population, for example, working as a perfectionist to ensure nothing goes wrong, feeling responsible for a poor performance, and fear of letting the athlete down were reported as stressors in the present study.

Furthermore, the following sources of stress were revealed as competition specific stressors; 'time specific', 'un-expected events', and 'lifestyle implications'. These findings support previous competitive stressors reported by athletes, for example pressure to achieve results at the right time (Scanlan et al., 1991), un-expected disruptions (Gould, Jackson, et al., 1993) and implications surrounding the unique elite competition routine (Hanton et al., 2005). It is un-surprising that participants experienced stress surrounding un-expected events associated with competition, such as injury or illness. According to Dugdale, Eklund, and Gordon (2008), un-expected events are appraised as more threatening than those that are expected. It might be reasonable to anticipate such stress as a high-performance coach, having worked long hours over a prolonged time, in an attempt to achieve an expected outcome and then for something un-expected to happen. It could also be argued that stressors such as un-expected events and making difficult on the spot decisions during competition are magnified by the stressor of working for long periods (i.e., 4yrs) for one competition, which in some disciplines amounts to a matter of seconds to complete. Furthermore, five of the six participants had competed as elite athletes in their respective athletics disciplines, prior to becoming a coach. Therefore, most had previous experience of competition related stress. Future research could look to investigate how personal experience as an athlete might impact the stress and coping experiences as a coach.

Lastly, although athlete focused stress related literature suggests the coach is a stressor for athletes (e.g., Gould, Jackson et al., 1993), the findings of the present study are consistent with Frey's (2007) assertion that the coach-athlete relationship is, in fact, mutually stressful. Specifically, two themes emerged demonstrating athlete related stressors; those surrounding coaching responsibilities and conflict in the form of athlete disturbance. Indeed, coaches reported managing the athletes' mind-set (e.g., helping them to 'turn-up' at competition), dealing with verbal abuse, and athletes doubting the coach's ability as examples of significant demands. Furthermore, coaches identified having to work with elite athletes with large egos and pride as a stressor. When considered alongside previous literature, it is apparent that coaches and athletes both find the partnership stressful (Olusoga et al., 2009, Scanlan et al., 1991).

It must also be recognised that the stressors described by participants may often occur in combination, rather than as a distinct demand placed on the coach (Olusoga et al., 2009). For example, feeling responsible for a poor performance, managing an athlete's mind-set, and trying to achieve an expected performance outcome, might all be experienced simultaneously on the back-drop of working collaboratively with a multi-disciplinary team of differing cultural and educational backgrounds. These findings are particularly significant given that athletes have reported a coaches' inability to handle pressure situations and avoid distractions are factors that influence their performance (Gould et al., 1999).

Furthermore, the reports further substantiate the argument that given the technical, physical, organisational, and psychological challenges involved, coaches should be considered and supported as performers in their own right (Thelwell et al., 2008). Therefore, sports organisations should consider taking steps to ensure that continued support is available to their coaches, such as access to sports psychologists, particularly given the relationship between stress and burnout (Smith, 1986). Findings from occupational stress literature suggest that burnout is a result of exposure to chronic stress, excessive job demands, or an imbalance between job demands and expectations (e.g., Schaufeli & Buunk, 2004). According to Pines (1993), burnout is more likely in highly motivated individuals with high goals and expectations, as such coaches operating in world class sporting environments could be particularly vulnerable. From an applied perspective, sport psychologists should be aware of the various challenges world class sports coaches can encounter and the potential effects of stress to assist coaches in coping effectively.

The physiological, behavioural, and psychological responses to stress described by coaches in this study were comparable to those reported by collegiate level coaches (e.g., increased heart rate, becoming agitated, & feeling frustrated; Frey, 2007). Furthermore, similar to reports from collegiate coaches (Frey, 2007), all six participating elite coaches described the perceived effects their stress had on their athletes. For example, athletes experiencing anger and frustration and underperforming at times of coach stress. This finding offers support to McCann (1997) who suggested athletes could easily recognise a coach experiencing strain, and that this could have a detrimental influence on their performance. Moreover, the elite coaches in the present study were acutely aware of the potential influences their responses to stress could have on their athletes. Especially in athletics, an individual based sport where coaches tend to work on a one-to-one basis with athletes; in this respect, responses to stress may even be heightened because there is 'nowhere to hide' for either athlete or coach. However, the findings go beyond other studies exploring the consequences of stress in coaching; specifically, the coaches in the present study also highlighted ways in which stress effected their personal contacts and impacted their own thoughts, emotions, and behaviours. Five coaches interviewed described stress having debilitating effects on their personal contacts, for example putting strain on their marriage, causing parenting difficulties, and struggles to keep on top of things to help at home. Dark moods and questioning whether to continue coaching were described as debilitating cognitions by several coaches, and increased emotional outbursts, feeling helpless, and concealing true feelings from others were identified as emotional responses to stress. Thus, although sports coaching has the potential to be rewarding, the findings of the present study mirror reports that coaching can also be a consuming, demanding, and frustrating experience (Raedeke, 2004).

Indeed, the consequences of stress described were comparable to symptoms of burnout described in previous literature (e.g., Maslach et al., 1997), whereby coaches may be physically and mentally exhausted from the demands of coaching and begin to doubt their ability to succeed, psychologically distancing themselves from others. Burnout is said to appear slowly, develop in chronic situations (i.e., throughout the long & relentless competitive season) and manifest with physical and behavioural symptoms (Freudenberger, 1974). Although no statistical measures of burnout were completed in the present study, the findings suggest that burnout resulting from stress might have featured in this coaching sample.

While all emerging themes from study one were deemed important, the perceived debilitating behavioural and communication responses towards athletes at times stress, was the most cited theme reported by all elite coach participants, and therefore represented a strong indicator of the potential impacts of stress on coach-athlete interaction. Despite the importance of a positive coach-athlete relationship for athlete performance (Jowett & Cockerill, 2003), all six elite coaches in the present study perceived stress to alter their behaviour towards their athletes. Several coaches reported purposefully keeping distance from their athletes and reducing interaction with athletes at times of stress. Participants also explained when they experienced stress they changed their communication style, for example adopting more defensive body language and posture while using firm/terse tones in direct communications. However, according to LaVoi (2007) effective verbal and non-verbal communication is considered the most important aspect of coaching. A coach requires good communication skills to deliver technical and tactical instructions and provide psychological support to their athletes (Culver & Trudel, 2000). Furthermore, previous literature suggests communication is an important unifying relational component of the coach-athlete relationship (Jowett & Cockerill, 2003); it promotes the development of shared knowledge and understanding about various issues and forms the basis of initiating and maintaining the coach-athlete relationship (Jowett, 2005). Therefore, it could be argued that the reported changes in communication style at times of stress, may not only affect the athlete's performance but also impact the coach-athlete relationship.

The definition of the coach-athlete relationship provided by Jowett and Poczwardowski (2007) further suggests that the consequences of stress reported in the present study could have an impact on the effectiveness of this fundamental relationship, 'a situation in which a coach's and athlete's cognitions, feelings, and behaviours are mutually and causally interrelated'. Thus, if either member of this causal relationship experiences physiological, behavioural, and/or psychological consequences of stress, it might be reasonable to assume the other member is going to be somehow impacted.

Furthermore, as elite coaches typically work with numerous world-class athletes throughout their coaching careers, it is important they remember each athlete is individual, and may not respond in the same way as others in a similar instance. For example, one athlete may respond differently to a coach adopting more defensive body language and terse communication styles, to another. Coaches must not assume they have 'seen it all before', leading them to make incorrect assumptions on the thoughts and feelings of the athletes they coach in the present moment (Lorimer & Jowett, 2010). This is further supported by Ickes (1993), who suggested that although an individual may have a degree of insight into a person or situation (gained through knowledge or experience), this insight might not generalise to other people or situations.

The ability of the coach and each individual athlete to accurately understand each other moment-to-moment is therefore essential, because it allows them to react and interact effectively (Cassidy et al., 2009). Lorimer and Jowett (2009a) suggest that understanding in the coach-athlete relationship is linked to the psychological notion of empathy. The findings of Lorimer and Jowett (2009b) suggest that coaches who manifest high levels of empathic accuracy are more effective and successful in their interactions with their athletes. It has been suggested that coaches of individual sports (e.g., athletics) exhibit higher levels of empathic accuracy and that coaches who have been participating in their sport on a regular basis for a longer time, are more likely to have a closer understanding of their sport and its requirements and demands (Lorimer & Jowett, 2009b). However, no previous research has explored empathic accuracy achieved by coaches and athletes while experiencing stressors associated with elite sport. The potential impacts of stress on the dynamics of interactions between coaches and athletes therefore warrants further investigation.

The concept of increased levels of stress have traditionally been viewed as detrimental to performance in the sports literature (Fletcher & Hanton, 2003). However, despite the focus on debilitating consequences, coaches in the present study also reported a number of perceived facilitative effects of stress. For example, increased responsiveness and productivity, increased focus, and excitement. Furthermore, two coaches reported they believed stress to be a necessary component for them to perform at an optimum level. These findings compliment those of Frey (2007), who also reported several positive responses and effects of stress, including heightened awareness, energising effects, and increased motivation in collegiate coaches. However, to the best of our knowledge the present study is the first to acknowledge the directionality of stress as perceived by world class athletics coaches. In addition, all six coaches in the present study reported perceived facilitative effects of stress for their athletes, including performance enhancement, increased mental toughness, and building resilience.

The findings of Hanton and Jones (1999) suggested elite athletes learn how to make use of pre-race nerves to aid performance and mental preparation; these athletes develop facilitative interpretations by taking advice from more experienced individuals and via the natural learning experiences, such as racing at different competitive standards, at home and abroad, and against different opponents. It could therefore be argued that the years of competitive experience, as both athletes and coaches, supported the coach participants in the present study in their reported appreciation of stress and its facilitative effects. Moreover, Fletcher and Hanton (2003) proposed that any emotion could be interpreted as either facilitative or debilitating. Termed 'emotional orientation', this perspective postulates that performers interpret the emotions they experience as either beneficial or detrimental, dependent on whether they believe they have the resources to cope with their emotions. From a practical perspective, sports psychologists should not only attempt to distinguish what cognitions are causing emotions, but also discern whether the individual is focusing on these thoughts or is able to restructure them to augment motivation and improve concentration or/and effort. If an individual were to interpret stress positively, perhaps no coping mechanism or intervention would be required. Alternatively, if an individual is not positively interpreting stress and behaviour is negatively affected, then interventions to assist cognitive restructuring are advised (Hanton & Jones, 1999).

Although coaches discussed a variety of perceived debilitating and facilitative consequences of stress, they also reported experiencing differences in the intensity and frequency of stress in training compared to competition. First, participants reported experiencing less intense and less frequent stress in training, as the environment was perceived as 'safe' and was described to be purposefully set up to aid athletes' development and boost motivation. According to the definition of coaching excellence stated by Côté et al. (2007), a sports coach should understand and be responsive to their athlete's needs in different environments. It could therefore be argued that the lower stress, 'safe' training environment, is the coaches' way of encouraging the development of their athletes. However, it might be reasonable to suggest training under some stress could better prepare both coach and athlete for major competition, so they can adapt to an increase in stress and become familiar with performing under its influences. Introducing a level of stress in training may reduce the high levels of stress reported by participants during competition, as the differences in stress experienced between the two environments would be reduced.

Coaches also described an increase in the intensity and frequency of stress in training close to competition, especially if an athlete was consistently under-performing at these times.

This suggests the potential for acute stress to occur in training close to competition, where elite coaches experience a sudden and short term exposure to demanding situations (Kaissidis-Rodafinos et al., 1997). Acute stress can be thrilling and exciting in small doses, but too much can be exhausting (Miller, Smith, & Rothstein, 1994). Moreover, incidents of acute stress can result in chronic stress, depending on the individual's coping skills (Miller et al., 1994). Therefore, a coach who finds themselves experiencing acute stress in training close to competition, could be at an increased risk of chronic stress if they then head into a full competition programme over a number of weeks. This is something sports psychologists should be aware of when approaching a coach experiencing stress; a full description of the events leading to the present moment should be encouraged, to decipher whether the coach is experiencing acute or chronic stress. The temporal patterns of coach stress warrants further investigation.

The reported increase in intensity and frequency of stress before, during, and after competition further supports the importance of examining stress as a process that unfolds over time (Lazarus, 1993; Lazarus, 1991). The increase in intensity and frequency of competition stress reported by coaches appear to be similar to that reported by athletes in earlier studies. For example, coaches in this study reported experiencing increased stress before competition whilst waiting around prior to competition; similarly James and Collins (1997) found competitive athletes to have concerns about pre-event preparation. Second, all six coaches reported an increase in stress during competition, for example pressure to achieve results out of their control, un-predictable events during competition, and being under continuous pressure for several hours. A growing body of research has examined athletes' appraisals of stress during competition. For example, Dugdale et al. (2008) demonstrated unexpected stressors (e.g., bad weather & injury) were appraised as more threatening than those that were expected during performance. The highly visible and public nature of performance outcomes, together with the associated intrinsic and extrinsic consequences of success or failure (Patmore, 1986), may also offer an explanation to intense stress reported during competition by all participants. However, further insight into the frequency and intensity of stress experienced by elite sports coaches in different environments is required for professionals to better understand and support the overall stress experience of coaches.

Since the early 1990s, studies exploring coping in sport have focused on coping strategies employed by athletes. Researchers have identified coping as being a crucial factor in performance and satisfaction (Nicholls & Polman, 2007). There has however, been limited research exploring how elite coaches cope with working under the demands involved in world-class sport. In view that the athletics coaches in the present study experienced a vast array of stressors, up to now little has been known about how these coaches cope with such demands.

The interaction between the stressors and the resultant coping behaviours reported in this study provide a greater insight into how elite coaches transact in the environments within which they operate. Similarly to Olusoga et al. (2010) the present study did not set out to fit coach data into an existing coping framework (e.g., Anshel, Williams, & Hodge, 1997; Lazarus & Folkman, 1984). However, the majority of participants described using a variety of coping strategies in attempt at coping with the reported stressors, thus supporting a process approach to coping (Nicholls & Polman, 2007). Furthermore, the strategies detailed complimented the five primary coping dimensions defined by Weston et al. (2009): 1) problem-focused, 2) emotion-focused, 3) avoidance, 4) approach, and 5) appraisal coping.

First, problem-focused coping involves efforts to alter or manage the problem that is causing stress; the main problem-focused strategies described by participants included experience as a coach (i.e., drawing on previous experiences & knowledge of the coaching system) and continued professional development (i.e., attending workshops & presentations to further knowledge). Coaches described how experience and continued learning offered them a means of coping with stress. These findings provide support to the results of Olusoga et al. (2010) who also found that coach participants would draw upon their own experiences as a coach and attempt to better their knowledge through attending workshops to cope more efficiently with the demands placed upon them. Second, emotion-focused coping refers to the seeking of emotional support and actions carried out to manage the individual's emotions. Examples of emotion-focused strategies described by participants included the support offered by work colleagues and social support from friends, and/or spouses. Third, avoidance strategies such as off-task activities were also widely reported. Avoidance coping relates to actions adopted to disengage the individual from the situation; specifically, coaches detailed the use of distraction techniques (e.g., listening to loud music) as a means of reducing stress. Lastly, despite the participant's inclination to avoid stressors, five of the six coaches also reported use of some psychological skills in their efforts to manage their stress (e.g., relaxation techniques, pro-active behaviours, & rationalisation). These skills can be categorised as both approach coping, whereby participants increase their effort in confronting the stressor and initiate direct action to reduce its effects (e.g., visualisation) and as appraisal coping, when coaches re-evaluate the situation and de-sensitise its importance (e.g., controlling self-talk). This finding also supports that of Olusoga et al. (2010) who too found elite coaches to implement some psychological skills in an attempt at coping with stress. However, in contradiction of Olusoga et al. (2010) the participants in the present study reported some use of relaxation techniques, suggesting that the competition environment does in fact afford coaches time to utilise such portable skills (e.g., mindfulness).

Although a number of psychological skills were described as coping strategies used by the athletics coaches, the majority of participants also reported to have never been taught any coach specific coping strategies. It could therefore be suggested that although skills such as relaxation and self-talk were mentioned, participants may have adopted these practices through attendance at athlete focused workshops or indeed from their own experiences as elite athletes. With this in mind, a more detailed exploration of the adoption and use of psychological skills as effective coping strategies by elite coaches warrants further investigation.

An important coping approach adopted by the athletics coaches centred on their ability to rationalise and stay in perspective in difficult situations. Examination of Lazarus and Folkman's (1984) transactional model of stress and coping suggests that greater awareness of available coping options and resources may help individuals to deal effectively with the stressful experience and thus result in more favourable emotional and behavioural responses. Hence, training coaches' to functionally appraise and rationalise situations could be a useful exercise, in addition to working on their awareness of what possible coping responses will help them to effectively deal with various potential eventualities. Collectively, these findings support Lazarus and Folkman's (1984) view that coping is a shifting process in which a person, at certain times, may rely more heavily on specific coping strategies. Within a single situation or stressor, it is likely that a range of different strategies will be used (Lazarus & Folkman, 1984). In support of this, an array of problem and emotion-focused, avoidance, approach, and appraisal coping strategies are evidently employed by elite athletics coaches to cope with the variety of stressors they experience. However, although the findings of the present study offer a number of consistencies with previous research the findings did not identify which coping strategy dealt with particular stressors. According to Levy et al. (2009) connections between the specific stressors and coping responses are required for a successful intervention. Further research should consider exploring the use of specific coping methods in response to the stressors identified by coaches.

Taken together, these findings have implications for coach education and development, highlighting areas such as coach specific coping methods, in which elite and developing coaches both might benefit from more support to understand how they can successfully cope with the demands they face. Especially because one coach participant described how he was unaware of implementing any specific coping strategies at times of stress, he 'just coped'. It could be suggested the support of a sport psychologist, offering details of specific coping strategies or extending the coaches understanding of stress, may enhance the sports coaches' response to high stress. Moreover, because coaches reported experience as a means of coping with stress, the input from other experienced coaches may offer valuable ideas to further enhance this coping strategy.

Coping includes all consciously and deliberately executed attempts to manage appraised demands (Lazarus, 1999). It is therefore possible that some forms of coping will be more effective than others (Folkman & Moskowitz, 2004). Defined as the degree in which a coping strategy is successful at alleviating the negative emotions caused by stress (Nicholls & Polman, 2007), it is evident from the results of the present study that the majority of coaches believe their chosen coping strategies to be effective at reducing stress. In addition, three coaches also reported coping effectiveness to be dependent upon the competition, with coping strategies eradicating stress at minor events and reducing stress at majors. Although the scope of this study did not allow for an in-depth investigation into the effectiveness of specific coping strategies in response to particular stressors, the findings do offer some valuable information to the extension of previous coping effectiveness literature.

First, experience as a coach was reported by the majority of coaches as the most effective coping strategy. The prolonged exposure to stress as both elite athletes and subsequently as coaches, afforded participants with time to learn, perhaps with a degree of trial and error, how to respond to stress. According to Nicholls and Polman (2007), individuals who practice coping strategies are more likely to deploy such responses more readily and effectively. In addition, it could be suggested that years of experience have enabled participants to automatically employ coping strategies at times of stress. Gould, Eklund, et al. (1993) proposed that automatic coping strategies are more effective than less automatic coping responses in alleviating stress. However, just because a coping strategy is employed more frequently does not necessarily mean it is more effective. The uncertainty of the true effectiveness of the chosen coping strategies outlined by one participant and the reports that even after years of experience stress could still get out of control, suggests that more research is required to fully understand what actually constitutes coping effectiveness for elite coaches. Moreover, although perceived to be effective, one could argue that the avoidance strategies reported by participants in the present study (e.g., listening to loud music, reading a book, & going to the toilet), potentially disconnect the coach with their athletes at times of stress, especially during competition. Future research could therefore consider the impacts of adopting these avoidance coping strategies in different situations (e.g., minor vs. major competitions) on the coach-athlete relationship.

The most effective coping strategies outlined by participants in the present study included experience as a coach and physical techniques (e.g., exercise). This finding is reasonably alarming and further supports the notion that more is to be done within coach education and development programmes to highlight various coping options available to coaches.

Although a degree of ‘learning on the job’ in terms of coping is to be expected, it could be argued that individuals new to the unique environment of elite coaching could be better equipped in terms of coping efforts. Especially, when asked which coping strategies they would recommend as the most effective to new coaches, four participants explained that experience and continuous exposure to stress was key. Having reported to never have been taught any coach specific coping strategies, it could be that the elite coaches were simply not aware of the true benefits of coping techniques such as mental skills training and the effectiveness of implementing coping strategies to be used in-the-moment in either training or competition (e.g., countering & thought stopping). Therefore, future research should attempt to further explore the complex process of coping, from the coach’s perspective. Investigating the usefulness of coping as content in coach education and where younger, developing coaches might benefit from the guidance of successful, experienced coaches.

3.9 Strengths and Limitations

The present study extends previous research by revealing the sources of stress and coping efforts of elite athletics coaches. By focusing on UK based world-class coaches of international level athletes, the present study expands existing literature, which has predominantly focused on collegiate and high school level coaches in the United States. However, limited existing coach related literature was available to direct the research methods, specifically the interview guide. Thus, the questions evolved predominantly from previous athlete stress and coping literature. To ensure the data collected was not purely based on active recall, the interviews took place during the lead up to major competition such as the World Championships, UK trials, and the London 2012 Olympic and Paralympic Games. Finally, it was felt that the small sample size was offset by the participants’ vast experience in a world class coaching environment.

A potential limiting factor was that although a wide range of athletic disciplines were represented, all six coach participants were male. This prevented the consideration of any gender differences in the experiences of stress and coping. Therefore, future research might consider the recruitment of male and female participants. Furthermore, although the present study provided an insight into the ways in which coaches generally responded to and attempted to cope with stressors, specific responses and coping strategies were not linked with specific stressors that coaches experienced. However, as coaches have described experiencing multiple stressors occurring in combination, it is important to note that it may not be a straightforward task to link specific responses and coping strategies to particular stressors coaches encounter.

Finally, although coping strategy effectiveness was included in the analysis of this study, future research should look to carry out a more in-depth investigation focusing solely on the effectiveness of coping strategies employed by high level sports coaches. The results of this study suggest that although participants consider a number of their coping strategies to be effective, further research is required into what actually constitutes coping effectiveness.

3.10 Conclusions

The purpose of the present study was to gain an insight into the stress and coping experiences of elite athletics coaches, from the coaches' perspective. Moreover, by examining the perceived consequences of stress on both the coach and athlete, as well as investigating the directionality and the intensity and frequency of stress, and the effectiveness of coping strategies, this study explored coaches' stress experiences beyond the identification and classification of stressors and coping strategies in their coaching roles.

Findings indicated that elite athletics coaches experience a vast array of stressors, with both organisational and competitive origins. These findings are significant given coaches' performance directly influence that of athletes (Gould et al., 1999). Sport organisations should therefore work towards understanding the demands faced by world class coaches and look to provide appropriate levels of support where required, especially given the relationship between stress and burnout (Smith, 1986). Perhaps the stressors highlighted in the present study could be disseminated to coaches through workshops to increase awareness of potential stressors. Previous researchers have advocated that self-awareness of stressors is vital in effective coping (Folkman, 1992; Hardy et al., 1996).

Although a number of perceived debilitating effects of stress were identified, results also suggest that elite coaches experienced some facilitative effects of stress, for example increased responsiveness and productivity. In addition, the results revealed that levels of stress vary in training compared to competition, with most stress experienced during competition. These findings further substantiate the complex nature of stress from a transactional perspective and further research is needed to explore coaches' responses to stress to better inform interventions for elite coaches. However, the findings are informative to sports psychologists who can assist coaches in responding more effectively to stress, where re-appraisal may be necessary.

In line with the wide range of coping strategies reported by participants, sports psychologists and governing bodies should look to educate coaches on a number of mental skills they could implement in-the-moment at competition (e.g., thought stopping).

Although a number of psychological skills were reported as coping strategies implemented by participants, these were not described as being the most effective. Coaches detailed their experience and learning to be the most effective coping strategy, however this suggests there may have been a period in the early stages of these coaches careers when their coping was potentially in-effective and therefore their own and their athlete's performances were impacted. Sports organisations and governing bodies should therefore look to include information on effective coping into their coach qualifications. In addition, further research is required surrounding the effectiveness of coping strategies employed by elite coaches. Although the present study extended previous research by providing a first-hand view on coping effectiveness from participants, what constitutes coping effectiveness remains vague. Participants detailed relying on their previous experience and learning to enhance coping effectiveness, further research is required on the coping effectiveness of coaches new to the world class sports setting.

While all emerging themes from study one were deemed important, the perceived debilitating behavioural and communication responses towards athletes at times stress, was the most cited theme reported by all elite coach participants. This finding represented a strong indicator of the potential impacts of stress on coach-athlete interaction (e.g., reduced interaction, concealing true feelings & emotions, increased emotional outbursts, increased physical distance where possible, & defensive posturing). Jowett and Poczwardowski (2007) suggested the manner in which coaches and athletes interact can shape the quality of their dyadic athletic relationship and also determine the quality of coaching. Thus suggesting effective interaction between both coach and athlete is required to translate into positive outcomes such as performance success. According to Ickes (2001), when two people interact they consciously and unconsciously observe and make inferences about each other's personality, views, behaviours, intentions, emotions, and thoughts. Empathy is thought to be the process of making such judgements about others (Lorimer & Jowett, 2009a) and it is these judgements that lead individuals such as coaches and athletes gaining an accurate understanding of each other, resulting in effective interaction. Yet no previous research has explored how accurately elite coaches and athletes perceive the psychological condition of each other while experiencing the vast number of stressors associated with elite sport.

3.11 Contributions to Existing Research

To summarise, the present study supports theoretical contributions to existing knowledge in the following ways:

1. Sources of stress specific to UK based elite coaches operating in an individual based sport (i.e., athletics) were identified.

2. This study investigated the stress and coping experiences of coaches in isolation from athletes, it captured the coaches' perspective. This is an extension to previous stress and coping literature which has typically focused on athletes and officials.
3. Adopting a transactional definition of stress (Lazarus & Folkman, 1984), this study enabled stressors to be appraised as both debilitating and facilitative. Whereas previous research has predominantly adopted a definition of stress resulting in negative consequences. This study contributes novel findings to the directionality and intensity and frequency of stress experienced by coaches.
4. It was possible to categorise coping strategies identified by elite coaches into the five primary coping dimensions defined by Weston et al. (2009); e.g., problem and emotion-focused, avoidance, approach, and appraisal coping. Thus reinforcing the usefulness of this classification in understanding the nature of coping.
5. Lastly, the debilitating behavioural and communication responses towards athletes reported by elite coaches at times of stress, provided a sound empirical basis on which to build future research in study two of this project of research. Specifically, to further investigate coach-athlete interactions at times of stress and explore how accurately coaches and athletes perceive the psychological condition of each other, moment-to-moment, over time, while experiencing stressors associated with different environments (i.e., training & competition). To address the research question: **how accurately do elite coaches and their individual athletes perceive the psychological condition of each other while experiencing stressors associated with training and competition?**

Chapter 4

Study Two: Stress and Empathic Accuracy in Coaches and Athletes Participating in Elite Level Individual Based Sports

4.1 Abstract

Study one of this project revealed elite athletics coaches perceived a number of debilitating behavioural and communication changes towards their athletes at times of stress. Previous research has also revealed coaches and athletes to report difficulties in maintaining positive and effective interactions within their coach-athlete partnerships during periods of stress (e.g., Holt & Hogg, 2002; Olusoga et al., 2009). Accurate interpersonal perception is a key skill in maintaining positive interactions (Ickes, 2001), therefore this study explored stress and empathic accuracy in coaches and athletes participating in elite level individual based sports. That is, how accurately coaches and athletes perceived the psychological condition of each other, moment-to-moment, over time, while experiencing stressors associated with different environments (i.e., training & competition). With institutional ethics approval 4 coaches ($M_{\text{age}} = 36.6, SD = 4.8$) and 20 athletes ($M_{\text{age}} = 18.5, SD = 1.7$), forming 20 coach-athlete dyads, volunteered to participate from a range of elite level individual based sports (e.g., gymnastics, cycling, athletics, & swimming). An adaptation of the unstructured dyadic interaction paradigm (Lorimer & Jowett, 2009a) was used to explore empathic accuracy, whereby each dyad was filmed during two training sessions and one competition event. Dyad members separately viewed selected video footage of interactions that had occurred during each recorded session; recalling what they remembered thinking/feeling during each interaction, while making inferences about what their partner's thought/felt at each point. Comparisons of participant's self-reports and inferences for each interaction were used to calculate a percentage score of empathic accuracy during each session. Participants completed a simple stressor frequency scale to establish levels of stress experienced in training compared to competition. All participants reported experiencing significantly increased stress during competition, compared to training ($Z = -5.19, p < .001$). Empathic accuracy achieved by elite coaches and athletes was also seen to increase during competition (coaches: $M = 42.49, SD = 18.27$; athletes: $M = 35.85, SD = 17.08$). Empathic accuracy achieved by elite coaches and athletes remained stable across both training sessions (coaches training one: $M = 31.4, SD = 11.87$; coaches training two: $M = 31.79, SD = 7.87$; athletes training one: $M = 25.48, SD = 11.06$; athletes training two: $M = 26.50, SD = 15.95$). The results suggest the distinct nature of the elite training and competition environments can affect levels of empathic accuracy achieved by coaches and athletes participating in individual based sports. This has implications for better understanding the dynamics of interactions between coaches and athletes.

4.2 Introduction

Sport and exercise psychology research exploring the interpersonal dynamics of the coach-athlete relationship has typically focused on leadership, with the multidimensional model (Chelladurai, 1993) and mediational model (Smoll & Smith, 1989) of coach leadership representing two popular frameworks. However, although both models offer a means of examining the behaviours, actions, and styles employed by coaches, they also highlight the importance of mutual understanding between coaches and their athletes. For example, the multidimensional model postulates that an athlete's satisfaction and performance are determined by the congruence of three states of coach behaviour: 1) actual, 2) required, and 3) preferred. Thus suggesting such congruence is dependent upon a coach's understanding and appreciation of the athlete's preferences. In addition, the mediational model states that an athlete's experience of sport, including their satisfaction and performance, is dependent on the type of behaviour the coach exhibits. Therefore how the athlete perceives the coach's behaviour plays a key role. The mediational model is also reciprocal, with athletes' experiences being monitored by the coach, which in turn influence the coach's behaviour.

The co-orientation dimension of the 3 C's model of the coach-athlete relationship proposed by Jowett (2007) further emphasises the significance of mutual understanding and accurate perception between coach and athlete. A term adopted by Laing et al. (1966) in describing relationship inter-perceptions, co-orientation reflects two distinct vantage points from which coaches and athletes view their relationships, namely, direct perspective (e.g., "I trust my coach/athlete") and meta-perspective (e.g., "my coach/athlete trusts me"). The ability to understand and accurately perceive each other's vantage points enables coaches and athletes to identify and resolve potential conflicts (Jowett, 2007). However, according to Kenny and Cook (1999), it is empathic understanding that determines the degree to which coaches and athletes can accurately infer each other's perceptions.

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 et al., 1990), empathic accuracy is thought to be central to relationship research because it can facilitate positive interactions between members, leading to satisfying relationships (Ickes, 2001). Thus, to continually interact and behave appropriately and effectively with each other, coaches and athletes must monitor and correctly interpret thoughts and feelings as they are expressed through words, expressions, and postures within their current context (Mayer, et al., 2000).

Research by Ickes et al. (e.g., Ickes, 2001; Ickes et al., 1990) offers a methodological paradigm that attempts to capture and measure empathic accuracy during actual interactions between individuals. Known as the unstructured dyadic interaction paradigm, it involves the un-obtrusive filming of spontaneous interactions between two individuals. Individuals then review the recorded footage, whilst reporting specific thoughts and feelings they remember experiencing during each interaction, and also what they believed their partner was thinking and feeling at the time (Lorimer & Jowett, 2009a). The similarity between self-reports and inferences is then used to determine empathic accuracy.

Extensive research in social psychology has employed the unstructured dyadic interaction paradigm to examine many types of relationships. For example, strangers (Thomas & Fletcher, 2003), siblings (Neyer et al., 1999), and romantic partners (Kilpatrick et al., 2002). However, despite its strengths, this methodology has been criticised for its prominence in laboratory based social interactions over short durations (Wilhelm & Perrez, 2004). Lorimer and Jowett (2009a, 2009b) subsequently adapted the paradigm to explore empathic accuracy within the coach-athlete relationship during actual interactions within the context of a sports training environment. Thus, providing insight into how accurately coaches and athletes understand each other during interactions potentially impacted by training equipment, clothing, and practices. Although these studies contributed to verifying the validity of the unstructured interaction paradigm to explore naturally occurring interactions in a sports setting, the majority of findings are based on coach-athlete communications during a single training session, a snapshot of interactions, over a short duration. An investigation exploring coaches' and athletes' empathic accuracy over time and in different environments would further validate this methodology and provide novel insights into the effectiveness of coach-athlete interactions.

Coach-athlete relationships transpire across a spectrum of different sports and previous research suggests the dynamics between coach and athlete vary between individual and team based sports (e.g., Bloom, Durand-Bush, Schinke, & Salmela, 1998; Jowett, Paull, & Pensgaard, 2005; Lorimer & Jowett, 2009a). In individual based sports (e.g., athletics, gymnastics, cycling, & swimming) the coach and the athlete operate on a one-to-one basis and even though the coach may train several athletes, the focus is on individual development and progression (Lorimer & Jowett, 2009a). In contrast, in team sports (e.g., football, hockey, & rugby) the focus is on 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). Previous research has argued that coaches and athletes in individual based sports have more frequent and better opportunities at developing close relationships, than those involved in team sports (Salminen & Liukkonen, 1996).

Furthermore, individuals in closer relationships have greater knowledge about each other (Thomas & Fletcher, 2003). According to Funder's (1995) Realistic Accuracy Model the more information/knowledge an individual has to base an empathic inference, the more accurate the inference will be. Supportive of these notions, the findings of Lorimer and Jowett (2009a) found coaches in individual based sports to exhibit higher empathic accuracy than coaches in team sports; this effect was mediated by the shared cognitive focus of coaches and athletes, with coaches and athletes in team sports displaying more frequent divergence in thoughts and feelings than coaches and athletes in individual sports (Lorimer & Jowett, 2009a). Furthermore Carron, Hausenblas, and Eye (2005) reported larger groups require the coach to take a more central role which inevitably affects the amount of possible one-to-one interaction. Therefore, it could be suggested individual based sports would provide a stronger foundation from which to examine coaches' and athletes' empathic accuracy in more detail.

According to Thomas and Fletcher (2003) an underlying factor of achieving empathic accuracy is the degree to which individuals are motivated to make accurate verbal and non-verbal inferences about their partners. 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 over extended periods of time" (Bissonnette, Rusbult, & Kilpatrick, 1997, p. 258). Bissonnette et al. (1997) explained that dyadic members' needs 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. Although existing sports literature suggests it is a challenge to develop an optimal coach-athlete relationship, where both members interact effectively alongside the stressors of training and competition (Lyle, 2002), it could be argued that as competition intensifies and there is 'more at stake', empathic accuracy within coach-athlete dyads increases due to an increase in motivation to understand each other. However, recent neuro-science findings revealed stress increases self-focused attention, which in turn could impair the emotion contagion aspect of empathy (Rimmele & Lobmaier, 2012). Thus suggesting under stress individuals pay less attention to the emotions of others, reducing empathic accuracy. Moreover, research has also reported people tend to be more egocentric when they are distracted by a concurrent task (Lin et al., 2010; Schneider et al., 2012), are under pressure to respond quickly (Epley et al., 2004), or occupy high-power roles (Galinsky et al., 2006; Overback & Droutman, 2013). For example, a head coach trying to respond to multiple requests during a major competition. Increased reliance on one's own egocentric perspective can undermine understanding others' mental states (Kraft-Todd et al., 2017) and lead to potential misunderstandings and conflicts (Ross & Ward, 1996). However, no previous research has explored empathic accuracy achieved by coaches and athletes alongside the stressors associated with training and competition.

According to Cerin, Szabo, Hunt, and Williams (2000), stress is embodied as a process that unfolds over time, and researchers should be aware that the impacts of stress are likely to be characterised by change due to ever fluctuating environments. For example, coaches and athletes involved in elite sport have both reported that simply performing within the unique competition environment is stressful (e.g., Olusoga et al., 2009; Woodman & Hardy, 2001), with intense pressure coming from the demand to perform to optimum levels together with the highly visible and public nature of performance outcomes (Jones, 1995). In contrast, elite athletes have described the training environment as composed, highly structured, and sheltered (Becker, 2009). Although the practice atmosphere was labelled intense and competitive, athletes also described experiencing a sense of security during training, as coaches made themselves accessible, approachable, and sometimes joked around and allowed for moments of fun (Becker, 2009). Further work is therefore required to explore coaches' and athletes' empathic accuracy, over time, in different environments (i.e., training & competition), to establish any differences in the dynamics of interactions between coaches and athletes at times of varied stress. Specifically within the unique environment of elite sport where coaches and athletes are working together while responding to a vast array of stressors (e.g., McKay et al., 2008; Olusoga et al., 2009; Thelwell et al., 2010; Weston et al., 2009).

4.2.1 Research aim and hypotheses.

The aim of this study was to explore stress and empathic accuracy in coaches and athletes participating in elite level individual based sports. That is, how accurately coaches and athletes perceive the psychological condition of each other, moment-to-moment, over time, while experiencing stressors associated with different environments (i.e., training & competition). Subsequently, the present study examined two hypotheses:

1. Coaches and athletes participating in elite level individual based sports will experience increased stress during competition compared to training.
2. Empathic accuracy of coaches and athletes will be positively associated with stress.

4.3 Methodological Approach

According to Maxcy (2003), the criterion for judging the appropriateness of a method is if it achieves its purpose. The aims of this study focused on the measurement and interpretation of a potential causal relationship between stress and empathic accuracy in a unique context (i.e., over time & in different environments using the same participants).

As such, this investigation was designed to test existing theories but in a unique context and so a quantitative approach was employed (Tashakkori & Teddlie, 2003).

If we are to understand how the experience of stress influences the accuracy of coach and athlete perceptions, 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 adapted by Lorimer and Jowett (2009a, 2009b), are powerful research tools. They represent actual social processes, capturing interactions as they occur naturally in an appropriate setting, and as such offer a unique insight into how individuals perceive one another during interactions in different environments. Thus making them increasingly ecologically reliable than pen-and-paper approaches in exploring dyadic relationships such as the coach-athlete relationship.

However, careful consideration of applying the dyadic interaction approach is required. The majority of interaction between coach and athlete occurs during training and competition, which take place in a variety of environments, for example, a gym, running track, swimming pool and velodrome. The context of any interaction may impact levels of empathic accuracy achieved; such as training equipment, clothing and certain skill practices may influence the type and amount of immediate behavioural information available. Furthermore, interactions between coach and athlete are likely to be disjointed as athletes go about completing training tasks. This may naturally define the points where inferences are being made. Thus maintaining spontaneous interaction that is not influenced by bias or social desirability issues caused by knowledge of being filmed may be problematic. Filming secretly, while carrying ethical issues, is impractical in most environments coaches and athletes interact. The most reasonable option would be to be transparent with participants, giving them extended time for filming and not inform them of the specific elements of their session the research is concerned with (i.e., coach-athlete interaction and their understanding of each other in that moment). While such approach does not guarantee natural and spontaneous behaviour, it does allow the researcher to minimise social desirability while allowing the coach and athlete to be observed in a naturalistic context. The value of exploring empathic accuracy in a natural context, as coaches and athletes experience stressors related to the moment, must be weighed against any potential issues and limitation, and a decision reached dependent on the explicit goals of the study. Therefore, the adapted unstructured interaction paradigm (Lorimer & Jowett, 2009a, 2009b) would seem of all the methods reviews in Chapter 2 to be the most valid, assessing empathic accuracy in a way that most closely resembles how empathic inferences are made in real situations (Ickes, 2007) and thus at times of differing levels of stress.

No existing tool was available at the time of investigation to measure the frequency of coach and athlete stressors in different environments. Since the dyadic interaction methodology carried a significant participation burden, a simple stressor frequency scale was designed to capture coaches and athletes experiences of stress in the present study. This simple scale was composed based on findings of previous literature exploring stressors experienced by coaches and athletes (e.g. Frey, 2007, Hanton et al, 2005; Noblet & Gifford, 2002; Olusoga et al, 2009; Thelwell et al, 2008) and was purposefully designed to be completed with ease. Lessening the burden of participation and increasing the chance of participation of elite participants, in order to capture the data necessary to support the aims of the study.

4.4 Method

4.4.1 Participants.

Four coaches ($M_{age} = 36.6$, $SD = 4.8$) and 20 athletes ($M_{age} = 18.5$, $SD = 1.7$), forming 20 coach-athlete dyads, volunteered to participate from four different sports at the elite level (gymnastics, cycling, athletics, & swimming). The sample was comprised of 3 male coaches, 1 female coach, 13 (65%) male athletes, and 7 (35%) female athletes. The distribution of the athletes was as follows; 3 male athletes from gymnastics, 5 athletes from cycling (4 male & 1 female), 6 athletes from athletics (4 male & 2 female), and 6 athletes from swimming (2 male & 4 female). Individual based sports, as opposed to a combination of team and individual sports, were purposefully selected to aid a more specific focus on the dynamics of interactions between coaches and athletes working on a predominantly one to one basis. The duration of the coach-athlete relationships ranged between 18 months and 16 years. As part of the selection criteria, participants were considered elite if they were working on a regular basis at the highest competitive level in their sport (e.g., national & international); the performance level of the participants was categorised as national (35%) and international (65%).

4.4.2 Procedure.

Following institutional ethical approval, coaches and athletes currently working in elite level individual based sports were approached via the athlete or coach using personal contacts, email, or telephone. Participants were invited to take part in a study exploring how accurately coaches and athletes perceive and understand each other, while experiencing stressors associated with different environments (i.e., training & competition). Information surrounding the aims and practical implications of the study were provided, along with assurances relating to the strict confidentiality and anonymity involved in the voluntary nature of the research (See Appendix D).

A major consideration when approaching participants was that they were at least 17 years old and affiliated with a professional sports club or governing body. To ensure their elite status, it was a requirement that potential participants were working on a regular basis at the highest competitive level in their sport (e.g., national/international squad). Both the coach and their partnered athletes were requested to contribute, and all participants were required to complete a consent form (see Appendix E) prior to any involvement within the study. The elite athletes were selected based on: 1) those willing to participate, and 2) those available to work with the coach for each phase of data collection.

4.4.3 Measures.

Measuring stress.

Participants were requested to complete a simple stressor frequency inventory (see Appendix F) to establish levels of stress experienced during training compared to competition.

Collection of video footage.

Empathic accuracy was assessed using the adapted unstructured dyadic interaction paradigm (Lorimer & Jowett, 2009a, 2009b) to reflect the context in which coach and athlete interactions naturally occurred. A mutually convenient date and time were agreed for the video recording of two general training sessions (Training One & Training Two) and a competition event (Competition); both training sessions captured the preparations for the competition event, with Training One being furthest from competition and Training Two being closest. Coaches wore a small lapel microphone during the sessions so all conversations between coach and athlete could be recorded directly. Following the opening briefing, the researcher had no further interaction with the coach or athlete until the conclusion of the session. The zoom function on the video camera allowed for minimal disruption during filming, as the recording could take place from an un-obtrusive position. Coaches and athletes were requested to conduct the sessions (both training & competition) as they would normally; during the short de-brief at the end of each recorded session, including the competition event, the majority of participants reported they had forgotten about the presence of the researcher and the recording equipment.

Video editing.

Following each recorded session, the video-recordings were downloaded onto a computer for review. Every interaction between the coach-athlete dyad was identified. Interactions were rejected where the sound quality of dialogue was poor, or the view of the coach or athletes was obscured. Interactions were identified as being where a single topic or issue was addressed.

For example, a coach-athlete dyad may have talked continuously for several minutes, first about a specific skill and then about their performance at a previous competition. This would have been divided into two interactions. A representative sample of up to 12 coach-athlete interactions were randomly selected for each dyad, to account for the varying lengths of each session (e.g., from 30-minutes to up to 4-hours). These interactions were selected using the guidelines reported by Lorimer and Jowett (2009a, 2009b), whereby approximately 20% of interactions were taken from the first third of the footage (warm-up, beginning of the session), 50% from the middle (main session), and 30% from the final third (typically the cool down &/or the conclusion). This approach provided a range of interactions from across the sessions, without making the selection so prohibitively long that coaches and athletes would have been unwilling to participate. A continuous video stream of the interactions was then created, with each separate interaction sequence divided by 60-seconds of blank footage.

4.4.4 Data collection.

Exploring levels of stress.

A simple stressor frequency inventory (see Appendix F) was distributed to each participant at the end of the first training session and competition event.

Collection of self-reported thought and feeling data.

Within the 24hrs following each recorded session, participants were requested to independently review the compiled video of their own interactions. A standardised self-report coding sheet was issued to each participant (see Appendix G). This coding sheet was divided into separately numbered sections, one for each selected interaction. Participants were required to record what they could clearly remember thinking and feeling during the actual interaction. Three specific responses were required for each clip: 1) the general feelings experienced, 2) the specific thoughts, and 3) the overall interpretation of the specific interaction (i.e., positive, neutral, or negative). Participants could report as many thoughts and feelings as they clearly remembered experiencing during the specific interaction. Participants completed each section of the coding sheet during the 60-second blank footage following each interaction clip incorporated in the video stream.

Collection of inference data.

Following the self-report review, the video stream was then immediately played again to participants.

The same procedure was repeated with clean, inference coding sheets (see Appendix H), however this time participants were instructed to record what they believed their partner had been thinking and feeling during the actual interaction, and how their partner would have interpreted it (i.e., positive, negative, or neutral). All participants were informed that their partner would not see any of their responses and that these would remain strictly confidential.

At the conclusion of the first training session review both members of the coach-athlete dyad were asked to provide their demographic information, including their age and performance level. Following the final recording the coach and athlete were both fully debriefed about the nature of the study, the variables involved, its purpose, and expected findings.

Calculating and aggregating empathic accuracy data.

The empathic accuracy scores were calculated by comparing each member's self-reported thoughts and feelings to their partner's inferences for each selected interaction (Ickes et al., 1990). Three raters independently considered the similarity of each pairing (i.e., self-reports & inferences) using a 3-point scale: 0 (*essentially different*), 1 (*similar but not the same*), and 2 (*essentially the same*). The mean scores for each individual participant (i.e., coach & athlete) were then calculated. This was the average score of all three raters for all inferences made by an individual (Lorimer & Jowett, 2009a, 2009b). Similar to the procedure adopted by Lorimer and Jowett (2009a, 2009b), these average scores were then divided by 2 and then multiplied by 100, providing an easily interpreted percentile score describing the levels of empathic accuracy: 0% *describing total inaccuracy* and 100% *representing perfect accuracy*.

This raw score was then corrected for the ease with which participants were able to make accurate inferences based purely upon chance (Lorimer & Jowett, 2009a, 2009b). Random pairings of participant's self-reports with their partners inferences were assessed using the same method described above. The resultant score for each dyad called *baseline accuracy* (Ickes et al., 1990), was then subtracted from the original raw empathic accuracy score to produce a corrected value used in analysis. This calculation was repeated for all data collected during the two separate training sessions (Training One & Training Two) and in competition (Competition). The inter-rater reliability for the original empathic accuracy measure was .87 for coaches, and .83 for athletes, and .92 and .91, respectively for the baseline accuracy measure.

4.5 Results

Table 4.1 (p. 135) presents the raw, baseline, and corrected empathic accuracy scores for coaches and athletes. Values are given for empathic accuracy scores achieved over time in different environments (i.e., Training One, Training Two, & Competition). The median and mean values for scores were not appreciably different and therefore, the mean was used in this instance to allow for easier comparisons to previous research.

Hypothesis 1.

A Wilcoxon signed-rank test was used to explore whether coaches and athletes participating in elite level individual sports reported increased stress regarding competition compared to training. A statistically significant difference in the levels of stress reported by participants in the two performance environments was revealed, $Z = -5.19, p < .001$, with more stress reported regarding competition ($Mdn = 14.00$) than training ($Mdn = 10.00$).

Table 4.1

Mean Empathic Accuracy Scores of Coaches and Athletes in Training One, Training Two, and Competition.

	<u>Training One</u>		<u>Training Two</u>		<u>Competition</u>	
	<i>M</i>	<i>(SD)</i>	<i>M</i>	<i>(SD)</i>	<i>M</i>	<i>(SD)</i>
Coach empathic accuracy (raw ^a)	50.47	(10.01)	51.32	(11.80)	62.18	(12.21)
Coach empathic accuracy (baseline ^b)	19.07	(2.28)	19.53	(6.36)	19.69	(6.52)
Coach empathic accuracy ^c	31.40	(11.87)	31.79	(7.87)	42.49	(18.27)
Athlete empathic accuracy (raw)	40.43	(12.27)	44.55	(16.32)	50.53	(16.36)
Athlete empathic accuracy (baseline)	14.95	(7.90)	18.05	(7.80)	14.68	(8.29)
Athlete empathic accuracy	25.48	(11.06)	26.50	(15.95)	35.85	(17.08)

Note. raw^a refers to initially calculated empathic accuracy scores, baseline^b refers to the corrective value calculated for the empathic accuracy of each dyad, and empathic accuracy^c refers to the final adjusted score used in the analysis (raw score minus baseline).

Hypothesis 2.

Here it was anticipated that empathic accuracy would be positively associated with stress (i.e., participants would display greater levels of empathic accuracy in competition than in training). The descriptive data for empathic accuracy scores achieved by both coaches and athletes during Training One, Training Two, and Competition are presented to offer a visual comparison of changes to scores over time in the different environments (see Figure 4.1. & Figure 4.2., p. 136 respectively).

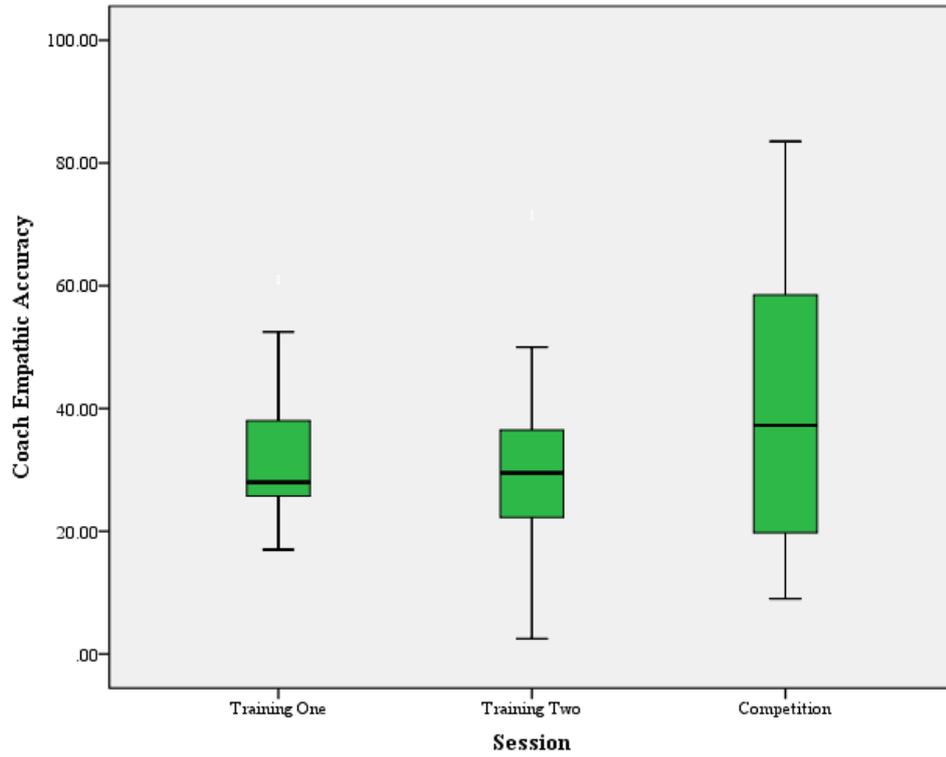


Figure 4.1. Coaches' empathic accuracy in training compared to competition.

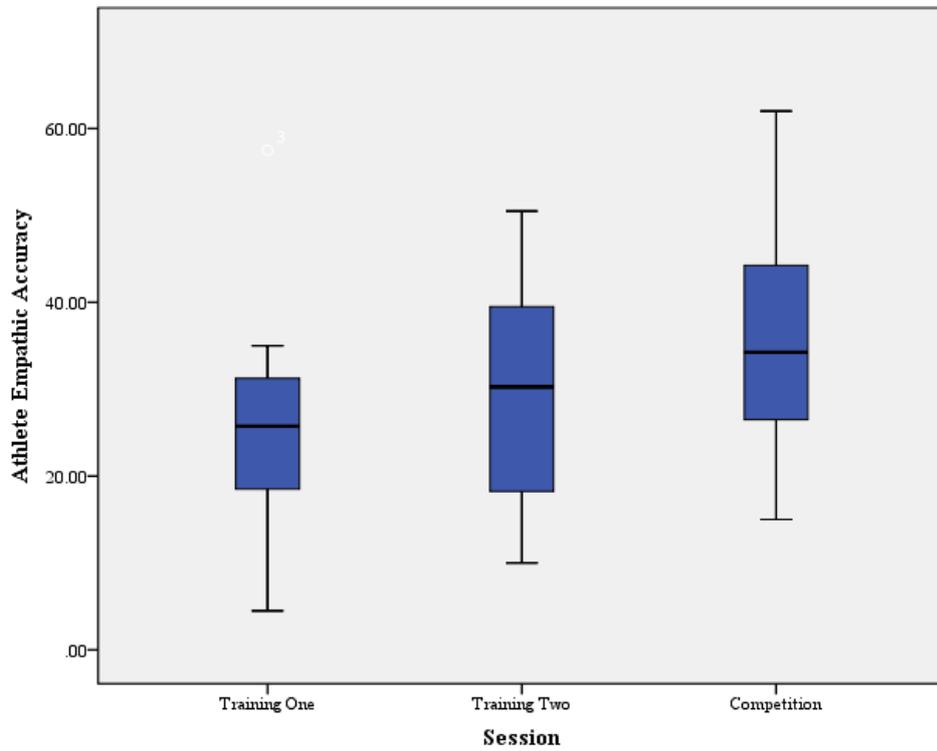


Figure 4.2. Athletes' empathic accuracy in training compared to competition.

A series of Spearman's rank-order correlations were run to further determine the stability of the coaches' and athletes' empathic accuracy scores over time and in the different environments. First, no statistically significant correlation was found between coaches' empathic accuracy scores during Training One and Training Two, $r_s(20) = .40, p = .08$, see Figure 4.3. There was also no statistically significant correlation between athletes' empathic accuracy scores during Training One and Training Two, $r_s(20) = .09, p = .71$. A scatter plot summarises these results (see Figure 4.4, p. 138).

Second, there was a positive correlation between the coaches' empathic accuracy scores during Training One and Competition, which was statistically significant, $r_s(20) = .57, p = .008$, see Figure 4.5 (p. 138). However, no statistically significant correlation was found between athletes' empathic accuracy scores during Training One and Competition, $r_s(20) = .084, p = .73$, see Figure 4.6 (p. 139).

Lastly, there was no statistically significant correlation between coaches' empathic accuracy scores during Training Two and Competition, $r_s(20) = .07, p = .77$. A scatter plot summarises these results (Figure 4.7, p. 139). However, there was a positive correlation between athletes' empathic accuracy scores during Training Two and Competition, which was statistically significant, $r_s(20) = .60, p = .005$, see Figure 4.8 (p. 140).

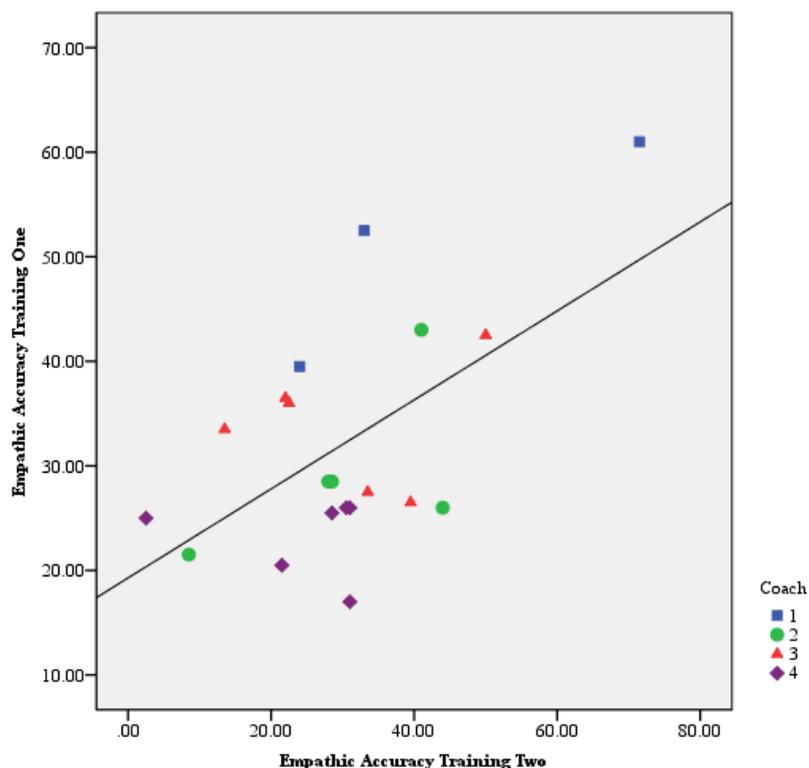


Figure 4.3. The relationship between coaches' empathic accuracy during Training One and Training Two.

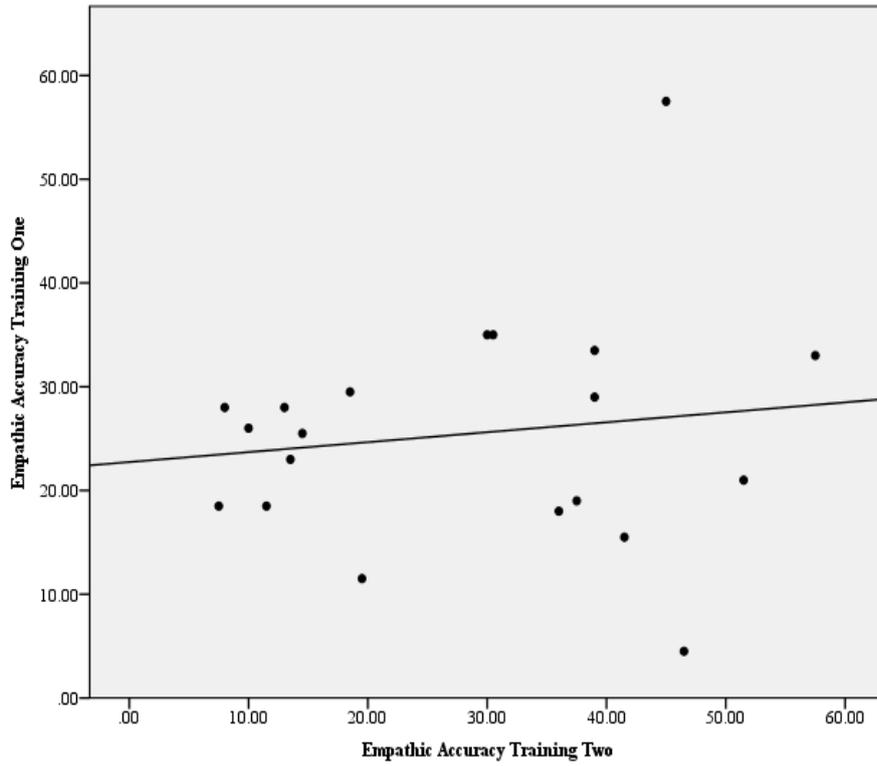


Figure 4.4. The relationship between athletes' empathic accuracy during Training One and Training Two.

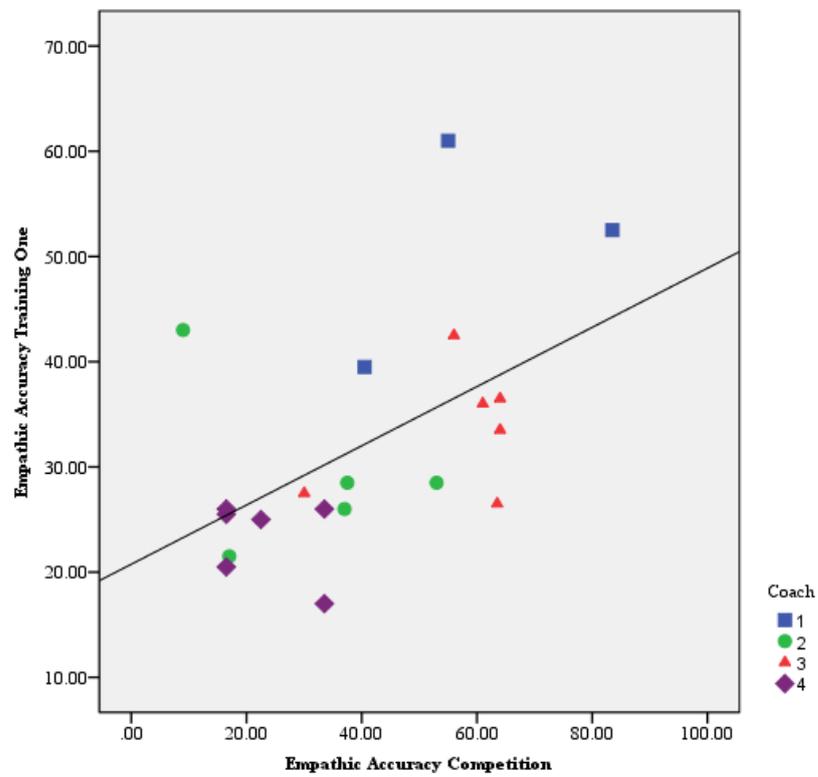


Figure 4.5. The relationship between coaches' empathic accuracy during Training One and Competition.

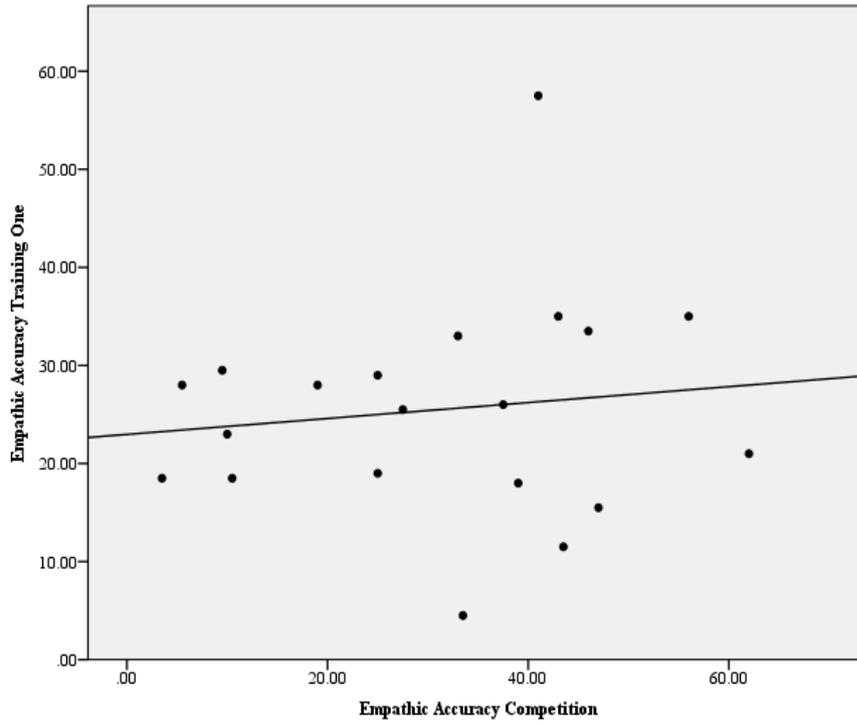


Figure 4.6. The relationship between athletes' empathic accuracy during Training One and Competition.

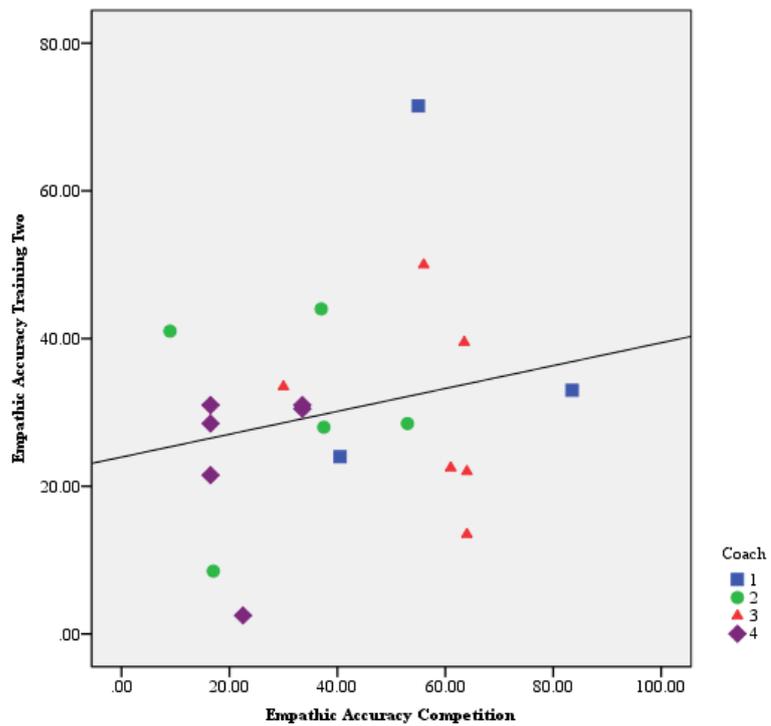


Figure 4.7. The relationship between coaches' empathic accuracy during Training Two and Competition.

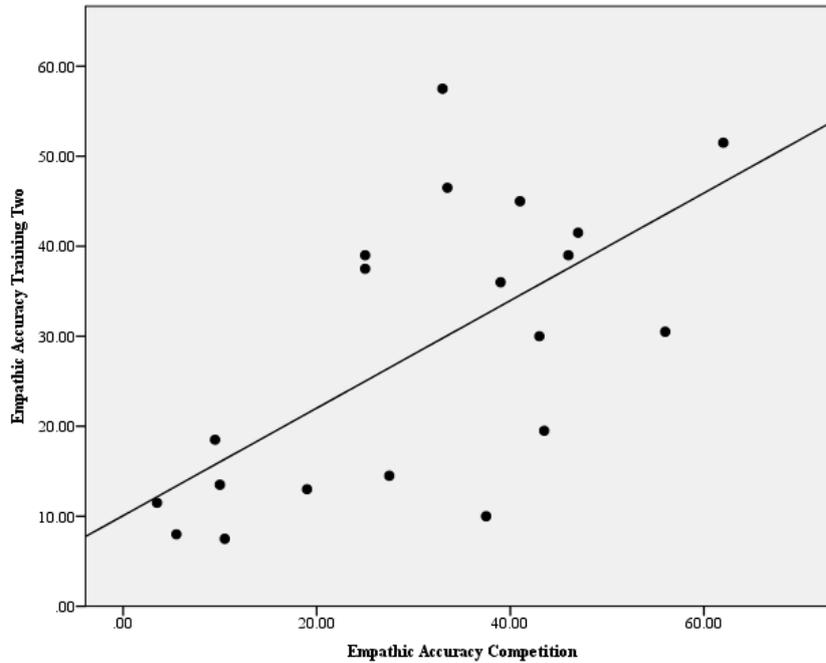


Figure 4.8. The relationship between athletes' empathic accuracy during Training Two and Competition.

4.6 Discussion

The aim of this study was to explore stress and empathic accuracy in coaches and athletes participating in elite level individual based sports. That is, how accurately coaches and athletes perceived the psychological condition of each other, moment-to-moment, over time, while experiencing stressors associated with different environments (i.e., training & competition). In support of the first hypothesis, the initial findings of the present study indicated coaches and athletes both experienced higher levels of stress regarding competition than training; this was found to be statistically significant. Although a detailed exploration into the nature and degree of individual stressors experienced by participants in both environments was out of scope for the present investigation, this finding offers some support to the findings presented in study one (see Chapter 3) of this project and previous literature which has highlighted elite competition has the potential to be extremely stressful (e.g., Olusoga et al., 2009; Woodman & Hardy, 2001). In addition, the decreased stress reported during training would appear to reinforce the notion that the elite training environment is believed to be more secure and sheltered than competition (Becker, 2009). Thus, sports organisations should continue to be aware of the different demands faced by elite sports performers in various environmental contexts, to provide appropriate levels of support and understanding. Furthermore, these results provided the foundation to explore the impacts of differing levels of stress on coaches' and athletes' empathic accuracy.

An adaptation of Icke's (2001) paradigm was employed to obtain data of coaches' and athletes' thoughts and feelings, as well as their inferences of each other's thoughts and feelings (Lorimer & Jowett, 2009a, 2009b). The trend visually discernible in the descriptive data reveals higher levels of empathic accuracy was achieved by both coaches and athletes during competition, compared to training. This finding suggests that the distinct nature of the competition and training environments in elite level individual based sports, can affect levels of empathic accuracy achieved by both coaches and athletes. It would appear that coaches and athletes achieve greater accuracy and understanding of each other under increased perceived amounts of stress, thus revealing a positive relationship between stress and empathic accuracy. This contradicts recent neuroscience results that suggest under stress individuals pay less attention to the emotions of others (e.g., Rimmele & Lobmaier, 2012). However, no previous neuroscience research has explored stress in sport, it could be suggested the vast array of stressors experienced by coaches and athletes offer a unique context for such research.

The increase in empathic accuracy displayed by participants during competition and greater stress can be interpreted in a number of ways. First, it may be for both coaches and athletes that motivation to make accurate verbal and non-verbal inferences about their partners increased during competition. According to Bissonnette et al. (1997) motivation to make more accurate empathic inferences is particularly acute when there is 'more at stake', for example in interactions involving exceptionally important outcomes. Eagly and Koenig (2006) also claimed that individuals will interact and react differently in situations depending on the expectations placed upon them. It could therefore be suggested the reported increase in stress surrounding elite competition, was channeled by both coaches and athletes towards making more accurate verbal and non-verbal inferences, due to the perceived increased importance and expectation surrounding competition outcomes.

Second, under the increased stress of competition, it could be argued coaches and athletes presented more obvious communication cues resembling their true thoughts and feelings for interpretation. According to Navarro (2008), non-verbal communication is the primary means of communication and there are a number of discernable behaviours indicative of high psychological stress, such as hand wringing, rubbing the back of the neck, increased breathing rate, and reduced eye contact. Moreover, such is the strength of non-verbal communication, that in any situation where the verbal message conflicts with the non-verbal message, perceivers are more likely to believe the non-verbal signals (Navarro, 2008). Thus, in a scenario where an athlete verbally says "I feel confident, I'm ready", but their non-verbal communication suggests high nervousness and uncertainty, the coach would infer the latter.

Empathic accuracy involves the ability to monitor and correctly interpret thoughts and feelings as they are expressed through words, expressions, and postures within their current context (Mayer et al., 2000), it could therefore be argued that the increased stress of competition resulted in more prominent non-verbal expressions of thoughts and feelings and thus resulted in increased empathic accuracy.

Lastly, it could be during competition both coaches and athletes were more focused on the specific task at hand. According to Thomas et al. (1997) when married couples focused on the same task their empathic accuracy increased. At elite competition coaches and athletes are fully focused on what is required from the performance, working to strict timings, and with limited opportunities to succeed. Whereas training is characteristically longer in duration and both parties have multiple opportunities to attempt and refine a skill. The increased duration and repetitive nature of the training environment may have resulted in occasions where both coaches and athletes lost focus and let their minds 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, cognitive focus may have become an influential factor on levels of empathic accuracy achieved in the differing and unique contexts of training and competition. These interpretations highlight the need for further research in this direction. Future research should investigate if there is a positive association between increased empathic accuracy and performance outcomes in elite sport, to better understand the benefits of maximising empathic accuracy in different environmental contexts, in particular training.

The descriptive data also revealed that coaches achieved greater empathic accuracy during all three recorded sessions, compared to athletes. This finding contradicts previous research that suggests in relationships where one partner has authority over the other, the superior partner displays decreased levels of empathic accuracy compared to the subordinate member (e.g., Fiske, 1993; Snodgrass et al., 1998). According to Fiske (1993), those in a position of power are less dependent on their subordinates and consequently less motivated to make accurate inferences of them. Thus, where the coach-athlete relationship is deemed one in which the coach's control is indisputable and absolute, and the role of the athlete is to submit without question to the control and instruction of the coach (Burke, 2001), one could argue the coach would achieve lower levels of empathic accuracy compared to the athlete. However, the opposite was found in the present study. This finding can be explained in a number of ways.

Snodgrass (1992) suggested authority has a two-way interaction depending upon the thoughts and feelings being reported.

The results of their investigations found superior partners were more accurate at inferring their subordinate partners' thoughts and feelings about themselves (e.g., I am a good athlete), whereas subordinate partners were more accurate at inferring their superior partner's thoughts and feelings about them (e.g., my coach likes me). Similar to their interpretations, the increased empathic accuracy displayed by coaches in the present study could be related to a greater understanding of their athletes' direct perspective and the role the coach plays in the relationship. For example, the coach's role is to evaluate the athlete and to share their opinion about what the athlete needs to improve. Thus, having a more accurate understanding of what the athlete thinks and feels about themselves at these moments could guide the content and determine the impact of such feedback.

The lower levels of empathic accuracy recorded by athletes in the present investigation appear to challenge the subordinate nature of their role as suggested in previous research (e.g., Burke, 2001; Snodgrass, 1992). The athlete participants were performing at the highest level in their sport, it could therefore be argued the aforementioned impact of authority in this instance was not as clearly defined. For example, according to Rychta (1982), athletes involved at an elite level tend to act according to their own principles, and the longer the athlete is at the top level, the more independent minded they become. Therefore, perhaps a greater sense of independence resulted in elite athletes placing less importance and emphasis on accurately understanding what the coach was thinking and feeling moment-to-moment in both environments, including reports about them (i.e., coach likes me). This suggests the impact of power and authority on empathic accuracy in coaches and athletes in elite sport is potentially complex and warrants further investigation.

Lastly, the increase in coaches' empathic accuracy may be indicative of the pressures and expectations surrounding coaches to succeed (e.g., Olusoga et al., 2009). Society appears to classify a great coach based on two criteria, win or loss records and media attention (Becker, 2009). When an athlete is successful, it is often the coach who receives commendation and their role is recognised and praised. However, when an athlete is unsuccessful, it is often the coach who receives a large portion of the blame and responsibility (Becker, 2009). Perhaps a fear of failure, or pure determination to get the best out of their athletes increased the coaches' motivation to accurately infer what their athletes were thinking and feeling, over time in the different environmental contexts. In this sample, all coaches were employed full-time in their elite coaching roles. Future research should look to provide a more in-depth examination into the influence of coaching positions on empathic accuracy, for example elite vs. amateur, full-time vs. part-time, and paid vs. volunteer.

The longitudinal nature of the present study revealed empathic accuracy remained stable throughout training for both coaches and athletes, however the increased empathic accuracy displayed during competition suggests coach-athlete interactions could be more effective in the training environment. Moreover, although a number of discernible trends have been discussed, participants achieved relatively low to moderate levels of empathic accuracy throughout this study. Thus, extending previous research that has suggested coaches and athletes display a degree of error in their empathic inferences and for a substantial proportion of time both members are unaware of what their partner is thinking and feeling (Jowett & Clark-Carter, 2006; Lorimer & Jowett, 2009a). Previous research has revealed experienced coaches performed worse in empathic accuracy than inexperienced coaches, due to a complacency that experienced coaches had perhaps 'seen it all before' and therefore no longer needed to rely on making accurate inferences to interpret a situation (Lorimer & Jowett, 2010). The same rationale could be applied to the participants in the present study, especially in the training environment. It could be suggested that the highly structured and secure elite training environment (Becker, 2009), supported a degree of complacency when interpreting verbal and non-verbal inferences within the experienced coach-athlete partnerships.

Moreover, the scatterplots illustrating coach empathic accuracy scores clearly revealed coaches achieved varying levels of accuracy with the different world class athletes in their training groups. That is coaches were more accurate in their perceptions of the psychological condition of some athletes in their training groups compared to others. A wealth of previous research has examined the likely variables that predict empathic accuracy. For example, immediately available information (e.g., Ambady & Rosenthal, 1992; Ickes et al., 1990; Lorimer & Jowett, 2010), relationship quality and duration (e.g., Lorimer & Jowett, 2009b; Stinson & Ickes, 1992; Thomas & Fletcher, 2003), levels of motivation (e.g., Ickes et al., 1990; Thomas et al., 1997), position of authority (Snodgrass et al., 1998; Magee & Smith, 2013), gender (e.g., Hodges, Laurent, & Lewis, 2011), and similarity (e.g., Jowett & Clark-Carter, 2006; Neyer et al., 1999). A common theme throughout such research is the recognition of an accurate empathiser as an individual who employs strategies such as paying close attention to specific words, nonverbal cues, and overt behaviours of a target, and then uses such information to deduce the individual's thoughts and feelings at any given moment in time. However, contrary to this view, in a more recent study Lewis et al. (2012) proposed a significant source of accuracy in inferring other's thoughts and feelings comes from within the perceiver's own mind. That is, an individual may use prior knowledge to go beyond the information given in their attempts to understand a target.

One source of such prior knowledge may be the expectancies a perceiver holds regarding the target (Lewis et al., 2012); information available either before an interaction, or in the early stages of an interaction, to assist judgements about the characteristics and mental state of the other person (Buscombe et al., 2006). According to Horn et al. (2010) the expectations perceivers have formed about a target can serve as prophecies that dictate or determine the way they treat them.

Extensive research exploring the effects of expectancies on coach behaviour have found coaches communicate less with low expectancy athletes (e.g., Solomon et al., 1998), with high expectancy athletes receiving more time with the coach (e.g., Wilson & Stephens, 2007). And according to Marangoni et al. (1995), immediately available information is important for the making of accurate empathic inferences. What a target says and does is a key source of immediately available information to determine what they are thinking and feeling. So, with potentially more opportunities to access immediately available information through increased interaction, perhaps empathic accuracy achieved within coach-athlete dyads of high expectancy athletes is increased. Alternatively, with less interaction and therefore fewer opportunities to access immediately available information, it could be argued levels of empathic accuracy achieved within coach-athlete dyads of low expectancy athletes is negatively impacted. Yet no previous research has explored coaches' expectancies of their individual athletes as a potential influencing factor of social perception between coach and athletes.

According to Lorimer (2013) to increase empathic accuracy, coaches must be reflexive, monitor themselves for potential biases and over empathising with athletes, while consistently seeking new information about each of their individual athletes and their perspectives. As suggested by Lorimer and Jowett (2010), it may be that by merely emphasising the importance of empathic accuracy and understanding between athletes and coaches, perhaps through continued professional development and psychological interventions, that empathic accuracy can be increased. However, future research could look to determine whether factors such as coach expectancies of individual athletes affects coaches' and athletes' empathic accuracy. Since this is the first study to explore empathic accuracy achieved by the same participants over time and in different elite sport contexts, using the modified unstructured interaction paradigm (Lorimer & Jowett, 2009a, 2009b), there is great potential for future research.

4.7 Strengths and Limitations

Ickes's (2001) paradigm has been used extensively in social psychology research to explore empathic accuracy. However, it is not without criticism.

For example, Wilhelm and Perrez (2004) have questioned the ecological findings that the methodology generates because: 1) the predominantly laboratory based setting influences the dynamics of recorded interactions, and 2) the short duration of interactions (e.g., < 10mins) does not reflect changes that can occur over time in extended interactions. The present study expands previous work by addressing such limitations. First, it reinforces the ecological validity of previous findings through the assessment of extended interactions, in the environment where they occur naturally (e.g., a typical training session). Second, it broadens previous coach-athlete relationship empathic accuracy research, by investigating empathic accuracy of coaches and athletes over time, in different environments. Thus contributing evidence for the cross-situational and cross-temporal reliability of this paradigm.

However, although this study presents new directions for investigation in empathic accuracy research, the findings must be considered against the backdrop of its limitations. First, issues related to the sample, both in terms of sample size and also the method for participant recruitment must be acknowledged. World-class sports performers are required to follow strict, well-planned schedules in preparation for competition and therefore, the meticulous measures implemented by management to regulate external commitments and potential distractions are to be respected. However, these tight controls can make repeated access to elite sports performers particularly challenging for independent research projects, especially throughout the competition schedule. Therefore, a small sample was opportunistically employed and the generalisability of the findings to the wider population is limited. Furthermore, although individual based sports are predominantly one-to-one with the coach and the athlete, sports funding often supports one head coach working with a small number of athletes. Based on the limited elite participant recruitment opportunities, a one-with many design guided the analysis of the present study findings, however the distinguishable characteristics between the non-independent coach-athlete empathic accuracy scores resulted in separate coach and athlete results being presented. This one with many design did not support between dyad analyses.

A second issue relates to the analysis of data with respect to sport type. Although not considered in the present study, one could reasonably argue that the nature of the individual sport environment could further impact the level of empathic accuracy achieved by participants. For example, in sports such as swimming, the athlete and coach are not afforded the same time to interpret verbal and non-verbal inferences, compared to sports like athletics. Although previous research suggests coaches in individual sports exhibit higher empathic accuracy than coaches in team sports (Lorimer & Jowett, 2009a), there may further be inter-sport variances within individual based sports and this may be another factor for researchers and sport psychologists to consider (e.g., wet vs. dry sports, indoor vs. outdoor sports).

Third, the process of measuring empathic accuracy using video recording, recall, and inference, may raise issues as to the validity of findings as participants may not clearly recall what they were thinking and feeling during recorded interactions. However, this methodology has been used successfully in numerous social contexts (e.g., Ickes, 2003) and more recently adapted in sport (e.g., Lorimer & Jowett, 2009a, 2009b).

Lastly, the simple stressor frequency scale employed to establish levels of stress in training compared to competition was generated from existing stress in sport related literature. As such it had not been used in previous studies. It is possible that the scale did not cover all stressors that relate to elite sport. Therefore, it could be useful to develop a tool or framework that assesses levels of stress for both coaches and athletes in a sport setting.

4.8 Conclusions

In summary, the findings of the present study have highlighted the dynamic nature of interactions between coaches and athletes in different environments. Specifically that coaches and athletes in elite level individual based sports achieved greater empathic accuracy at times of increased stress associated with competition. They have also suggested elite coaches and athletes were not particularly accurate in perceiving each other's thoughts and feelings, especially in training. Moreover, the results revealed individual coaches achieved varying levels of empathic accuracy with the different world class athletes in their training groups. Recent research has suggested prior knowledge a perceiver holds regarding a target (i.e., information available either before an interaction, or in the early stages of an interaction) may be used over immediately available information given throughout an interaction to assist social perception and understanding (Lewis et al., 2012). Such prior knowledge may be the expectations a perceiver holds regarding the target (Lewis et al., 2012). According to Horn et al. (2010) the expectations perceivers have formed about a target can serve as prophecies that dictate or determine the way they treat them. Thus, future research investigating a coaches expectancies as a potential barrier or antecedent of empathic accuracy achieved by coach-athlete dyads in elite sport is warranted.

Finally, the present study extends support of the application of the unstructured dyadic interaction paradigm to explore coach-athlete interactions, over time and in different environments, as they occur naturally. This innovative methodology offers the opportunity for future research to generate invaluable insights into the dynamics of interactions between coaches and athletes.

4.9 Contributions to Existing Research

This study supports contributions to existing knowledge in the following ways:

1. It is the first study to explore empathic accuracy achieved by the same coaches and athletes over time in different environments (i.e., training & competition).
2. It is the first study to explore stress and empathic accuracy in coaches and athletes participating in elite level individual based sports.
3. It provides further validation of the modified unstructured dyadic interaction paradigm (Lorimer & Jowett, 2009a, 2009b), through the measurement of empathic accuracy over time and in different environments in coach-athlete dyads operating in a variety of elite level individual based sports.
4. Lastly, the varied levels of empathic accuracy achieved by elite coaches with the different world class athletes in their training groups, provided a sound empirical basis on which to build future research in study three of this project of research. Specifically, to present new research exploring coach expectancies as a potential barrier or antecedent of empathic accuracy within coach-athlete dyads. To address the research question: **How does a coach's expectancies of their individual athletes relate to levels of empathic accuracy achieved?**

Chapter 5

Study Three: The Relationship between Coach Expectancies and Empathic Accuracy – A Case Study in Elite Cycling

5.1 Abstract

Study two of this project revealed coaches involved in elite sport achieved varying levels of empathic accuracy with different athletes in their training groups. That is, coaches were more accurate in their perceptions of the psychological condition of some athletes in their training squads compared to others. No previous research had considered personal expectations as a potential influencing factor of empathic accuracy. Therefore, this study explored the relationship between a coach's expectancies and subsequent empathic accuracy achieved by coach-athlete dyads in elite cycling. Athletes' perceptions of coach treatment were also investigated. One male coach aged 38 years and five elite athletes (3 males & 2 females), aged 19 to 21 years ($M_{age} = 20.4$, $SD = 0.89$), forming five coach-athlete dyads, were purposively recruited to participate. The small sample were deliberately selected because the coach had been previously identified as a participant who achieved a degree of empathic accuracy with some, but not all athletes in his training group. All participants were of international performance level, competing in cycling. Coach expectancies of each athlete were rated using the Modified Expectancy Rating Scale (MERS; Becker & Wrisberg, 2008). To examine perceptions of coach treatment (i.e., negative feedback, work/rule orientation, & high expectations), athletes completed a modified version of the Teacher Treatment Inventory (TTI; Weinstein & Middlestadt, 1979). An adaptation of the unstructured dyadic interaction paradigm (Lorimer & Jowett, 2009a, 2009b) was used to explore empathic accuracy whereby each coach-athlete dyad was filmed during competition. Dyad members separately viewed a selection of video clips of interactions that had occurred during the competition event, recalling what they remembered thinking and feeling during each interaction, while making inferences about what their partners' were thinking and feeling at each point. Empathic accuracy was estimated by comparing the dyads' self-reports and inferences. Coach-athlete dyads containing high expectancy athletes achieved higher empathic accuracy, compared to dyads involving low expectancy athletes. In addition, high expectancy athletes perceived the coach gave them less negative feedback, demanded a greater level of work from them, and held higher expectations for them compared to their low expectancy counterparts. When applied to the four-step coach expectancy process (Horn et al., 2010), these results suggest the coach's behaviour might have been congruent with their expectations, which may have in turn affected levels of empathic accuracy and influenced perceived differential coach treatment. Future directions and implications are discussed.

5.2 Introduction

Expectancy theory in a sports context denotes a situation in which a coach's perception and expectations of an athlete are conveyed through consistent behaviour patterns during interactions (Solomon, 2010). Such behavioural patterns can be perceived and subsequently embraced by the athlete, thereby fulfilling the coach's original expectation. According to Horn et al. (2010), the process of coach expectancy can be explained using a four-step cycle. First, coaches form initial impressions of their athletes based on available information such as personal (i.e., ethnicity, gender, physical appearance), performance (i.e., past performances, skill test scores), and psychological (i.e., confidence & anxiety) cues (Horn et al., 2010; Martinek et al., 1982; Solomon, 2001). Coaches then develop expectancies of their athletes based on these initial inferences. Second, influenced by these perceived expectancies, coaches can adjust their behaviour and how they interact with their athletes, with athletes considered high expectancy receiving more feedback and praise than those deemed low expectancy (Solomon, 2002, 2010; Solomon & Kosmitzki, 1996; Solomon et al., 1998; Wilson & Stephens, 2007). Third, when the coach communicates their expectancies in a consistent manner, they can positively or negatively impact the athlete's psychological growth and performance (Solomon, 2008). Fourth, if the resultant athlete behaviour conforms to the coach's initial expectancy, it will reinforce the original assessment and promote the cyclical nature of a self-fulfilling prophecy. Thus, expectancies can go beyond influencing the coach's own cognitions and behaviours, they may also influence the cognitions and behaviours of their athletes. Therefore, because the expectancy cycle begins with the evaluation of the athlete and proceeds through various stages of perception and interaction between coach and athlete, accurate understanding between both parties is essential.

Defined as the ability to accurately infer another person's thoughts and feelings, and respond appropriately (Ickes, 1993), empathic accuracy is believed to facilitate the understanding of others. Accurately understanding others is a fundamental social skill and research has examined likely variables that reliably predict this skill. For example, immediately available information (e.g., Ambady & Rosenthal, 1992; Ickes et al., 1990; Lorimer & Jowett, 2010), relationship quality and duration (e.g., Lorimer & Jowett, 2009b; Stinson & Ickes, 1992; Thomas & Fletcher, 2003), levels of motivation (e.g., Ickes et al., 1990; Thomas et al., 1997), position of authority (Snodgrass et al., 1998; Magee & Smith, 2013), gender (e.g., Hodges, Laurent, & Lewis, 2011), and similarity (e.g., Jowett & Clark-Carter, 2006; Neyer et al., 1999). A common theme throughout such research is the recognition of an accurate empathiser as an individual who employs strategies such as paying close attention to specific words, nonverbal cues, and overt behaviours of a target, and then uses such information to deduce the individual's thoughts and feelings at any given moment in time.

However, contrary to this view, Lewis et al. (2012) proposed a significant source of accuracy in inferring other's thoughts and feelings comes from within the perceiver's own mind. That is, an individual may use prior knowledge to go beyond the information given in their attempts to understand a target.

One source of such prior knowledge may be the expectancies a perceiver holds regarding the target (Lewis et al., 2012); information available either before an interaction or in the early stages of an interaction to assist judgements about the characteristics and mental state of the other person (Buscombe et al., 2006). According to Horn et al. (2010) the expectations perceivers have formed about a target can serve as prophecies that dictate or determine the way they treat them. For example, a coach may consider an athlete high expectancy, based on cues such as their previous performances and the high levels of confidence they typically exhibit. Therefore, influenced by this perceived expectancy, on arrival at competition, instead of continuously gathering individuating information regarding the athlete, the coach may make a judgement that their high expectancy athlete is likely feeling confident and leave them to carry out their familiarisation of the stadium alone. When in reality, the athlete may have just caught a glimpse of a strong opponent warming up and become anxious. Not wanting to disappoint the coach or appear fragile by sharing their true thoughts and feelings, the suddenly anxious athlete continues to complete familiarisation of the stadium alone. As this resultant behaviour conforms to the coach's high expectancy, it reinforces their original assessment. Thus, although interpersonal expectancies can allow for functional shortcuts in cognitive processing and behavioural decision making, they can become a liability, resulting in a flawed understanding of the target individual (e.g., Fiske & Neuberg, 1990; Hamilton et al., 1990; Hilton & Darley, 1991). Ickes (1993) argued that although a degree of insight into a person gained through knowledge or previous experience can be useful, this insight may not generalise to all situations.

In addition, once an initial expectancy has formed, a perceiver can remain inflexible in their perceptions. According to Solomon (2008), once a coach labels an athlete high or low expectancy, this categorisation remains stable over the entire season. It could therefore be suggested expectancies may encourage rigidity in a coach's interpersonal perception at any given moment in time, potentially resulting in inaccurate judgements and empathic inferences. However, no previous research has examined the influence of coach expectancies on empathic accuracy. Specifically within the coach-athlete relationship, which is shaped through the interactions between coach and athlete, particularly the expression of, and accurate response to, each other's cognitions, emotions, and behaviours (Jowett & Poczwardowski, 2007). As such, related research and theories were used to inform the research questions of the present study.

First, existing literature appears to indicate that motivation is an influential factor determining both expectancy effects and levels of empathic accuracy. Previous research suggests that people will only cognitively process information as much as is required to become sufficiently confident in their decision (Chaiken et al., 1996). Thus, whether available information is processed objectively, or subject to expectancies, is dependent upon an individual's motivation. So, whether a coach processes immediately available information presented by an athlete, or relies on their expectancies of them to form judgements, is determined by their levels of motivation. Petty and Wegener (1998) proposed perceivers are more motivated to make accurate objective judgements of targets with whom they have an increased involvement. Therefore, it could be argued coaches may be more motivated to objectively process information presented by high profile athletes in their squad, those with increased medal winning potential, compared to low profile athletes with limited performance potential. Especially in the likely scenario where a coach's job security is dependent upon performance outcomes. According to Cohen et al. (2012) empathic accuracy also requires willingness and motivation to attend to verbal and nonverbal cues and to process information. Thus, a perceiver who has access to information about a target but who lacks motivation to use it, will likely make less accurate inferences regarding what they are thinking and feeling. In addition, if the perceiver places increased importance on making more accurate empathic inferences, it is understood their effort may increase (Ickes et al., 1990). For example, a coach-athlete dyad involving a high expectancy athlete may maintain increased levels of motivation to accurately understand each other, given the perceived importance associated with maximising performance potential. Comparatively, a coach may experience reduced levels of motivation to accurately infer thoughts and feelings during interactions with a low expectancy athlete, given their limited performance potential.

Second, extensive research exploring the effects of expectancies on coach behaviour have found coaches communicate less with low expectancy athletes (e.g., Solomon et al., 1998), with high expectancy athletes receiving more time with the coach (e.g., Wilson & Stephens, 2007). However, according to Marangoni et al. (1995) immediately available information is important for the making of accurate empathic inferences. What a target says and does is a key source of immediately available information to determine what they are thinking and feeling. So, with more opportunities to access immediately available information through increased interaction, perhaps empathic accuracy achieved within coach-athlete dyads of high expectancy athletes is increased. Alternatively, with less interaction and therefore fewer opportunities to access immediately available information, it could be argued levels of empathic accuracy achieved within coach-athlete dyads of low expectancy athletes is negatively impacted.

Lastly, the results of Wilson and Stephens (2007) revealed that high and low expectancy athletes were aware of differential coach treatment. They reported high expectancy athletes correctly perceived coaches high expectations, with these athletes recognising they received more positive instruction and reinforcement. However, low expectancy athletes also successfully perceived coaches low expectations, with these athletes reporting experiencing negative interactions, feelings of inferiority, and reduced motivation. According to Jussim (1986), expectancy effects (both positive & negative) can be increasingly powerful when the type of feedback shared by the perceiver reinforces the target's self-esteem or self-concept. For example, if a coach consistently communicates their low expectations of an athlete and the athlete perceives these judgements, it could be argued any associated feelings of inferiority and reduced motivation may prompt the athlete to behave in a manner that conforms to the coach's initial low expectancy. The same applies to high expectancy athletes, but instead with positive resultant behaviours. In conclusion, Wilson and Stephens (2007) defined an effective coach as one whose athletes do not perceive any difference in coach treatment that might be detrimental to performance, recommending positive behaviour and positive communication to all athletes. This supports Lorimer and Jowett's (2009b) proposal that the manner and efficiency in which coaches and athletes interact can have a profound impact upon such factors as satisfaction, enjoyment, and motivation. Though to date there has been a shortage of research examining elite level athletes' perception of coach treatment that includes perceptions of coach expectations, feedback, and work-related behaviour.

This study was therefore designed to examine the relationship between coach expectancies and empathic accuracy in coach-athlete dyads. Given the exploratory nature of the study, no hypotheses were formed. However, the major research question guiding this investigation asked: How does a coach's expectancies of their individual athletes relate to levels of empathic accuracy achieved? A secondary question determined whether high and low expectancy athletes perceived any differential treatment received by their coach? These questions were tested at an elite level within cycling.

5.3 Methodological Approach

This study examined the relationship between a coach's expectancies and empathic accuracy achieved by individual coach-athlete dyads in elite cycling. Thus, quantitative methods were employed because the focus was on the measurement of specific individual variables (Tashakkori & Teddlie, 2003).

This study used the adapted unstructured dyadic interaction paradigm (Lorimer & Jowett, 2009a, 2009b) to measure empathic accuracy levels achieved by coaches and athletes, combined with the Modified Expectancy Rating Scale (MERS; Becker & Wrisberg, 2008) to measure the coach's expectancies of each individual athlete and the Coach Treatment Inventory (CTI; Wilson & Stephens, 2007) to measure the athlete's perceptions of coach treatment. Thus, the employment of each individual tool allowed for quantifiable and objective comparisons between the individual variables measured.

5.4 Method

5.4.1 Participants.

One male coach aged 38 years and five elite athletes (3 males & 2 females), aged 19 to 21 years ($M_{age} = 20.4$, $SD = 0.89$), forming five coach-athlete dyads, were purposively recruited to participate in the present study. The duration of the coach-athlete relationships ranged between 6 months and 4 years. Purposive sampling (Denscombe, 2007) was employed for this study; the small sample were deliberately selected because the coach had been previously identified as a participant who achieved a degree of empathic accuracy with some, but not all athletes in his training group. Thus presenting a unique set of circumstances in a unique population to be explored in this case study investigating a coach's expectancies and levels of empathic accuracy achieved. As part of the selection criteria, participants were considered elite if they were working on a regular basis at the highest level in their sport (e.g., international). All participants were of international performance level, competing in cycling.

5.4.2 Procedure.

Following institutional ethical approval, elite coach-athlete dyads were approached via the coach and invited to participate using email. Information surrounding the aims and practical implications of the study were provided, along with assurances relating to the strict confidentiality and anonymity involved in the voluntary nature of the research (see Appendix I).

A major consideration when approaching participants was that they were at least 18 years old. To ensure their elite status, it was a requirement that potential participants were working on a regular basis at the highest competitive level in their sport (e.g., international). The coach and their partnered athletes were both invited to contribute.

The elite athletes were selected based on: 1) those willing to participate, and 2) those available to work with the coach for each phase of data collection. All participants were required to complete a consent form prior to any involvement within the study (see Appendix J).

5.4.3 Measures.

Modified Expectancy Rating Scale (MERS; Becker & Wrisberg, 2008).

A limitation of previous coach expectancy research has been the absence of a full assessment of coach expectancies of their athletes' skill and ability, specifically exploring coaches' use of psychological cues (i.e., confidence & anxiety). Early research employed a rank-order approach to determine coaches' perceptions of high and low expectancy athletes (e.g., Sinclair & Vealey, 1989; Solomon et al., 1998; Solomon & Kosmitzki, 1996). However, coaches were required to define skill level when ranking their athletes.

In an attempt to define skill level, Solomon (1993) developed the Expectancy Rating Scale (ERS). Different to the rank-order approach, the ERS is a 5-item instrument designed to measure coaches' current expectancy of each athlete's effort expenditure, attitude, and physical ability. Although the ERS allows coaches to give equal ratings to athletes with similar skills and abilities, its primary emphasis is evaluating athletes' physical abilities, it does not allow for the evaluation of other characteristics (e.g., psychological cues). Solomon (2003) developed the Solomon Expectancy Sources Scale (SESS) to establish the most common characteristics coaches use to evaluate their athletes' skill and ability. This 30-item instrument was used to examine the degree of importance coaches' place on various physical and psychological characteristics. The findings of more recent investigations have suggested psychological cues play a significant role in coaches' expectancy formation (Solomon, 2003, 2010; Solomon & Rhea, 2009).

Thus, Becker and Wrisberg (2008), adapted the original 5-item ERS to form the Modified Expectancy Rating Scale (MERS). The MERS (see Appendix K) consists of 8-items measuring both physical and psychological skills and abilities used by coaches to determine expectancy status of athletes (Becker & Wrisberg, 2008). Items are assessed on a Likert-type scale ranging from 1 (*not true at all*) to 5 (*very true*). The eight statements include phrases such as: "This athlete possesses sound [*discipline*] fundamentals", "This athlete is receptive to coaching", and "This athlete will be an exceptionally successful [*discipline*] athlete at this level of competition". The MERS has been deemed a reliable tool to assess coach expectancy, with an alpha reliability of $r = .77$ (Becker & Wrisberg, 2008). Therefore, the coach's expectancies of each athlete in the present study were assessed using the MERS.

In addition, the coach was requested to reflect on their original expectations of athletes'. Using a 3-point Likert-type scale, the coach responded to whether athletes exceeded their original expectations, remained the same, or failed to exceed original expectations (see Appendix M).

Teacher Treatment Inventory (TTI; Weinstein & Middlestadt, 1979).

A modified version of the Teacher Treatment Inventory (TTI; Weinstein & Middlestadt, 1979) was used to assess the elite athlete's perception of coach treatment. Similar to Wilson and Stephens (2007), since the inventory was modified for use in a sports context, the TTI will be referred to as the Coach Treatment Inventory (CTI). The tool consists of 30-items divided into three subscales: 1) negative feedback and coach direction, 2) work and rule orientation, and 3) high expectations, opportunity, and choice (Appendix L). Examples of items from each subscale include: "The coach makes me feel bad when I can't do something right" (negative feedback & coach direction); "When I am working on a skill, the coach tells me what to do" (work & rule orientation); and, "The coach calls on me to explain things to the group" (high expectations, opportunity, & choice). Elite athletes were requested to respond to each item using a Likert-type scale ranging from 1 (*always*) and 5 (*never*). The CTI has been deemed a reliable tool to assess athletes' perceptions of coach treatment, with Wilson and Stephens (2007) reporting alpha reliability coefficients for the three scales of .73 (negative feedback & coach direction), .81 (work & rule orientation), and .74 (high expectations, opportunity, & choice).

Collection of video footage.

Empathic accuracy was assessed using the adapted unstructured dyadic interaction paradigm (Lorimer & Jowett, 2009a, 2009b) to reflect the context in which coach and athlete interactions naturally occurred. A mutually convenient date and time was agreed for the video recording of a competition event. The elite coach wore a small lapel microphone during the event so all conversations between coach and athlete could be recorded directly. Following the opening briefing, the researcher had no further interaction with the coach or athlete until the conclusion of the competition. The zoom function on the video camera allowed for minimal disruption during filming, as the recording could take place from an un-obtrusive position. The coach-athlete dyad were requested to conduct the competition as they would normally; during the short de-brief at the end of the recorded event, the majority of participants reported that they had forgotten about the presence of the researcher and the recording equipment.

Video editing.

Following the recorded session, the video-recordings were downloaded onto a computer for review. Every interaction between the coach-athlete dyad was identified.

Interactions were rejected where the sound quality of dialogue was poor, or the view of the coach or athletes was obscured. Interactions were identified as being where a single topic or issue was addressed. For example, a coach-athlete dyad may have talked continuously for several minutes, first about a specific skill and then about their performance at a previous competition. This would have been divided into two interactions. A representative sample of up to 12 coach-athlete interactions were randomly selected for each dyad. These interactions were selected using the guidelines reported by Lorimer and Jowett (2009a, 2009b), whereby approximately 20% of interactions were taken from the first third of the footage (warm-up, beginning of the competition), 50% from the middle (main event), and 30% from the final third (typically the cool down &/or the conclusion). This approach provided a range of interactions from across the session, without making the selection so prohibitively long that each dyad would be unwilling to participate. A continuous video stream of the interactions was then created, with each separate interaction sequence divided by 60-seconds of blank footage.

5.4.4 Data collection.

A date in the early-part of the season was scheduled for the researcher to meet the coach and the athletes, to explain the study and distribute the first questionnaires. Participants were informed that all questionnaire responses were confidential, that there were no right or wrong answers, and that each question should be answered as honestly as possible. Participants were encouraged to ask questions if they were unsure about any aspect of the questionnaire. At the conclusion of the introductory session, a mutually convenient date and time was agreed for the video recording of a competition event in mid-season, at which point the second round of questionnaires were also distributed.

Measuring coach expectancies.

The data collection process involved the coach completing the MERS (see Appendix K) for each athlete in the early-part of the season and again at mid-season. It was appropriate to collect data at these times, first, to ensure the coach had sufficient time to form expectancies of each athlete and second, to assess if these initial expectations changed over time. In addition, at mid-season the coach was requested to reflect on their original expectations of athletes'. Using a 3-point Likert-type scale, the coach responded to whether athletes exceeded their original expectations, remained the same, or failed to exceed original expectations (Appendix M). Ability and effort expectancies were deemed appropriate constructs to re-assess, as previous research has indicated although coach expectancies regarding ability are inflexible, improvement potential (that may be based on effort) is flexible (Solomon et al., 1998; Solomon & Kosmitzki, 1996).

Assessing athlete's perceptions of coach treatment.

The elite athletes were requested to complete the CTI (see Appendix L) for the coach in the early-part of the season and again at mid-season. Similarly, it was appropriate to collect data at these times, first, to ensure the athletes had time to gain an interpretation of personal coach treatment and second, to assess if their original perceptions changed over time. The coach was asked to be absent while the athletes completed the CTI to minimise any pressure the participants may have felt to respond in a particular manner.

Collection of self-reported thought and feeling data.

Within the 24hrs following each recorded session, participants were requested to independently review the compiled video of their own interactions. A standardised self-report coding sheet was issued to each participant (see Appendix G). This coding sheet was divided into separately numbered sections, one for each selected interaction. Participants were required to record what they could clearly remember thinking and feeling during the actual interaction. Three specific responses were required for each clip: 1) the general feelings experienced, 2) the specific thoughts, and 3) the overall interpretation of the specific interaction (i.e., positive, neutral, or negative). Participants could report as many thoughts and feelings as they remembered experiencing during the specific interaction. Participants completed each section of the coding sheet during the 60-second blank footage following each interaction clip incorporated in the video stream.

Collection of inference data.

Following the self-report review, the video stream was then immediately played again to participants. The same procedure was repeated with clean, inference coding sheets (see Appendix H), however this time participants were instructed to record what they believed their partner had been thinking and feeling during the actual interaction, and how their partner would have interpreted it (i.e., positive, negative, or neutral). All participants were informed that their partner would not see any of their responses and that these would remain strictly confidential.

Following the final review the coach and athlete were both fully debriefed about the nature of the study, the variables involved, and its purpose.

Calculating and aggregating empathic accuracy data.

The empathic accuracy scores were calculated by comparing each member's self-reported thoughts and feelings to their partner's inferences for each selected interaction (Ickes et al., 1990).

Three raters independently considered the similarity of each pairing (i.e., self-reports & inferences) using a 3-point scale: 0 (*essentially different*), 1 (*similar but not the same*), and 2 (*essentially the same*). The mean scores for each individual participant (i.e., coach & athlete) were then calculated. This was the average score of all three raters for all inferences made by an individual (Lorimer & Jowett, 2009a, 2009b). Similar to the procedure adopted by Lorimer and Jowett (2009a, 2009b), these average scores were then divided by 2 and then multiplied by 100, providing an easily interpreted percentile score describing the levels of empathic accuracy: 0% *describing total inaccuracy* and 100% *representing perfect accuracy*.

This raw score was then corrected for the ease with which participants were able to make accurate inferences based purely upon chance (Lorimer & Jowett, 2009a, 2009b). Random pairings of participant's self-reports with their partners inferences were assessed using the same method described above. The resultant score for each dyad called *baseline accuracy* (Ickes et al., 1990), was then subtracted from the original raw empathic accuracy score to produce a corrected value used in analysis. The inter-rater reliability for the original empathic accuracy measure was .87 for the coach, and .81 for athletes, and .86 and .81, respectively for the baseline accuracy measure.

5.5 Results

The coach's expectancy ratings of athletes were classified into high or low groupings using the MERS scores. The top two scores represented high expectancy athletes ($n = 2$, male = 1, female = 1) and the bottom two represented low expectancy athletes ($n = 2$, male = 1, female = 1). The athlete located in the mid-range area was omitted from any further analysis. This process resulted in a clear demarcation between high and low expectancy athletes.

A Spearman's rank-order correlation was used to determine if the coach's perceptions of their athletes' skill and ability remained consistent from early to mid-season based on the MERS scores. There was a strong, positive correlation between early and mid-season scores, however this was not found to be statistically significant, $r_s(4) = .800, p = .200$. Thus, suggesting coach's expectancies of their athletes remained consistent throughout the duration of this investigation. In addition, on reflection of their original expectancies of the athletes at mid-season, the coach perceived high expectancy athletes to have remained the same or exceeded their original high expectations. However, in comparison low expectancy athletes were perceived to have failed to exceed the coach's original low expectations.

To determine whether the coach achieved differential levels of empathic accuracy with high and low expectancy athletes, the coach's expectancy assessments along with the empathic accuracy scores were analysed. Table 5.1 presents the raw, baseline, and corrected empathic accuracy scores for both coach and athlete participants. Values are given for empathic accuracy scores achieved with both high and low expectancy athletes. The median and mean values for scores were not appreciably different and thus, the mean was used in this instance to allow for easier comparisons to previous research.

Table 5.1

Mean Empathic Accuracy Scores of Coaches and High and Low Expectancy Athletes

	High Expectancy Athletes		Low Expectancy Athletes	
	<i>M</i>	<i>(SD)</i>	<i>M</i>	<i>(SD)</i>
Coach empathic accuracy (raw ^a)	66.75	(8.84)	47.00	(1.41)
Coach empathic accuracy (baseline ^b)	20.50	(0.71)	12.50	(5.66)
Coach empathic accuracy ^c	46.25	(8.13)	34.50	(4.24)
Athlete empathic accuracy (raw)	56.25	(8.84)	37.75	(8.84)
Athlete empathic accuracy (baseline)	16.50	(0.00)	14.75	(8.84)
Athlete empathic accuracy	39.75	(8.84)	23.00	(0.00)

Note. raw^a refers to initially calculated empathic accuracy scores, baseline^b refers to the corrective value calculated for the empathic accuracy of each dyad, and empathic accuracy^c refers to the final adjusted score used in the analysis (raw score minus baseline).

The descriptive data for corrected empathic accuracy scores achieved by participants are presented to offer a visual comparison of differences in scores between high and low expectancy athletes (see Figure 5.1, p. 161).

The secondary purpose of this study was to examine whether high and low expectancy athletes perceived any differential treatment received by their coach. A Spearman's rank-order correlation was used to determine if the athlete's perceptions of coach treatment remained consistent from early to mid-season based on the CTI scores. There was a weak positive correlation between early and mid-season scores, which was not found to be statistically significant, $r_s(4) = .105, p = .895$. Thus, suggesting athletes perceptions of coach treatment were inconsistent throughout the duration of this investigation.

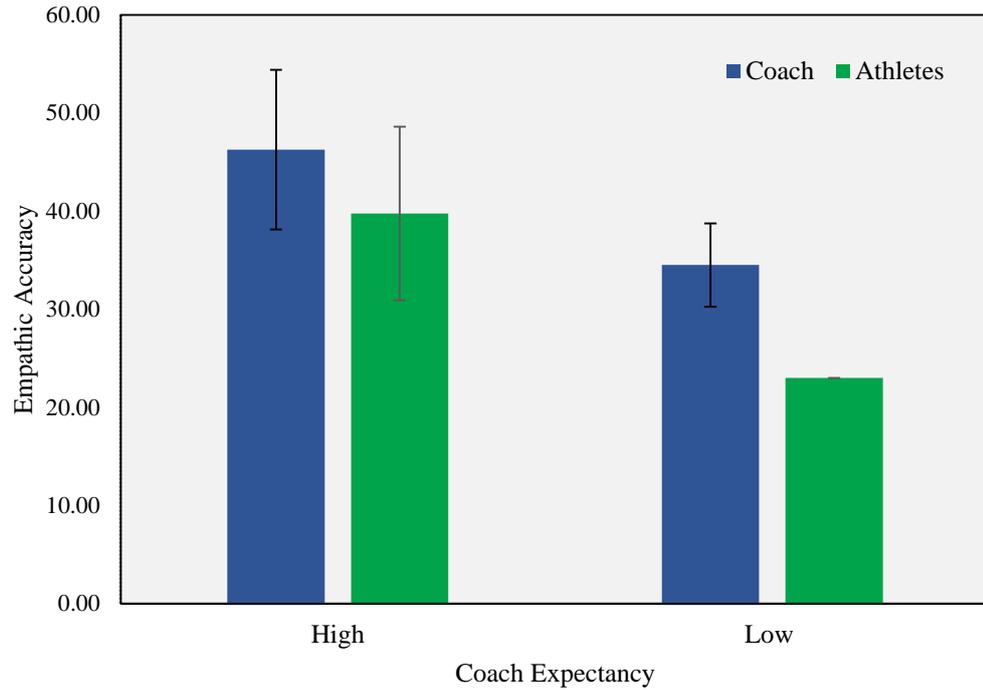


Figure 5.1. Empathic accuracy for coach and athletes based on coach expectancy (i.e., high & low). Standard deviations are represented by the bars attached to each column.

Mann-Whitney tests were used to examine the differences between high and low expectancy athletes on the CTI, which is composed of negative feedback and coach direction, work and rule orientation, and high expectations, opportunity, and choice. High and low expectancy, based on the MERS score, was the independent variable. Dependent variables were CTI negative feedback and coach direction, CTI work and rule orientation, and CTI high expectations, opportunity, and choice. A Mann-Whitney test indicated that negative feedback and coach direction was greater for low expectancy athletes ($Mdn = 31.25$) than high expectancy athletes ($Mdn = 30.75$), $U = .500$, $p = .221$, $r = 0.61$. High expectancy athletes perceived the coach demanded a higher level of learning and expected them to abide by the rules ($Mdn = 26.00$), compared to low expectancy athletes ($Mdn = 24.00$), $U = .000$, $p = .121$, $r = 0.77$. Lastly, high expectancy athletes perceived the coach held higher expectations for them ($Mdn = 26.75$), compared to low expectancy athletes ($Mdn = 24.00$), $U = .000$, $p = .121$, $r = 0.77$. Thus, it appears that high expectancy athletes perceive that they receive favourable coach treatment compared to their low expectancy counterparts.

5.6 Discussion

The main purpose of this study was to explore the relationship between coach expectancies and empathic accuracy in coach-athlete dyads in elite cycling. Specifically, whether a coach's expectancies of their elite athletes determined levels of empathic accuracy achieved. In this study, coach-athlete dyads containing high expectancy athletes achieved increased empathic accuracy, compared to dyads involving low expectancy athletes. In addition, the coach's perceptions of athletes were found to remain consistent from early to mid-season based on the MERS scores. This aligns to the findings of existing research that has reported coaches' perceptions remain stable over time (e.g., Sinclair & Vealey, 1989; Solomon, 2008; Solomon & Kosmitzki, 1996; Solomon et al., 1998). Thus, once the coach labelled an athlete high or low expectancy, this categorisation remained consistent throughout the duration of this investigation.

The differing empathic accuracy scores reported for dyads involving high and low expectancy athletes in the present study can be interpreted in a number of ways. According to Chaiken et al. (1996) people will only cognitively process information as much is required to become sufficiently confident in their decision. Thus, whether available information is processed objectively or subject to expectancy effects, is dependent upon an individual's motivation. Petty and Wegener (1998) argued perceivers with an increased involvement with a target may be more motivated to make accurate objective judgements than those with lower involvement. Similarly, Ickes et al. (1990) proposed if a perceiver places increased importance on making more accurate empathic inferences, it is understood their effort may increase. Therefore, the increased empathic accuracy found in coach-athlete dyads involving high expectancy athletes, may have been due to an increased motivation from both members to better understand each other, given a perceived increase in importance to maximise performance potential at the competition event, compared to low expectancy athletes.

In addition, the secondary aim of the current study was to determine whether the elite athletes, deemed high or low expectancy, perceived any differential treatment received from the coach. The findings revealed high expectancy athletes perceived that the coach held higher expectations, a greater work and rule orientation, and provided less negative feedback to them, compared to their low expectancy counterparts. These results are consistent with previous sport-based expectancy bias studies (e.g., Sinclair & Vealey, 1989; Solomon et al, 1998; Wilson & Stephens, 2007) as well as research conducted in an education setting (e.g., Brattesani, Weinstein, & Marshall, 1984; Weinstein, Marshall, Sharp, & Botkin, 1987; Weinstein & Middlestadt, 1979).

Thus, consistent with step 3 of the coach expectancy cycle (Horn et al., 2010), elite athletes in this study were able to recognise differential coach treatment and may have internalised the coach's behaviour cues. These results highlight a distinction between high and low expectancy athletes' perceptions on some variables that may have stemmed from interactions with the coach. Thus, high expectancy athletes perceived they experienced more positive interactions and spent more time with the coach compared to low expectancy athletes. 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 influence on empathic accuracy (Stinson & Ickes, 1992; Thomas & Fletcher, 2003). Conversely, low expectancy athletes perceived they received fewer and more negative interactions with the coach. Hence, with fewer opportunities to access immediately available information, empathic accuracy with low expectancy athletes decreased.

The findings of this study can relate to each stage of the four-step coach expectancy cycle (Horn et al., 2010). Specifically, the coach formed expectancies and adjusted how they interacted with athletes, achieving increased empathic accuracy with athletes considered high expectancy compared to those deemed low expectancy (step 1 & 2). This adjustment may have served the athletes perceptions in determining whether the coach considered them high or low expectancy (step 3). Influenced by the coach's expectancy, the athletes adjusted their behaviour to conform (step 4), perhaps feeling increasingly or decreasingly motivated to accurately infer the thoughts and feelings of the coach. Thus, promoting a self-fulfilling prophecy and reinforcing the notion that coach expectancy can go beyond influencing the coach's own cognitions and behaviours, but also the cognitions and behaviours of their athletes. These findings support evidence that expectations perceivers have formed about a target may serve as prophecies that dictate or determine the way they treat them (Horn et al., 2010).

Although a number of discernible trends have been discussed, elite coach-athlete dyads in the current study achieved relatively low to moderate levels of empathic accuracy. Thus, providing support to previous research that has suggested coaches and athletes display a degree of error in their empathic inferences and for a substantial proportion of time both members are unaware of what their partner is thinking and feeling (Jowett & Clark-Carter, 2006; Lorimer & Jowett, 2009a). The low accuracy scores can be interpreted in a number of ways. First, they may indicate a genuine lack of accuracy and awareness from both coach and athlete. 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 throughout social interactions. In addition, researchers have suggested that over-thinking inferences can lead to a decrease in accuracy (Ambady & Rosenthal, 1992).

To disconnect 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).

Accurate understanding within the coach-athlete relationship is essential. This dyadic relationship is shaped through the interactions between coach and athlete, specifically the expression of, and accurate response to each other's cognitions, emotions, and behaviours (Jowett & Poczwardowski, 2007). However, findings indicate that a coach's initial expectancy of an athlete may have affected empathic accuracy. Thus, coaches must be aware of how their assessments can affect the effectiveness of communication. Yet previous studies have suggested coaches are often unaware of the behaviours they exhibit towards their athletes (De Marco, Mancini, & West, 1997; Krane, Eklund, & McDermott, 1991). Coaches can influence the athlete's sport experience, positively and negatively, it is therefore increasingly important they are aware of the potential consequences of rigidity in their interpersonal perceptions. According to Becker and Wrisberg (2008), possible strategies to improve coach self-awareness might include maintaining a training diary that highlights coach-athlete interactions, reviewing video clips of training sessions, and/or having an assistant coach or sport psychologist conduct periodic evaluations of coach feedback. In addition, it is important for coaches of all levels to continue to develop themselves and their knowledge of optimal coaching practices. To achieve this, coaches may attend coaching conferences, read relevant books and articles, observe other great coaches, and/or talk to the athletes who train with them.

5.7 Strengths and Limitations

To date, there is a scarcity of literature in sport which examines the relationship between expectancies held by the coach and the subsequent effectiveness of interpersonal perception. The intent of this study was to expand this dialogue by conducting an exploratory investigation of an elite training squad. Although this study represents early exploration into the relationship between coach expectancies and empathic accuracy and includes a small sample, there are some practical implications. The information gleaned from this study serves to further validate the impetus for improved interpersonal perception and communication between coaches and athletes. The relatively low to moderate levels of empathic accuracy and potential expectancy effects recorded in the present study, together with similar findings in previous studies (e.g., Jowett & Clark-Carter, 2006; Lorimer & Jowett, 2009a), suggest that sport psychologists might have an important role to play in improving interpersonal perception between coach and athlete within the sport organisations in which they are involved.

However, although this case study aimed to demonstrate the core concepts and provide insight into the research topic to stimulate further research, the findings must be considered against the backdrop of its limitations. First, the greatest limitation of the present study was the sample size. Clearly, a larger and more sport diverse sample would strengthen this line of research. In addition, due to the small sample size in the present study, statistics lacked power and the results could not be generalised beyond the study population. Second, the MERS and CTI require further research to increase the value of the instruments. Finally, the process of measuring empathic accuracy using video recording, recall, and inference, may raise issues as to the validity of findings as participants may not clearly recall what they were thinking and feeling during recorded interactions. However, this methodology has been frequently used successfully in numerous social contexts (e.g., Ickes, 2003) and more recently in sport (e.g., Lorimer & Jowett, 2009a, 2009b).

5.8 Conclusions

In summary, the findings of the present study provide insight into how a coach's stable expectancies may impact the accuracy of interpersonal perceptions within their coach-athlete partnerships. They also highlight that high and low expectancy athletes perceived differential treatment from the coach. Finally, the present study supports the application of the four-step coach expectancy cycle (Horn et al., 2010) as a framework to understand the potential effects of coach expectancy on interpersonal perception within coach-athlete relationships. When viewed in its entirety, the four-step cycle emphasises the coach-athlete relationship as a two-way process, with each member interacting and influencing the other. The insights offered by this case study highlight the need for further research exploring potential barriers or antecedents of empathic accuracy in the coach-athlete relationship in elite sport. Furthermore, the presence of self-fulfilling expectancy effects in an elite setting sport setting warrants future research to identify other factors that mediate its existence.

5.9 Contributions to Existing Research

The present study supports contributions to existing knowledge in the following ways:

1. Existing research has highlighted the significance of accurate interpersonal perception within the coach-athlete relationship, with a specific emphasis on empathic accuracy and expectancy effects as separate lines of enquiry. This study contributes novel insights by bringing these two phenomena together, exploring the relationship between a coach's expectancies and empathic accuracy during interactions with their athletes in an elite sport setting.

2. To date, there has been a shortage of research examining athletes' perception of coach treatment in elite sport. This study includes elite athletes' perceptions of coach expectations, feedback, and work-related behaviour.
3. Existing studies which have explored coach expectancy have typically been conducted in the United States and/or include differing levels of sport and sport types (e.g., amateur & collegiate vs. team & individual). This study presents findings focused on elite level individual based sport in the UK.

Chapter 6 General Discussion

This project of research presents a series of three studies that contribute new knowledge and understanding surrounding associated impacts of stress and expectancy, on the dynamics of interactions between coaches and athletes in elite level individual based sports. Specifically the impact of stress and expectancies on empathic accuracy. The next section provides a summary of findings from the three studies (supported by Table 6.1). The limitations of this body of work, the implications of findings for theory and practice, and future directions for research are also discussed.

Table 6.1

Summary of Studies

	Study One	Study Two	Study Three
Aims	<ul style="list-style-type: none"> • Explore the stress and coping experiences of elite athletics coaches in the UK, from the coaches' perspective. 	<ul style="list-style-type: none"> • Explore stress and empathic accuracy of coaches and athletes over time, in different environments of elite sport. • Validate measure of empathic accuracy over time and in different environments 	<ul style="list-style-type: none"> • Explore the relationship between a coach's expectancies and empathic accuracy in elite cycling. • Further support validity of measure of empathic accuracy in elite competition
Participants	<ul style="list-style-type: none"> • 6 male, UK based, elite athletics coaches. 	<ul style="list-style-type: none"> • 4 coaches and 20 athletes, forming 20 coach-athlete dyads from elite level individual based sports. 	<ul style="list-style-type: none"> • 1 coach and 5 athletes, forming 5 coach-athlete dyads from elite cycling.
Measures	<ul style="list-style-type: none"> • A semi-structured interview guide of 14 questions derived from existing stress and coping in sport literature. 	<ul style="list-style-type: none"> • Simple stressor frequency inventory • Empathic/baseline accuracy (2 x training, 1 x competition). 	<ul style="list-style-type: none"> • Modified Expectancy Rating Scale • Modified Teacher Treatment Inventory • Empathic/baseline accuracy.
Key Findings	<ul style="list-style-type: none"> • Coaches experienced a vast array of stressors, with stress increasing around competition. • Experience, learning, and support were identified as the most effective coping strategies. • Coaches described limited use of effective psychological skills • Although coaches acknowledged facilitating effects of stress (e.g., increased productivity), they also reported perceived debilitating behavioural and communication changes towards their athletes at times of stress (e.g., reduced interaction & concealing true feelings). 	<ul style="list-style-type: none"> • Coaches and athletes experienced increased stress associated with competition compared to training • Coaches and athletes achieved higher empathic accuracy during competition than training • Coaches achieved higher empathic accuracy in all 3 recorded sessions compared to athletes • Coaches and athletes achieved relatively low to moderate levels of empathic accuracy throughout this study • Varied levels of empathic accuracy were recorded between coaches and the different athletes in their training groups 	<ul style="list-style-type: none"> • Coach-athlete dyads involving high expectancy athletes achieved higher empathic accuracy than low expectancy athletes. • Coach's perceptions of athletes remained stable from early to mid-season. • High and low expectancy athletes both perceived differential treatment from the coach

6.1 Summary of Findings

Study one: Stress and coping: A study of world class athletics coaches.

The aim of study one was to explore the stress and coping experiences of elite athletics coaches in the UK, from the coaches' perspective. Six male, UK based, elite athletics coaches aged between 32 and 57 years ($M_{\text{age}} = 46.7$, $SD = 11.5$) were purposively recruited for this study. Coaches had between 7 and 30 years ($M = 15.5$, $SD = 9.9$) experience coaching at an elite level and represented eight track and field disciplines: long jump, triple jump, pole vault, high jump, 100m, 200m and 400m sprints, and the 400m hurdles. At the time of interview all six coaches were preparing athletes for the 2011 World Championships in Daegu and/or were entering the final stages of training ahead of the London 2012 Olympic and Paralympic Games. Previous literature exploring stress and coping in sport provided the rationale and stimulus for questions integrated into a semi-structured interview guide. Specifically, the interview guide focused on three broad sections: 1) identifying coach-related stressors, 2) exploring the consequences, directionality, and intensity and frequency of stress, and 3) investigating coping strategies and their effectiveness. Interviews were transcribed verbatim and analysed using thematic analysis. The findings indicated coaches experienced a vast array of stressors, with stress increasing around competition. Coaches acknowledged facilitative effects of stress (e.g., increased focus, productivity, & enjoyment), but also reported perceived debilitating behavioural and communication changes towards their athletes at times of stress (e.g., reduced interaction, concealing their true feelings & emotions, increased emotional outbursts, increased physical distance where possible, & defensive posturing). Experience, learning, and support were reported as the most effective coping techniques, and coaches described limited use of effective psychological skills. While all emerging themes were deemed important, debilitating behavioural and communication changes towards athletes in response to increased stress, specifically around competition, was the most cited theme reported by all coaches. Thus, representing a strong indicator of the potential detrimental impact of stress on the dynamics of interactions between coaches and athletes in elite sport.

Study two: Stress and empathic accuracy in coach-athlete dyads participating in elite level individual sports.

Study two expanded on the findings from study one, by examining the dynamics of interactions between coaches and athletes experiencing differing levels of stress. Specifically, by exploring stress and empathic accuracy in coaches and athletes participating in elite level individual based sports.

That is, how accurately coaches and athletes perceived the psychological condition of each other, moment-to-moment, over time, while experiencing stressors associated with different environments (i.e., training & competition). Four coaches and 20 athletes, forming 20-coach-athlete dyads, volunteered to participate from a range of elite level individual based sports (i.e., gymnastics, cycling, athletics, & swimming). An adaptation of the unstructured dyadic interaction paradigm (Lorimer & Jowett, 2009a, 2009b) was used to explore empathic accuracy, whereby each dyad was filmed during two training sessions and one competition event. Participants then viewed selected video footage of interactions that had naturally occurred during each recorded session; recalling what they remembered thinking and feeling during each interaction, while making inferences about what their partners' were thinking and feeling at each point. Comparisons of participant's self-reports and inferences for each interaction were used to calculate a percentage score of empathic accuracy during each session. Participants completed a simple stressor frequency scale to establish levels of stress experienced in training compared to competition. Coaches and athletes both reported experiencing significantly increased stress during competition, compared to training. Empathic accuracy for both coaches and athletes was also found to be higher in competition than in training. However, participants achieved relatively low to moderate levels of empathic accuracy throughout this study. In addition, varied levels of accuracy were recorded between coaches and the different athletes in their training groups. Thus, emphasising a need for research investigating potential barriers or antecedents of empathic accuracy in coach-athlete relationships in an elite sport setting.

Study three: The relationship between coach expectancies and empathic accuracy – a case study in elite cycling.

The third and final study investigated the relationship between a coach's expectancies and empathic accuracy in elite cycling, to establish if coach expectancy could determine levels of empathic accuracy. This study also examined whether high and low expectancy athletes perceived any differential treatment received by their coach. One male coach and five athletes, forming five coach-athlete dyads, were purposively recruited from elite cycling. Coach expectancies of each athlete were rated at early and mid-season using the Modified Expectancy Rating Scale (MERS; Becker & Wrisberg, 2008). To examine perceptions of coach treatment, athletes completed a Coach Treatment Inventory (CTI; Wilson & Stephens, 2007), again at both early and mid-season. Empathic accuracy was measured as in study two, but each dyad was filmed once, during a competition event. Results found coach-athlete dyads containing high expectancy athletes achieved higher empathic accuracy, than dyads involving low expectancy athletes.

In addition, high expectancy athletes perceived the coach gave them less negative feedback, demanded a greater level of work from them, and held higher expectations for them, compared to their low expectancy counterparts. When applied to the four-step coach expectancy process (Horn et al., 2010), these results suggest the coach's behaviour might have been congruent with their expectations, which in turn may have affected levels of empathic accuracy and influenced perceived differential coach treatment.

The collective findings of these three studies offer a unique insight into the dynamics of interactions between coaches and athletes in elite level individual based sports. Study one provided evidence that coaches, like athletes, experience a vast array of stressors, and that such demands can have negative consequences, not only on the coaches themselves, but also on their behaviour and communication with athletes. Yet, even though the coach-athlete relationship has been described as a platform from which coaches and athletes interact in unique ways to bring about performance accomplishments, success, and satisfaction (Jowett & Cockerill, 2002), limited research had explored the dynamics of interactions between coaches and athletes, specifically empathic accuracy, in elite level sport. According to Ciarrochi et al. (2001), an individual's ability to accurately perceive others is thought to play a pivotal role in allowing them to interact and respond appropriately. Accurately perceiving and interpreting verbal and nonverbal information allows individuals to decode others' thoughts, feelings, intentions, and characteristics (Losoya & Eisenberg, 2001). Study two provided novel findings by examining empathic accuracy achieved by coaches' and athletes' over time, while experiencing stressors associated with different environments (i.e., training & competition). Although the findings suggested coaches and athletes were increasingly accurate in their empathic inferences at times of increased stress, typically during competition, the low to moderate levels of empathic accuracy recorded throughout study two highlighted a need for further research exploring potential barriers or antecedents of empathic accuracy. Moreover, coaches reported varied levels of accuracy with the different athletes in their training groups. Study three therefore explored the relationship between a coach's expectancies of their athletes and empathic accuracy, to establish if a coach's prior knowledge of their athletes, in the form of expectancies, could determine levels of empathic accuracy achieved. The findings described in study three provide vital evidence that suggest a coach's expectancies of their athletes (i.e., high or low), may determine levels of empathic accuracy achieved. With coach-athlete dyads containing high expectancy athletes achieving greater accuracy than those involving low expectancy athletes. Furthermore, elite athletes reported perceived differential treatment in line with the coach's expectancy. These findings support the position that the coach-athlete dyad presents an area of research ripe for continued investigation. Specifically, that stress and expectancies can play a significant role in influencing the dynamics of interactions between coaches and athletes in elite sport.

6.2 Limitations of this Thesis

Although this series of studies provides a unique insight into the dynamics of interactions between coaches and athletes in an elite sport setting, the findings presented must be considered against a back drop of limitations. The limitations specific to each study have been discussed in the relating chapters, this section considers the body of work as a whole.

First, difficulties associated with employing self-reports and relying on participant recall apply to the research undertaken in all three studies. For example, inadequate memory problems, the desire of participants to present themselves in a positive light, language ambiguity, the use of verbal reports as an ego defence, and retrospective falsification (Bryman, 2013). It is possible the data collected throughout this project was subject to such effects, even though participants were asked to report on specific events they had recently experienced (e.g., describing the stress associated with coaching world class athletes during final preparations for the London 2012 Olympic & Paralympic Games). Future research could look to use additional assessment tools or measurement techniques to minimise the potential confounding effects of self-report measures and recall processes. For example, using concept maps (Novak, Bob Gowin, & Johansen, 1983), experience sampling (Hektner, Schmidt, & Csikszentmihalyi, 2007), or daily diary studies (e.g., Nicholls, Jones, Polman, & Borkoles, 2009).

Although access to study participants throughout this thesis was exceptional in terms of quality, sample size was limited. The intention of all three studies was to explore and demonstrate key concepts in a sample of coaches and athletes from elite level individual based sports in the UK. However, purposively recruiting a sample of elite coaches and athletes automatically restricted access to vast numbers, because the elite population is smaller than the non-elite. Focusing solely on individual based sports provided yet another level of restriction to potential participants. Such restrictions and recruiting small samples posed the increased risk of the reader being able to identify the elite coach and athlete participants, by processes of elimination. Therefore, to protect the identification of participants, all results were reported anonymously and demographic details provided for each study remained broad (e.g., gender, age, relationship length, & general sport type, as opposed to assigning a precise discipline, competing distance or event to each individual). In addition, coaches and athletes involved in elite sport are typically required to follow strict, well-planned schedules in preparation for competition. Meticulous measures are often implemented by management to regulate external commitments and potential distractions. These tight controls made it difficult for a number of coaches and athletes to commit to participation, especially throughout the competition schedule.

Thus, limited sample sizes restricted the investigation of individual differences on the topics explored and carried limitations in interpreting results, in particular the increase in standard error and confidence intervals. Replication of findings and samples drawn from different sports and populations would increase the generalisability of the results presented.

In addition, although the findings of this project might offer interesting insights to research and applied practice in other sports, they should not be viewed as directly transferable. For example, the classification of sports used (i.e., individual based) is a broad way of categorising sport types and different categories of sport exist within these (e.g., wet & dry sports, indoor & outdoor sports). It is possible the differing contexts involved in these sports may have influenced coach-athlete interaction. For example, reduced coach-athlete interaction frequency in swimming due to the nature of the sport. In addition, although individual based sports are predominantly one-to-one between coach and athlete, funding structures traditionally support one head coach working with a small number of athletes. Although this set-up supported the case study example in study three, the one-with many design employed in study two meant coaches' and athletes' data had to be presented separately.

Lastly, as real training sessions and competition events were used in studies two and three, it was important that coaches and athletes were available and both could give up time to review the footage within 24-hours of the initial recording. Based on these reasons, coaches were allowed to select the training sessions and competition events and the athletes they worked with. Although this increased the chances of having the coach and athlete available at the same time, it is possible it may have introduced a degree of positive bias (i.e., coaches choosing athletes with whom they have a good relationship or coaches selecting sessions during which they would appear more able). Consequently, future researchers may wish to randomly select participants or consider an alternative athlete selection criteria.

6.3 Theoretical Implications

This section will consider the theoretical implications of this project of research to the field of sport psychology by linking the findings of the three studies to existing literature. Implications for stress and coping, empathy, expectancy, and elite sport research are presented.

6.3.1 Stress and coping experiences of coaches.

Much of the existing stress and coping research in sport has focused on athletes and officials.

Expanding the study of stress and coping to the coaching population allows for direct comparisons with concurrent research reporting the stress experiences of elite athletes and thus, widens research related to the coach-athlete relationship. Especially since the coach-athlete relationship has been defined as a situation in which a coach's and athlete's cognitions, feelings, and behaviours are mutually and causally interrelated (e.g., Jowett & Poczwardowski, 2007; Jowett & Cockerill, 2002). The findings of study one suggested coach stress experiences can be harmful to the interdependent coach-athlete relationship, with coaches reporting perceived debilitating behavioural and communication changes towards their athletes at times of stress. This offers significant knowledge extensions to existing coach effectiveness literature. The adoption of alternative coaching behaviours at times of stress highlights a need for future research to examine variances in coach effectiveness at times of increased stress. In addition, at times of stress coaches' in study one reported reduced interaction with athletes, increased emotional outbursts, and increased physical distance where possible. Although such responses to stress may occur in isolated incidences, prolonged exhibition of such consequences would likely be detrimental to the coach-athlete relationship. For example, Jowett and Poczwardowski (2007) proposed the significance of closeness (i.e., trust & respect) in the maintenance of an optimal coach-athlete relationship, which would likely be impacted by repeated occurrences of such changes in coach behaviour. Further research is required to extend understanding of the impacts of stress on the coach-athlete relationship.

Qualitative methods have been favoured in studies exploring the stress and coping experiences of elite athletes, especially in identifying stressors (e.g., Hanton et al., 2005; Thelwell, et al., 2007) and understanding coping responses (e.g., Gould, Jackson, et al., 1993; Scanlan et al., 1991). The qualitative approach employed in study one was fundamental to explore elite coaches' experiences of stress and coping in detail. The unique setting of elite level sport in terms of pressure and expectation, in addition to the individual based environment, required an in-depth investigation to understand the unknown phenomenon of stress and coping from the coaches' perspective. Although, limited coach specific literature was available to guide research methods at the time of investigation, study one highlighted that existing theory can be applied to coach specific research. It could therefore be argued research exploring new concepts in coaching can benefit from the application of existing theory.

6.3.2 Empathy in coach-athlete relationships.

Literature highlighting the interdependent nature of the coach-athlete relationship has emphasised the reciprocity of behaviours and attitudes between the coach and athlete and stressed the importance of interpersonal perception (e.g., Jowett & Poczwardowski, 2007; Jowett & Wylleman, 2006). Studies two and three extend such work by providing vital evidence surrounding the influence of stress and expectancies on the interpersonal dynamics between coach and athlete. Study two has shown that under increased stress both coaches and athletes achieve greater levels of empathic accuracy. Furthermore, study three has highlighted coach expectancies as a potential antecedent of empathic accuracy, with increased empathic accuracy reported in coach-athlete dyads containing high expectancy athletes, compared to those involving low expectancy athletes. These findings have implications for the role of motivation in interpersonal perception. The increased empathic accuracy reported during competition and in dyads involving high expectancy athletes supports previous research that has suggested an increased importance on achieving greater accuracy may increase perceivers' motivation (Ickes et al., 1990).

In addition, this project of research has continued the work of Lorimer and Jowett (2009a, 2009b) in establishing the validity of the adapted unstructured interaction paradigm as a measure of empathic accuracy. While the validity of this paradigm had been explored in measuring empathic accuracy in coach-athlete dyads during a single training session, this project has added a new dimension to establishing other important forms of reliability, namely cross-situational and cross-temporal reliability (Thomas & Nelson, 2001). This was accomplished in study two through assessing empathic accuracy across several training sessions and a competition event with the same participants. Moreover, this study was the first to obtain data over several observations, assessing empathic accuracy repeatedly in dyads involving coaches and the multiple athletes they work with. A one with many design, employed in studies two and three, enabled the examination of empathic accuracy in coach-athlete dyads involving the same coach with multiple athletes, therefore producing a more precise representation of a coach's average empathic accuracy, while also highlighting variations of empathic accuracy achieved by the same coach with different athletes in their training group.

6.3.3 Expectancies.

This project of work has supported the application of the four-step coach expectancy cycle (Horn et al., 2010) as a framework for understanding the potential effects of coach expectancy on interpersonal perception during interactions within the coach-athlete relationship.

The results of study three showed coach-athlete dyads containing high expectancy athletes achieved higher empathic accuracy, compared to dyads involving low expectancy athletes. In addition, high expectancy athletes perceived that the coach gave them less negative feedback, demanded a greater level of work from them, and held higher expectations for them, compared to their low expectancy counterparts. When applied to the four-step coach expectancy process (Horn et al., 2010), these results suggest the coach's behaviour might have been congruent with their expectations, which in turn may have affected levels of empathic accuracy and influenced perceived differential coach treatment. Specifically, it is possible the coach formed expectancies and adjusted how they interacted with athletes, achieving increased empathic accuracy with athletes considered high expectancy compared to those deemed low expectancy (step 1 & 2). This adjustment may have served the athletes perceptions in determining whether the coach considered them high or low expectancy (step 3). Influenced by the coach's expectancy, the athletes adjusted their behaviour to conform (step 4), perhaps feeling increasingly or decreasingly motivated to accurately infer the thoughts and feelings of the coach. Thus, promoting a self-fulfilling prophecy and reinforcing the notion that coach expectancy can go beyond influencing the coach's own cognitions and behaviours, but also the cognitions and behaviours of their athletes. These findings support evidence that expectations perceivers have formed about a target may serve as prophecies that dictate or determine the way they treat them (Horn et al., 2010). Thus, while the findings of study three support Horn et al's (2010) four-step expectancy cycle in terms of exploring coach expectancy on interpersonal perception during interactions between coach and athlete, the model would likely be applicable to a multitude of contexts when exploring the effects of expectancies on interpersonal dynamics of other relationships, such as peer, personal, or professional relations.

6.3.4 Research in elite sport.

Sport science literature has traditionally strived to understand the unique attributes of elite performers in an attempt to identify what enables them to reach optimal performance. In sport psychology, much attention has been afforded to exploring the psychological attributes of elite athletes with the aim of influencing athlete talent and development (Durand-Bush & Salmela, 2002). The findings of research focused in elite sport can be disseminated to sports performers and practitioners at all levels. Although studies exploring the coach-athlete relationship and specifically the importance of effective interaction between coach and athlete has increased (e.g., Lorimer & Jowett, 2009a, 2009b), little research has explored the interpersonal dynamics in coach-athlete dyads based in elite sport. Coaches and athletes involved in elite level competition are often required to make critical decisions, deal with adversity, and are held to incredibly high expectations.

To this end, research exploring the interpersonal dynamics between coach and athlete operating in this unique context are of critical importance to understanding psychological functioning within sport, but also within wider experiences of life (Jowett & Wylleman, 2006). Exploring the dynamics of interactions between coaches and athletes in entire samples of participants from elite level individual based sports, adds a new dimension to literature concerning the interpersonal relationship between the coach and the athlete. Giving focus to a whole sample of coaches and athletes from elite level individual based sports contributes new insights; specifically that coaches and athletes in elite sport are more accurate in their perceptions and understanding of each other under increased stress and coach expectancy can affect levels of empathic accuracy.

6.4 Practical Implications

This project of research aims to help better understand the dynamics of interactions between coaches and athletes involved in elite sport. This section sets out to highlight the potential applications of the research findings for governing bodies, coaches, athletes, and sports psychologists.

6.4.1 Stressors and coping efforts of elite coaches.

Previous research has suggested given the technical, physical, organisational, and psychological challenges involved, coaches should be considered and supported as performers in their own right (Thelwell et al., 2008), the vast array of stressors described by coaches in study one further substantiates this argument. It is clear these coaches work under high pressure and face a multitude of challenges, while also striving towards optimising the performance of their athletes. Sports organisations should therefore take steps to ensure that appropriate support is available to coaches and research must continue to provide evidence surrounding topics relevant to optimising coach performance.

In addition, the findings of study one provide an in-depth and broad understanding of the stressors that reside in coaching in elite individual based sport in the UK. Dissemination of these findings to coaches looking to move into elite sport would increase their awareness of the types of demands they might come to face. For example, stressors surrounding pressure and expectation, coaching responsibilities, and conflict. The coping strategies described by coaches in response to such an array of stressors suggest elite athletics coaches require a diverse repertoire of coping skills from the five primary coping dimensions; problem and emotion-focused, avoidance, approach, and appraisal coping (Weston et al., 2009).

This provides evidence for coach education programmes and sports psychologists to go beyond teaching traditional emotion-focused strategies (e.g., relaxation), as it cannot be assumed coaches possess coping strategies for all coping categories.

According to Jowett and Wylleman (2006), a relationship does not reside within an individual, but rather is a product and process shared by two people. This research has reinforced the notion that the coach-athlete relationship has the potential to be a mutual stressor for both coach and athlete. Therefore benefits might come from sport psychologists working with coach-athlete dyads as a unit, as well as with coaches and athletes on an individual basis, to improve the maintenance of effective partnerships. This advocates a dyadic approach to practice, recognising the manner in which both parties reciprocally influence each other.

6.4.2 The dynamics of interactions between coaches and athletes.

Effective communication is considered a key dimension of coaching and the foundation to building and maintaining relationships (La Voi, 2007). According to Rhind and Jowett (2010), 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. Clear and specific communication between coach and athlete has been identified as the best source of information for forming accurate empathic inferences (Lorimer & Jowett, 2009b) and thus, enabling coaches and athletes to interact and react appropriately. However, the coaches and athletes involved in this project achieved relatively low to moderate levels of empathic accuracy. The findings of study two are particularly beneficial for coaches, athletes, and stakeholders in better understanding how interactions between coach and athlete can change over time in different environments, especially since empathic accuracy was higher with increased stress associated with competition. This has implications for improving coach-athlete empathic accuracy in the training environment, given this is where coaches and athletes spend the majority of their time. Researchers and sport psychologists should therefore consider ways to increase empathic accuracy between coaches and athletes. Coach-athlete dyads could look to enhance available information during their interactions to increase their knowledge of each other and potentially increase motivation to work together. For example by encouraging more feedback, asking more questions, engaging in dialogue during sessions together, or taking time outside of training and competition for social interaction (Lorimer, 2013). In addition, it could be suggested coaches and athletes must remain attentive to the verbal and non-verbal cues given by their partners and not assume because a situation or context is similar to one encountered, that the target individual will react in the same or similar fashion.

This is not to say previous experience and prior knowledge are not useful in aiding coach-athlete understanding, but the findings of study three suggest a held judgement in the form of expectancies might negatively impact empathic accuracy.

6.4.3 Coach perceptions of athletes.

According to Solomon, Golden, Ciaponni, and Martin (1998), a bias is a tendency to emphasise factors that are irrelevant to the situation or athlete with whom you are working. Previous research (e.g., Solomon et al., 1998) and the findings of study three have shown coaches' expectations of athletes are inflexible. Coaches' assessments of athletes formed at the start of a season are likely to remain unchanged. The findings of study three suggest coach expectancy may have influenced the coach during interactions with their athletes, with greater empathic accuracy achieved with high expectancy athletes compared to those deemed low expectancy. Individuals working with coaches and athletes should therefore be encouraged to identify such expectancy effects and view them as a potential means of facilitating the development of effective interpersonal relationships. Coaches must be aware of the possible biases influencing them and their behaviour and consciously process information in an attempt to understand their athletes and not rely on previous knowledge or held expectancies.

In addition, coaches should be aware that elite athletes can perceive differential coach treatment based on their expectancies and continued feelings associated with low expectancy athletes might be a precursor of drop-out from competitive sport. It is therefore recommended that coaches attempt to modify aspects of their behaviour when coaching low expectancy athletes to optimise empathic accuracy and reduce the impacts of perceived differential coach treatment. However, further research is required to investigate this assumption.

6.5 Recommendations for Future Research

Recommendations for future research have been made throughout this project, steered by the findings and limitations presented. However given this thesis is a series of three studies, where the findings of each investigation have guided the subsequent study, it is appropriate to highlight recommendations for future research.

Although this body of work has presented an examination of coaches' and athletes' empathic accuracy over time in different environments (i.e., training & competition), future studies should look to explore how empathic accuracy changes over an even larger time duration, such as a competitive season or an entire Olympic or Paralympic cycle.

This would enable researchers to establish links between empathic accuracy and changes over time as a result of factors such as injury or performance improvements. Especially because the bond between coach and athlete is one that is shaped and developed over the course of many interactions (Jowett & Poczwardowski, 2007). However, perhaps one of the most interesting areas for future research is to continue to address potential influencing factors of empathic accuracy in the coach-athlete relationship. For example, studies conducted over a prolonged period of time would provide an opportunity to examine the extent to which stress and expectancy effects within coach-athlete relationships accumulate, dissipate, or remain stable and the corresponding impact these effects have on empathic accuracy. Study two explored the impacts of stress on empathic accuracy over time across two training sessions and at a competition even during the competitive season. Similarly, study three explored the relationship between a coach's expectancies and empathic accuracy over time from early to mid-season. Future research could look to explore associated impacts of stress and expectancies over a prolonged duration.

Research exploring additional factors that could potentially influence empathic accuracy in coach-athlete interactions is also required. For example, gender, age, and culture. Studies have found gender expectations can result in females being more accurate in their perceptions than males (e.g., Ickes et al., 2000). Cultural and ethnic influences have been found to have a detrimental impact on athletes' perceptions of their coaches, with athletes reporting coaches of different ethnicities lacked an understanding of them (Jowett & Frost, 2007). If culture and ethnicity form a barrier to empathic accuracy, it could be argued a significant age gap may also obstruct empathy. A significant age gap between coach and athlete may cause difficulties in interpersonal perception because both parties refer to a different frame of reference when forming their inferences. Research focused on this area may start to highlight potential means of overcoming potential barriers or influences of empathic accuracy and thus aid the development and maintenance of effective interactions between coaches and their athletes.

6.6 Concluding Remarks

This project of research has furthered the development of understanding and theory in a number of ways. First, it has provided researcher's and sport psychologist's knowledge of the stress and coping experiences of coaches involved in elite level athletics in the UK, and presented key evidence to support the development of effective coping interventions for coaches working alongside world-class athletes. It has offered vital evidence of the dynamics of interactions between coaches and athletes while experiencing stressors associated with different environments (i.e., training & competition). It has extended broader literature on empathic accuracy and its measurement, through a longitudinal examination in a unique setting.

Lastly, it has expanded the limited dialogue surrounding the relationship between a coach's expectancies and the subsequent effectiveness of interpersonal perception with their athletes. It remains for further research to continue to explore potential barriers and antecedents of empathic accuracy and to establish ways to improve coaches' and athletes' ability to interact effectively with each other.

APPENDICES

Appendix A: Study One Participant Information Document

UNIVERSITY OF HERTFORDSHIRE
FACULTY OF HEALTH & HUMAN SCIENCES
School of Life Sciences

BRIEFING DOCUMENT

INTRODUCTION

The study of stress in sport continues to develop, with existing research focused primarily on the athlete (Hanton, Fletcher, & Coughlan, 2005). According to Lazarus and Folkman (1984), stress responses result from a perceived imbalance between environmental demands and an individual's coping resources. Extensive research has explored strategies employed by athletes to cope effectively with the various stressors associated with sport. However few studies have investigated the stress and coping experiences of elite sports coaches. A more detailed exploration of the stress and coping experiences of elite sports coaches in different situations (i.e., training & competition) is therefore required.

BURDEN ESTIMATE

As a volunteer you will be required to provide verbal consent prior to participation. You will then be asked to attend a semi-structured interview at a time and location most convenient for you and your working schedule. The interview is estimated to last approximately 60 minutes and will be recorded on audiotape to allow the schedule to run continuously. All data will be collected in the strictest confidence and shall remain anonymous throughout.

You may withdraw from this study at any time without prejudice or having to give a reason for your withdrawal. Any information collected prior to your withdrawal will be removed from the study and erased. If you have any further questions, these can be put to the lead researcher at any time.

PERSONAL DATA

All personal data will be anonymised throughout and stored either electronically in a password protected file on the lead researcher's personal laptop, or as hard copies in a locked drawer. All data will be destroyed upon completion of this study, either on receipt of the grade, or one month after; all paper work will be shredded and all computerised data deleted. Any deviation from this practice will only take place with expressed permission from you the participant, for example providing consultancy information to a sporting governing body (e.g., UKA).

Please use the email address below should any queries or concerns arise. As a participant you will be asked not to discuss this study with others until the research has been completed.

Thank you for your time and participation.

Elizabeth Scholefield
e.s.scholefield@herts.ac.uk

Appendix B: Study One Interview Guide

Interview Guide- Year 1 (semi-structured, approx. 1hr)

Section 1 – Introductory comments & initial experiences

1. To start, please can you explain how & when you first got into coaching?

2. What has happened throughout your coaching career since then?

Elaboration Probes - What coaching positions have you held? How has your coaching career progressed? How long have you spent in each coaching position? What were your main reasons for moving on?

3. Please tell me about the coaching role/s you are in at present.

Elaboration Probes - Is your coaching role full-time? Are you currently involved in coaching more than one athlete/team/across different disciplines? What is a typical week like for you in your current role/s? Do you hold any additional positions outside of your current coaching role? (e.g., Governing Body representation, consultancy, lecturing).

Section 2 – Identifying stressors

I would now like you to think about your current role as a [name athletics discipline/s] coach and the environment you work in...

4. Do you find your job as a coach stressful?

Elaboration Probes - Do your levels of stress vary throughout the coaching season (if yes) How? Has it always been that way?

5. What is it that makes your job as a coach stressful?

*Elaboration Probes - Are there any specific components of your job that you find particularly stressful (if yes) What? Why is that a particular source of stress for you? What would you say is the **most** stressful part of your job?*

*Clarification Probes - I am not sure I understand exactly what you mean by (**specific stressor**). Can you go over that again for me?*

Section 3 – Consequences of stress

I would now like us to talk about some of the consequences that experiencing stress has for you. Thinking back over your career coaching World Class athletes...

6. Please describe a time/s that has been particularly stressful for you.

7. If I were one of the people around you at that time, for example another coach or one of your athletes, would I have been able to tell that you were feeling stressed (if yes) How?

Elaboration Probes - What effects did this stress have on you? How did you feel physically? What thoughts went through your mind? Has it ever got too much? Would you continue with your normal training routines?

8. How does stress influence your coaching performance or indeed the performance of your athlete/s?

Elaboration Probes- Have you ever noticed a change in your own or your athlete's performance/attitude at times of stress?

Section 4 – Directionality of stress

9. Have you ever considered the stress you experience to be a facilitator of your coaching performance? Can you provide me with any examples?

Elaboration Probes- Do you think experiencing stress can have a beneficial impact on your coaching performance (if yes) How? When/how did the stress become facilitative? Is this something you have always been aware of? Did it require some effort to see the stress as facilitative to your performance?

10. Have you ever consciously adjusted your views on stress from negative to positive, to aid your coaching performance?
-

Section 5 – Intensity & frequency of stress in training & competition

11. How does stress associated with training compare to stress associated to competition?

Elaboration Probes- Do the levels/frequency of stress you experience differ in training compared to competition? (if yes) How? Do the levels/frequency of stress you experience differ before/during/after competition (if yes) Please explain in more detail? Does an increase in stress affect your chosen coaching strategies at that time (if yes) How?

Section 6 – Identifying coping strategies and their effectiveness

12. How do you cope at times of increased stress?

Elaboration Probes- What strategies do you put in place to help you at times of stress? Do the strategies you implement differ before/during/after competition? (if yes) How? Where did you learn these strategies? How exactly do the chosen coping strategies help you?

13. Have you ever been taught any coach specific coping strategies?

Elaboration Probes- Throughout your coaching career have you ever been offered any support in terms of mental preparation techniques/coping strategies? Has anyone from your sport or support periphery ever taught you any coping strategies?

14. How effective are your chosen coping strategies at managing the stress you experience?

Elaboration Probes- Do the coping strategies have an immediate effect on easing high levels of stress? Do they help you in every given situation? Which strategy/ies would you recommend to a coach just starting out or other coaches as the most effective? Why?

Thank you for your time. That is everything I wanted to ask you but before we finish, is there anything you would like to ask me, or anything you would like to add that you feel we have not covered?

Appendix C: Study One Codebook

Code	Type	Description	Example from data
<i>Initial Experiences</i>	Deductive	Initial experiences as a coach. Apply this code for discussion about how and when participants first got into coaching.	<i>I was a university student...I was 18 years old, wasn't a good enough athlete to carry on in University so I started helping out at my old High School while I went to University, so that was the beginning.</i>
<i>Career Progression</i>	Deductive	Career progression as a coach. Use for discussion on how the participant's coaching career has progressed over time.	<i>I get a lot of athletes in elite sport coming to me when they need an answer, where they're not getting answers from their medical team or support staff.</i>
<i>Current Role</i>	Deductive	Current role as an elite athletics coach. Apply this code for any discussion about the participant's current coaching role. Stress related to current role should not be mentioned here.	<i>I coach about a dozen kids on the World Class Athletic Plan, I supervise all the coaches and I oversee probably a dozen performance staff members...I interface with the clubs and the community. I do a lot of work with Paralympians...and like I said a lot of coaching education.</i>
<i>Stress in Current Role</i>	Deductive	Stress in current role as an elite athletics coach. Use this code for the identification/classification of stress levels in the participant's current coaching role/coaching season. Specific components of stress and stress in different situations should not be mentioned here.	<i>I think stress ebbs and flows, it is cyclic and there are periods where stress is going to be higher.</i>
<i>Specific Components of Stress</i>	Deductive	Specific components of stress in <u>current</u> coaching role. Use for discussion around specific components of their <u>current</u> coaching role that participant's highlight to cause them stress (e.g., what, why, and the most stressful component).	<i>There's only one World Championships this year so if you get it wrong not only did you fail the objective but there's funding issues...they can lose their funding...there's sponsorship issues...the failure is not only a failure in sport but it effects their entire life...if you have got a dozen athletes that's a huge responsibility.</i>
<i>Stress Example</i>	Deductive	Use this code for the description of a particularly stressful experience highlighted by the participant within their coaching career.	<i>I was sued for 12 million dollars by an athlete, almost went bankrupt, spent 3 years in court...that was huge stress.</i>
<i>Consequences of Stress</i>	Deductive	Any discussion on the consequences of stress on participants, both mentally and physically. The effects of stress on coaching/athlete performance should not be mentioned here.	<i>Health, body language, posture...I am sure there were some days the mood was dark...you get real narcissistic.</i>

Code	Type	Description	Example from data
<i>Impact of Stress on Coach/Athlete Performance</i>	Deductive	Impact of stress on both coach/athlete performance. Apply this code for any discussion about the impact of stress on the participant's coaching performance or the performance of their athletes. Directionality of stress should not be mentioned here.	<i>I think athletes feed tremendously off their coach and their emotions. A lot of times athletes want to lift you up with a performance...they try too hard.</i>
<i>Directionality of Stress</i>	Deductive	Use this code for any discussion around the directionality of stress, stress having a facilitative impact on coaching performance.	<i>Yeah, I think stress usually evokes change...temporary pain for a greater gain.</i>
<i>Intensity & Frequency of Stress</i>	Deductive	Intensity and frequency of stress in training and competition. Apply this code to any discussion around the differences in stress in training and competition.	<i>A trials meet is stressful, more stressful than a Diamond League meet. Diamond League OK you just lost money and a little bit of ego. But if you blow up at the trials...you can lose a lot.</i>
<i>Coping Strategies</i>	Deductive	Coping strategies employed by participants. Use for any mention of coping methods employed by participants in situations of increased stress.	<i>Prayer, network, friends, colleagues, key athletes...acupuncture.</i>
<i>Coping Strategy Effectiveness</i>	Deductive	Apply this code to any discussion on the effectiveness of coping strategies employed by participants at times of increased stress.	<i>You know a lot of common strategies they are only as good as what you practice, you have got to practice them.</i>
<i>Employment Type</i>	Inductive	Apply this code for any mention of the differences in employment type of coaches currently working in the UK (i.e., paid vs un-paid/ experience vs. qualifications). Employment type of current role should not be mentioned here.	<i>...the majority of coaches, I think within Britain there is probably only about 5 full-time paid sprint coaches anyway.</i>
<i>Previous Experiences</i>	Inductive	Use this for any discussion on previous experiences and how they might have contributed to the coach's career. Detail of initial coaching experiences should not be mentioned here.	<i>...as an athlete who was a failed athlete luckily I was with very good athletes, my best friend was a tremendous athlete who was an Olympic Silver medallist and I was with him 24hrs a day...you spend a lot of time around elite performers so you learn a great deal from elite performers...I saw brilliant athletes fail miserably and I have never really tried to repeat that.</i>
<i>Preparation</i>	Inductive	Apply this for any mention of preparation work/forward planning involved in coaching role.	<i>...here we are in August and I am organising...as soon as you have gone I will be upstairs organising next years competition schedules for training and competitions schedules...</i>
<i>Commitment to Athletes</i>	Inductive	Commitment and dedication to athletes by the coach. Use for any mention of commitment to athletes.	<i>...these guys are professional sportsmen and you've given them a bond of trust and they expect something from you.</i>

Appendix D: Study Two Participant Information Document

UNIVERSITY OF HERTFORDSHIRE

ETHICS COMMITTEE FOR STUDIES INVOLVING THE USE OF HUMAN PARTICIPANTS

PARTICIPANT INFORMATION SHEET

Stress and empathic accuracy in coaches and athletes participating in elite level individual based sports

Introduction

You are being invited to take part in a research study. Before you decide whether to do so, it is important that you understand the research that is being done and what your involvement will include. Please take the time to read the following information carefully and discuss it with others if you wish. Do not hesitate to ask us anything that is not clear or for any further information you would like to help you make your decision. Please do take your time to decide whether or not you wish to take part. Thank you for reading this.

What is the purpose of this study?

The coach-athlete relationship is recognised as a major force in promoting the development of an athlete's physical and psychosocial skills (Jowett, 2005). It has been reported that the consequences of stress displayed by a coach (e.g., changes in communication style or body language) can change the dynamics between coaches and athletes. According to Ickes (2001), empathic accuracy is central to relationship research because it facilitates positive interactions, thus contributing to satisfying relationships. The term empathic accuracy has been defined as the accuracy of an individual's moment-to-moment perception of the psychological condition of another (Ickes et al., 1990). To date, the findings of existing literature investigating empathic accuracy and the coach-athlete relationship have been based on 'snap-shot' interactions during a single training session, at varying levels of competition. The purpose of this study is therefore to examine how coaches and athletes perceive and understand each other over time, while experiencing stressors associated with different environments (e.g., training & competition).

Do I have to take part?

It is completely up to you whether or not you decide to take part in this study. If you do decide to take part you will be given this information sheet to keep and be asked to sign a consent form. Agreeing to join the study does not mean that you have to complete it. You are free to withdraw at any stage without giving a reason. A decision to withdraw at any time, or a decision not to take part at all, will not affect the rest of the treatment/care that you receive.

What will happen to me if I take part?

If you decide to take part in this study, the researcher will discretely video record two general training sessions and one competition event. The footage recorded at competition will be of your actual event, please note that the researcher will have no contact with you during this time. At a time that is next convenient within the 24hrs following each recorded session, you will be required to meet with the researcher and watch a selection of the recorded clips of the interactions between you and your athlete/coach. During these sessions you will be asked to recall your thoughts and feelings at specific times throughout the footage and record these using a simple coding sheet. Finally, you will also be required to complete a simple stressor frequency scale to ascertain the frequency of any stressors experienced around training and competition and the impact, if any, that they had on you and your performance. The estimated time burden of participation in this research study is approximately 2 hours.

What are the possible disadvantages, risks or side effects of taking part?

There are no possible disadvantages, risks or side effects of taking part in this research.

What are the possible benefits of taking part?

By taking part in this study you will be contributing data to support the extension of research surrounding the impacts of stress on interactions between coaches and athletes in elite sport. Though evidence suggests that the coach-athlete relationship is instrumental in an athlete's development, there is also evidence to suggest that it can become a source of mutual stress and distraction (Gould et al., 1999; Olusoga et al., 2009). The findings of this study will offer individual sports and coaching organisations with more detail surrounding the maintenance of an effective coach-athlete relationship at times of stress.

How will my taking part in this study be kept confidential?

All personal data will be anonymised throughout and stored either electronically in a password protected file on the lead researcher's personal laptop, or as hard copies in a locked drawer. All data will be destroyed upon completion of this study, either on receipt of the grade, or one month after; all paper work will be shredded and all computerised data deleted. Any deviation from this practice will only take place with expressed permission from you the participant, for example providing consultancy information to a sporting Governing Body (e.g. Sports Coach UK).

What will happen to the results of the research study?

The results of this study will be published in a scientific journal, extending previous research investigating empathic accuracy in the coach-athlete relationship.

Who has reviewed this study?

This research has been reviewed by the supporting supervisory team, Dr J. Naseby and Dr S. Pack and approved by the University of Hertfordshire Ethics Committee.

Who can I contact if I have any questions?

If you would like further information or would like to discuss any details personally, please get in touch with me, in writing, by phone or by email:

Address: School of Life and Medical Sciences,
University of Hertfordshire CP Snow Building,
College Lane,
Hatfield,
Hertfordshire,
AL10 9AB

Tel: 07917121703

Email: e.s.scholefield@herts.ac.uk

Although we hope it is not the case, if you have any complaints or concerns about any aspect of the way you have been approached or treated during the course of this study, please write to the University Secretary and Registrar. Thank you very much for reading this information and giving consideration to taking part in this study.

Appendix E: Study Two Informed Consent Form

Department of Human and Environmental Sciences
University of Hertfordshire

I, the undersigned [*please give your name here, in BLOCK CAPITALS*]

.....
of [*please give contact details here, sufficient to enable the investigator to get in touch with you, such as a postal or email address*]

.....
hereby freely agree to take part in the study entitled

Stress and empathic accuracy in coaches and athletes participating in elite level individual based sports

1 I confirm that I have been given a Participant Information Sheet (a copy of which is attached to this form) giving particulars of the study, including its aim(s), methods and design, the names and contact details of key people and, as appropriate, the risks and potential benefits, and any plans for follow-up studies that might involve further approaches to participants. I have been given details of my involvement in the study. I have been told that in the event of any significant change to the aim(s) or design of the study I will be informed, and asked to renew my consent to participate in it.

2 I have been assured that I may withdraw from the study at any time without disadvantage or having to give a reason.

3 I have been told how information relating to me (data obtained in the course of the study, and data provided by me about myself) will be handled: how it will be kept secure, who will have access to it, and how it will or may be used.

4 I have been told that I may at some time in the future be contacted again in connection with this or another study.

Signature of participant.....Date.....

Signature of (principal) investigator..... Date.....

Name of (principal) investigator [*in BLOCK CAPITALS please*]

.....

Appendix F: Study Two Stressor Frequency Scale

Stressor Frequency Scale

Instructions: Complete this stressor frequency scale during the video review session following a general training session and competition event.

Read each statement below, decide how frequently you experienced the itemised stressor during the session and whether it had a negative, neutral, or positive impact on your performance; circle the appropriate digit to indicate your response. There are no right and wrong answers. Where you feel necessary, elaborate each point using the comments section provided.

	Not at all	Somewhat	Moderately so	Very much so	(Impact)
1. Personal stressors (e.g., private life)	1	2	3	4	-/0/+

Comments.....

2. Organisational stressors (e.g., environmental & leadership)	1	2	3	4	-/0/+
--	---	---	---	---	-------

Comments.....

3. Performance related stressors (e.g., injury & opponents)	1	2	3	4	-/0/+
---	---	---	---	---	-------

Comments.....

4. Pressure and expectation stressors (e.g., internal & external)	1	2	3	4	-/0/+
---	---	---	---	---	-------

Comments.....

5. Coach-athlete relationship stressors (e.g., communication & conflict)	1	2	3	4	-/0/+
--	---	---	---	---	-------

Comments.....

6. Self-presentational stressors (e.g., factors that could relinquish your position/funding)	1	2	3	4	-/0/+
--	---	---	---	---	-------

Comments.....

Appendix G: Coach and Athlete Self-Report Forms

Coach Self-report

Date:

Initials:

No.		
0	Feeling: I was concerned and worried Thoughts: I was thinking about the athlete's hamstring. She'd strained it the other week. I was thinking returning to resistance training would be too much.	+ 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 -
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:

Initials:

No.		
0	Feeling: I was concerned and worried Thoughts: I was thinking about my hamstring. I'd strained it the other week. I was thinking about getting through the training drills with no pain.	+ 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 -
7	Feeling: Thoughts:	+ 0 -
8	Feeling: Thoughts:	+ 0 -
9	Feeling: Thoughts:	+ 0 -
10	Feeling: Thoughts:	+ 0 -
11	Feeling: Thoughts:	+ 0 -
12	Feeling: Thoughts:	+ 0 -

Appendix H: Coach and Athlete Inference Forms

Coach inference

Date:

Initials:

No.		
0	Feeling: She was concerned Thoughts: She was thinking about her hamstring and if it would withstand the training drills.	+ 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 -
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:

Initials:

No.		
0	Feeling: He was concerned and worried Thoughts: He was thinking about my hamstring that I'd strained last week, and about how to adapt drills for me.	+ 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 -
7	Feeling: Thoughts:	+ 0 -
8	Feeling: Thoughts:	+ 0 -
9	Feeling: Thoughts:	+ 0 -
10	Feeling: Thoughts:	+ 0 -
11	Feeling: Thoughts:	+ 0 -
12	Feeling: Thoughts:	+ 0 -

Appendix I: Study Three Participant Information Document

UNIVERSITY OF HERTFORDSHIRE

ETHICS COMMITTEE FOR STUDIES INVOLVING THE USE OF HUMAN PARTICIPANTS

FORM EC6: PARTICIPANT INFORMATION SHEET

Expectancy and empathic accuracy in coach-athlete dyads participating in elite individual based sport

Introduction

You are being invited to take part in a study. Before you decide whether to do so, it is important that you understand the research that is being done and what your involvement will include. Please take the time to read the following information carefully and discuss it with others if you wish. Do not hesitate to ask us anything that is not clear or for any further information you would like to help you make your decision. Please do take your time to decide whether or not you wish to take part. The University's regulations governing the conduct of studies involving human participants can be accessed via this link:

<http://sitem.herts.ac.uk/secreg/upr/RE01.htm>

Thank you for reading this.

What is the purpose of this study?

In a sports context, the self-fulfilling prophecy states that simply by engaging in behaviour that is consistent with an expectation, coaches have the power to shape an athlete's beliefs and behaviours (Wilson & Stephens, 2007). However, while the coach-athlete relationship is recognised as a major force in promoting the development of an athlete's physical and psychosocial skills (Jowett, 2005), previous literature suggests coaches may not always be aware of the expectations they communicate to their athletes (Solomon, 2008). According to Ickes (2001), empathic accuracy is central to maintaining a satisfying relationship, because it facilitates positive interactions. The term empathic accuracy has been defined as the accuracy of an individual's moment-to-moment perception of the psychological condition of another (Ickes et al., 1990). The purpose of this study is to examine coaches' expectancies in-line with empathic accuracy achieved in elite coach-athlete dyads competing in individual based sports and to explore athletes' perceptions of coach treatment.

Do I have to take part?

It is completely up to you whether or not you decide to take part in this study. If you do decide to take part you will be given this information sheet to keep and be asked to sign a consent form. Agreeing to join the study does not mean that you have to complete it. You are free to withdraw at any stage without giving a reason. A decision to withdraw at any time, or a decision not to take part at all, will not affect any treatment/care that you may receive (should this be relevant).

Are there any age or other restrictions that may prevent me from participating?

To take part in the study, you must be at least 18 years of age and currently participating in elite level individual-based sport.

How long will my part in the study take?

If you decide to take part in this study, you will be involved in it for approximately 2hrs.

What will happen to me if I take part?

The first thing to happen will be the researcher will ask you to complete a short questionnaire. The researcher will then discretely video record a general training session; please note that the researcher will have no contact with you during this time.

At a time that is next convenient, within the 24hrs following each recorded session, you will be required to meet with the researcher and watch a selection of the recorded clips of the interactions between you and your athlete/coach. During this 30 minute session you will be asked to recall your thoughts and feelings at specific times throughout the footage and record these using a simple coding sheet. You will also be asked to complete a second copy of the same short questionnaire used at the start. Finally, you will be required to complete a short semi-structured interview to establish more about your experiences of expectancy and empathic accuracy in your coach-athlete relationship. Interviews will last approximately 30-minutes.

What are the possible disadvantages, risks or side effects of taking part?

There are no possible disadvantages, risks or side effects of taking part in this research.

What are the possible benefits of taking part?

By taking part in this study you will be contributing data to support the extension of research surrounding the coach-athlete relationship in elite sport. The findings of this study will offer individual sports and coaching organisations with more detail surrounding the dynamics of interactions between coaches and athletes.

How will my taking part in this study be kept confidential?

All data collected will be treated with the strictest of confidence and will be presented anonymously so the reader has no way of identifying the source. Data will either be stored electronically in a password protected file on the lead researcher's personal computer or as a hard copy in a locked drawer, accessible only to the lead researcher.

What will happen to the data collected within this study?

All data will be destroyed upon completion of this study, either on receipt of the grade, or one month after; all paper work will be shredded and all computerised data deleted. Any deviation from this practice will only take place with expressed permission from you, the participant.

Who has reviewed this study?

This study has been reviewed by the University of Hertfordshire Health and Human Sciences Ethics Committee with Delegated Authority (ECDA). The UH protocol number is cLMS/PGR/UH/02480.

Who can I contact if I have any questions?

If you would like further information or would like to discuss any details personally, please get in touch with me, in writing, by phone or by email:

Address: School of Life and Medical Sciences, University of Hertfordshire CP Snow Building, College Lane, Hatfield, AL10 9AB.

Tel: 07917121703.

Email: e.s.scholefield@herts.ac.uk

Although we hope it is not the case, if you have any complaints or concerns about any aspect of the way you have been approached or treated during the course of this study, please write to the University's Secretary and Registrar.

Thank you very much for reading this information and giving consideration to taking part in this study.

Appendix J: Study Three Informed Consent

**UNIVERSITY OF HERTFORDSHIRE
ETHICS COMMITTEE FOR STUDIES INVOLVING THE USE OF HUMAN PARTICIPANTS
(‘ETHICS COMMITTEE’)**

I, the undersigned [*please give your name here, in BLOCK CAPITALS*]

.....
of [*please give contact details here, sufficient to enable the investigator to get in touch with you, such as a postal or email address*]

.....
hereby freely agree to take part in the study entitled:

Expectancy and empathic accuracy in coach-athlete dyads participating in elite individual based sport

1 I confirm that I have been given a Participant Information Sheet (a copy of which is attached to this form) giving particulars of the study, including its aim(s), methods and design, the names and contact details of key people and, as appropriate, the risks and potential benefits, and any plans for follow-up studies that might involve further approaches to participants. I have been given details of my involvement in the study. I have been told that in the event of any significant change to the aim(s) or design of the study I will be informed, and asked to renew my consent to participate in it.

2 I have been assured that I may withdraw from the study at any time without disadvantage or having to give a reason.

3 In giving my consent to participate in this study, I understand that voice, video or photo-recording will take place.

4 I have been told how information relating to me (data obtained in the course of the study, and data provided by me about myself) will be handled: how it will be kept secure, who will have access to it, and how it will or may be used.

5 I understand that if there is any revelation of unlawful activity or any indication of non-medical circumstances that would or has put others at risk, the University may refer the matter to the appropriate authorities.

6 I have been told that I may at some time in the future be contacted again in connection with this or another study.

Signature of participant.....Date.....

Signature of (principal) investigator.....Date.....

Name of (principal) investigator [*in BLOCK CAPITALS please*]

.....

Appendix K: Modified Expectancy Rating Scale (MERS; Becker & Wrisberg, 2008)

Directions: Please rate each of your athletes on each item from 1 (*not true*) to 5 (*very true*) by comparing them to other athletes at their competitive level.

Name of athlete:

	Not True			Very True	
1. This athlete possesses sound [<i>discipline</i>] fundamentals.	1	2	3	4	5
2. This athlete has the aptitude to become an exceptional [<i>discipline</i>] athlete.	1	2	3	4	5
3. This athlete possesses the natural physical attributes necessary to become an exceptional [<i>discipline</i>] athlete.	1	2	3	4	5
4. This athlete is receptive to coaching.*	1	2	3	4	5
5. This athlete is a hard worker.*	1	2	3	4	5
6. This athlete possesses a high level of competitiveness.	1	2	3	4	5
7. This athlete is willing to listen and learn.	1	2	3	4	5
8. Overall, this athlete will be an exceptionally successful [<i>discipline</i>] athlete at this level of competition.*	1	2	3	4	5

*Items added to the original Expectancy Scale (Solomon, 1993).

Thank you for taking the time to complete this scale and for contributing to my PhD research.

Appendix L: Coach Treatment Inventory (CTI; Wilson & Stephens, 2007)

Coach Treatment Inventory (Wilson & Stephens, 2007)

Name:

Directions: Please rate how you perceive your coach's treatment on each item from 1 (*always*) to 4 (*never*).

	Always	Often	Sometimes	Never
Negative feedback and coach direction				
1. Coach decides how I spend my time in sessions	1	2	3	4
2. I have to do the same exercises every day	1	2	3	4
3. Coach makes me feel bad when I can't do something right.	1	2	3	4
4. When I have to work with another athlete, coach tells me who to work with.	1	2	3	4
5. Coach criticises me for not trying	1	2	3	4
6. Coach criticises me for not listening	1	2	3	4
7. Coach chooses the exercises I do in each session	1	2	3	4
8. Coach makes me feel that I have not done my exercises well	1	2	3	4
9. Coach asks me to stop exercises before I have had chance to finish	1	2	3	4
10. Coach watches me closely when I'm training	1	2	3	4
Work and rule orientation				
1. When I'm working on a specific skill, coach tells me what to do.	1	2	3	4
2. Coach asks me if I understand the training activities	1	2	3	4
3. When I do something wrong, coach tells me how I can make it better.	1	2	3	4
4. Coach expects me to stick to the exercises I am working on	1	2	3	4
5. Coach thinks it is more important for me to train than to have fun	1	2	3	4
6. Coach explains the rules to me	1	2	3	4

	Always	Often	Sometimes	Never
7. Coach asks other athletes to help me	1	2	3	4
8. If I break the rules, I am punished.	1	2	3	4
9. When I do something wrong, coach moves on to someone else.	1	2	3	4
10. Coach spends time working with me	1	2	3	4

High expectations, opportunity, and choice.

1. Coach calls on me to answer questions	1	2	3	4
2. Coach asks me to lead activities	1	2	3	4
3. Coach makes me feel good about how hard I try	1	2	3	4
4. Coach calls on me to explain things to the training group	1	2	3	4
5. Coach trusts me	1	2	3	4
6. Coach lets me make up my own training activities	1	2	3	4
7. Coach is interested in me	1	2	3	4
8. Coach lets me do as I please, as long as I finish the training activities.	1	2	3	4
9. Coach makes me feel like I've done really well when I do an activity right	1	2	3	4
10. I am given special privileges. I get to do special things in training.	1	2	3	4

Thank you for taking the time to complete this inventory and for contributing to my PhD research.

Appendix M: 3-point Likert Scale for Coach Expectancy at Mid-season

Mid-season Expectancy Assessment Scale

Directions: Please reflect on the expectations you assigned to each of your athletes during early season and rate their progress to date from 1 (*exceeded original expectations*), 2 (*remained the same*), or 3 (*failed to exceed original expectations*).

Name of athlete:

.....

	Exceeded original expectations	Remained the same	Failed to exceed original expectations
Based on my expectations at early season, this athlete has...	1	2	3

Appendix N: SPSS Outputs

Study two: Stress and empathic accuracy over time and in different environments in coaches and athletes participating in elite individual based sports

Stress Training

N	Valid	24
	Missing	0
Median		10.00

Stress Competition

N	Valid	24
	Missing	0
Median		14.00

Stress Training

		Frequency	%	Valid %	Cumulative %
Valid	7.00	2	8.2	8.2	8.2
	9.00	4	16.8	16.8	25.0
	10.00	8	33.6	33.6	58.6
	11.00	4	16.8	16.8	75.4
	12.00	1	4.1	4.1	79.5
	13.00	2	8.2	8.2	87.7
	14.00	2	8.2	8.2	95.9
	16.00	1	4.1	4.1	100.0
Total		24	100.0	100.0	

Stress Competition

		Frequency	%	Valid %	Cumulative %
Valid	10.00	2	8.2	8.2	8.2
	11.00	1	4.1	4.1	12.3
	12.00	1	4.1	4.1	16.4
	13.00	5	20.0	20.5	36.9
	14.00	7	28.7	28.7	65.7
	15.00	2	8.2	8.2	74.9
	16.00	3	12.6	12.6	87.6
	18.00	1	4.1	4.1	91.7
	19.00	1	4.1	4.1	95.7
	20.00	1	4.1	4.1	100.0
Total		24	100.0	100.0	

Test Statistics^a

	Stress_Training - Stress_Competition
Z	-5.190 ^b
Asymp. Sig. (2-tailed)	.000

a. Wilcoxon Signed Ranks Test

b. Based on positive ranks.

Hypothesis 1. Coaches and athletes participating in elite level individual based sports will experience increased stress during competition compared to training.

Wilcoxon signed-rank test

Coaches' empathic accuracy during Training One and Training Two

			Correlations	
			Coach Empathy Training One	Coach Empathy Training Two
Spearman's rho	Coach Empathy	Correlation Coefficient	1.000	.398
	Training One	Sig. (2-tailed)	.	.083
		N	20	20
Spearman's rho	Coach Empathy	Correlation Coefficient	.398	1.000
	Training Two	Sig. (2-tailed)	.083	.
		N	20	20

Athletes' empathic accuracy during Training One and Training Two

			Correlations	
			Athlete Empathy Training One	Athlete Empathy Training Two
Spearman's rho	Athlete	Correlation Coefficient	1.000	.090
	Empathy	Sig. (2-tailed)	.	.705
	Training One	N	20	20
Spearman's rho	Athlete	Correlation Coefficient	.090	1.000
	Empathy	Sig. (2-tailed)	.705	.
	Training Two	N	20	20

Hypothesis 2. Empathic accuracy will be positively associated with stress.
Spearman's rank-order correlations

Coaches' empathic accuracy during Training One and Competition

Correlations			Coach Empathy Training One	Coach Empathy Competition
Spearman's rho	Coach Empathy	Correlation Coefficient	1.000	.574**
	Training One	Sig. (2-tailed)	.	.008
		N	20	20
Spearman's rho	Coach Empathy	Correlation Coefficient	.574**	1.000
	Competition	Sig. (2-tailed)	.008	.
		N	20	20

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

Athletes' empathic accuracy during Training One and Competition

Correlations			Athlete Empathy Training One	Athlete Empathy Competition
Spearman's rho	Athlete	Correlation Coefficient	1.000	.084
	Empathy	Sig. (2-tailed)	.	.726
	Training One	N	20	20
Spearman's rho	Athlete	Correlation Coefficient	.084	1.000
	Empathy	Sig. (2-tailed)	.726	.
	Competition	N	20	20

Hypothesis 2. Empathic accuracy will be positively associated with stress.

Spearman's rank-order correlations (continued)

Coaches' empathic accuracy during Training Two and Competition

Correlations			Coach Empathy Training Two	Coach Empathy Competition
Spearman's rho	Coach Empathy	Correlation Coefficient	1.000	.071
	Training Two	Sig. (2-tailed)	.	.765
		N	20	20
	Coach Empathy	Correlation Coefficient	.071	1.000
	Competition	Sig. (2-tailed)	.765	.
		N	20	20

Athletes' empathic accuracy during Training Two and Competition

Correlations			Athlete Empathy Training Two	Athlete Empathy Competition
Spearman's rho	Athlete	Correlation Coefficient	1.000	.603**
	Empathy	Sig. (2-tailed)	.	.005
	Training Two	N	20	20
	Athlete	Correlation Coefficient	.603**	1.000
	Empathy	Sig. (2-tailed)	.005	.
	Competition	N	20	20

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

Hypothesis 2. Empathic accuracy will be positively associated with stress.
Spearman's rank-order correlations (continued)

Study three: The relationship between coach expectancies and empathic accuracy in elite coach-athlete dyads

Correlations

			Early MERS Scores	Mid MERS Scores
Spearman's rho	Early MERS Scores	Correlation Coefficient	1.000	.800
		Sig. (2-tailed)	.	.200
		N	4	4
	Mid MERS Scores	Correlation Coefficient	.800	1.000
		Sig. (2-tailed)	.200	.
		N	4	4

Stability of the coach's perceptions of their athletes from early to mid-season
Spearman's rank-order correlation

Correlations

			Early CTI Scores	Mid CTI Scores
Spearman's rho	Early CTI Scores	Correlation Coefficient	1.000	.105
		Sig. (2-tailed)	.	.895
		N	4	4
	Mid CTI Scores	Correlation Coefficient	.105	1.000
		Sig. (2-tailed)	.895	.
		N	4	4

Stability of athletes' perceptions of coach treatment from early to mid-season
Spearman's rank-order correlation

1. CTI negative feedback and coach direction

	CTI Negative Feedback & Coach Direction
Mann-Whitney U	.500
Wilcoxon W	3.500
Z	-1.225
Asymp. Sig. (2-tailed)	.221
Exact Sig. [2*(1-tailed Sig.)]	.333 ^b
Exact Sig. (2-tailed)	.667
Exact Sig. (1-tailed)	.333
Point Probability	.333

a. Grouping Variable: Expectancy

b. Not corrected for ties.

CTI Negative Feedback & Coach Direction			
High	N	Valid	2
		Missing	0
	Median	30.75	
Low	N	Valid	2
		Missing	0
	Median	31.25	

2. CTI work and rule orientation

	CTI Work & Rule Orientation
Mann-Whitney U	.000
Wilcoxon W	3.000
Z	-1.549
Asymp. Sig. (2-tailed)	.121
Exact Sig. [2*(1-tailed Sig.)]	.333 ^b
Exact Sig. (2-tailed)	.333
Exact Sig. (1-tailed)	.167
Point Probability	.167

a. Grouping Variable: Expectancy

b. Not corrected for ties.

CTI Work & Rule Orientation			
High	N	Valid	2
		Missing	0
	Median	26.00	
Low	N	Valid	2
		Missing	0
	Median	24.00	

The differences between high and low expectancy athletes on the three CTI scales (Wilson & Stephens, 2007)

Mann-Whitney Tests

3. CTI high expectations, opportunity, and choice.

Test Statistics ^a	
	CTI High Expectations
Mann-Whitney U	.000
Wilcoxon W	3.000
Z	-1.549
Asymp. Sig. (2-tailed)	.121
Exact Sig. [2*(1-tailed Sig.)]	.333 ^b
Exact Sig. (2-tailed)	.333
Exact Sig. (1-tailed)	.167
Point Probability	.167

Statistics			
CTI High Expectations			
High	N	Valid	2
		Missing	0
	Median		26.75
Low	N	Valid	2
		Missing	0
	Median		24.00

a. Grouping Variable: Expectancy

b. Not corrected for ties.

The differences between high and low expectancy athletes on the three CTI scales (Wilson & Stephens, 2007)
Mann-Whitney Tests (continued)

References

- Ackerman, R. A., Donnellan, M. B., & Kashy, D. A. (2011). Working with dyadic data in studies of emerging adulthood: Specific recommendations, general advice, and practical tips. In F. Fincham & M. Cui (Eds.), *Romantic relationships in emerging adulthood* (pp. 67-97). New York: Cambridge University Press.
- Albiero, P., Matricardi, G., Speltri, D., & Toso, D. (2009). The assessment of empathy in adolescence: A contribution to the Italian validation of the basic empathy scale. *Journal of Adolescence*, 32(2), 393–408. doi.org/10.1016/j.adolescence.2008.01.001
- Aldwin, C. M. (2007). *Stress, coping, and development: An integrative perspective*. New York: The Guilford Press.
- Altfied, S., & Kellmann, M. (2013). *Psychology of burnout: New research*. New York: Nova Science Publishers.
- Ambady, N., & Rosenthal, R. (1992). Thin slices of expressive behaviour as predictors of interpersonal consequences: A meta-analysis. *Psychological Bulletin*, 111(2), 256–274. doi.org/10.1037/0033-2909.111.2.256
- Anderson, J. R (1983). *The architecture of cognition*. Cambridge: Harvard University Press.
- Anshel, M. (1996). Coping styles among adolescent competitive athletes. *Journal of Social Psychology*, 136(3), 311–323. doi.org/10.1080/00224545.1996.9714010
- Anshel, M. H. (2001). Qualitative validation of a model for coping with acute stress in sport. *Journal of Sport Behaviour*, 24(3), 223–246.
- Anshel, M. H., Jamieson, J., & Raviv, S. (2001). Coping with acute stress among male and female Israeli athletes. *International Journal of Sport Psychology*, 32(3), 271–289.
- Anshel, M. H., & Kaissidis, N. (1997). Coping style and situational appraisals as predictors of coping strategies following stressful events in sport as a function of gender and skill level. *British Journal of Psychology*, 88(2), 263–276. doi.org/10.1111/j.2044-8295.1997.tb02634.x
- Anshel, M. H., Porter, A., & Quek, J. J. (1998). Coping with acute stress in sport as a function of gender: An exploratory study. *Journal of Sport Behaviour*. Retrieved from <http://ovidsp.ovid.com/ovidweb.cgi?T=JS&PAGE=reference&D=psyc3&NEWS=N&AN=1998-11577-001>
- Anshel, M. H., & Weinberg, R. S. (1995). Sources of acute stress in American and Australian basketball referees. *Journal of Applied Sport Psychology*, 7(1), 11–12. doi.org/10.1080/10413209508406297
- Anshel, M. H., & Weinberg, R. S. (1999). Re-examining coping among basketball referees following stressful events: Implications for coping interventions. *Journal of Sport Behaviour*, 22(2), 141–161. doi.org/10.1086/250095
- Anshel, M. H., Williams, L. R. T., & Hodge, K. (1997). Cross-cultural and gender differences on coping style in sport. *International Journal of Sport Psychology*, 28(2), 141–156.

- Antoniou, P., & Bebetos, E. (2003). Psychological skills of Greek badminton athletes. *Perceptual and Motor Skills*, 97(3), 1289–1296. doi.org/10.2466/pms.2003.97.3f.1289
- Argyle, M. (1994). *The psychology of interpersonal behaviour*. New York: Penguin.
- Babad, E. Y., Inbar, J., & Rosenthal, R. (1982). Teachers' judgment of students' potential as a function of teachers' susceptibility to biasing information. *Journal of Personality and Social Psychology*, 42(3), 541–547. doi.org/10.1037//0022-3514.42.3.541
- Bahr, S.J. (1979). The effect of welfare on marital stability and remarriage. *Journal of Marriage and the Family*, 41, 553-560.
- Banissy, M. J., Kanai, R., Walsh, V., & Rees, G. (2012). Inter-individual differences in empathy are reflected in human brain structure. *NeuroImage*, 62(3), 2034–2039. doi.org/10.1016/j.neuroimage.2012.05.081
- Barker, R. L. (2008). *The social work dictionary*. Washington: NASW Press.
- Barnett, G. D., & Mann, R. E. (2013). Cognition, empathy, and sexual offending. *Trauma, Violence, and Abuse*, 14(1), 22–33. doi.org/10.1177/1524838012467857
- Batson, C. D. (2009). These things called empathy: Eight related but distinct phenomena. In J. Decety & W. Ickes (Eds.), *Social neuroscience. The social neuroscience of empathy*, (pp. 3–15). doi.org/10.7551/mitpress/9780262012973.003.0002
- Batson, C. D., & Ahmad, N. Y. (2009). Using empathy to improve intergroup attitudes and relations. *Social Issues and Policy Review*, 3(1), 141–177. doi.org/10.1111/j.1751-2409.2009.01013.x
- Batson, C. D., Eklund, J. H., Chermok, V. L., Hoyt, J. L., & Ortiz, B. G. (2007). An additional antecedent of empathic concern: Valuing the welfare of the person in need. *Journal of Personality and Social Psychology*, 93(1), 65–74. doi.org/10.1037/0022-3514.93.1.65
- Becker, A. J. (2009). It's not what they do, it's how they do it: Athlete experiences of great coaching. *International Journal of Sports Science and Coaching*, 4, 93–119. doi.org/10.1260/1747-9541.4.1.93
- Becker, A. J., & Solomon, G. B. (2005). Expectancy information and coach effectiveness in intercollegiate basketball. *The Sport Psychologist*, 19, 251-266.
- Becker, A. J., & Wrisberg, C. A. (2008). Effective coaching in action: Observations of legendary collegiate basketball coach Pat Summitt. *The Sport Psychologist*, 22(2), 197–211. Retrieved from <http://search.ebscohost.com/login.aspx?direct=true&db=s3h&AN=32594761&site=ehost-live>
- Bennett, P., Lowe, R., Matthews, V., Dourall, M., & Tattersall, A. (2001). Stress in nurses: Coping managerial support and work demand. *Stress and Health*, 17, 55-63.
- Berg, C.A., & Upchurch, R. (2007). A developmental-contextual model of couples coping with chronic illness across the adult life span. *Psychological Bulletin*, 133, 920-954. doi: 10.1037/0033-2909.133.6.920.

- Biesanz, J. C., Neuberg, S. L., Smith, D. M., Asher, T., & Judice, T. N. (2001). When accuracy-motivated perceivers fail: Limited attentional resources and the emerging self-fulfilling prophecy. *Personality and Social Psychology Bulletin*, 27, 621-629.
- Birch, S. A. J., & Bloom, P. (2004). Understanding childrens' and adults' limitations in mental state reasoning. *Trends in Cognitive Sciences*, 8(6), 255-260. doi.org/10.1016/j.tics.2004.04.011
- Bissonnette, V.L., Rusbult, C. E., & Kilpatrick, S. D. (1997). Empathic accuracy and marital conflict resolution. In W. J. Ickes (Ed.), *Empathic accuracy* (pp. 251-281). New York: Guilford.
- Blair, R. J. R. (2005). Responding to the emotions of others: Dissociating forms of empathy through the study of typical and psychiatric populations. *Consciousness and Cognition: An International Journal*, 14(4), 698-718. doi.org/10.1016/j.concog.2005.06.004
- Bloom, G. A., Durand-Bush, N., Schinke, R. J., & Salmela, J. H. (1998). The importance of mentoring in the development of coaches and athletes. *International Journal of Sport Psychology*, 29(3), 267-281.
- Bloom, G. A., Schinke, R. J., & Salmela, J. H. (1997). The development of communication skills by elite basketball coaches. *Coaching & Sport Science Journal*, 2(3), 3-10. Retrieved from <http://articles.sirc.ca/search.cfm?id=S17762%5Cnhttp://search.ebscohost.com/login.aspx?direct=true&db=s3h&AN=SPHS-17762&lang=pt-br&site=ehost-live>
- Bodenhausen, G. V. (1990). Stereotypes as judgmental heuristics: Evidence of circadian variations in discrimination. *Psychological Science*, 1(5), 319-322. doi.org/10.1111/j.1467-9280.1990.tb00226.x
- Bodenmann, G. (1995). A systemic-transactional conceptualisation of stress and coping in couples. *Swiss Journal of Psychology*, 54, 34-49. doi: 10.1016/j.cpr.2008.10.004.
- Bodenmann, G. (2000). *Stress und coping bei paaren* [Stress and coping in couples]. Germany: Hogrege.
- Bodenmann, G. (2005). Dyadic coping and its significance for marital functioning. In T. A. Revenson, K. Kayser, & G. Bodenmann (Eds), *Couples coping with stress. Emerging perspectives on dyadic coping*. (pp.33-49). Washington: American Psychological Association. doi: 10.1037/ 11031-002.
- Bodenmann, G., & Cina, A. (2006). Stress and coping among stable-satisfied, stable-distressed and separated/divorced Swiss couples: A 5-year prospective longitudinal study. *Journal of Divorce and Remarriage*, 44, 71-89.
- Bodenmann, G., Ledermann, T., & Bradbury, T.N. (2007). Stress, sex, and satisfaction in marriage. *Personal Relationships*, 14, 407 - 425.
- Bolger, N., & Zuckerman, A. (1995). A framework for studying personality in the stress process. *Journal of Personality and Social Psychology*, 69(5), 890-902. doi.org/10.1037/0022-3514.69.5.890
- Bowes, I., & Jones, R. L. (2006). Working at the edge of chaos : Understanding coaching as a complex, interpersonal system. *The Sport Psychologist*, 20(235), 235-245. doi.org/10.1123/tsp.20.2.235

- Brattesani, K. A., Weinstein, R. S., & Marshall, H. H. (1984). Student perceptions of differential teacher treatment as moderators of teacher expectation effects. *Journal of Educational Psychology, 76*(2), 236–247. doi.org/10.1037/0022-0663.76.2.236
- Braun, V., & Clarke, V. (2006). Using thematic analysis in psychology. *Qualitative Research in Psychology, 3*, 77–101. doi.org/10.1191/1478088706qp063oa
- Bryman, A. (2013). *Social research methods*. Oxford: University Press.
- Buchanan, T. W., & Preston, S. D. (2014). Stress leads to prosocial action in immediate need situations. *Frontiers in Behavioural Neuroscience, 8*(5), 1–6. doi.org/10.3389/fnbeh.2014.00005
- Buck, A. A., & Neff, L. A. (2012). Stress spillover in early marriage: The role of self-regulatory depletion. *Journal of Family Psychology, 26*(5), 698–708. doi.org/10.1037/a0029260
- Burke, M. (2001). Obeying until it hurts: Coach-athlete relationships. *Journal of the Philosophy of Sport, 28*(2), 227–240. doi.org/10.1080/00948705.2001.9714616
- Burton, D. (1988). Do anxious swimmers swim slower? Re-examinng the elusive anxiety-performance relationship. *Journal of Sport and Exercise Psychology, 10*, 45–61.
- Buscombe, R., Greenlees, I., Holder, T., Thelwell, R., & Rimmer, M. (2006). Expectancy effects in tennis: The impact of opponents' pre-match non-verbal behaviour on male tennis players. *Journal of Sports Sciences, 24*, 1265–1272,
- Buysse, A., & Ickes, W. (1999). Communication patterns in laboratory discussions of safer sex between dating versus nondating partners. *The Journal of Sex Research, 36*(2), 121–134. doi.org/10.1080/00224499909551977
- Caccese, T. M., & Mayerberg, C. K. (1984). Gender differences in perceived burnout of college coaches. *Journal of Sport Psychology, 6*, 279–288.
- Campbell, J. M. (1983). Ambient stressors. *Environment and Behaviour, 15*(3), 355–380. doi.org/10.1177/0013916583153005
- Campen, C., & Roberts, D. C. (2001). Coping strategies of runners: Perceived effectiveness and match to precompetitive anxiety. *Journal of Sport Behaviour, 24*(2), 144–161.
- Capel, S. A. (1987). The incidence of and influences on stress and burnout in secondary school teachers. *The British Journal of Educational Psychology, 57*(3), 279–288. doi.org/http://dx.doi.org/10.1111/j.2044-8279.1987.tb00857.x
- Capel, S. A., Sisley, B. L., & Desertrain, G. S. (1987). The relationship of role conflict and role ambiguity to burnout in high school basketball coaches. *Journal of Sport Psychology, 9*(1), 106–117. doi.org/10.1123/jsp.9.2.106
- Carpenter, B. N. (1992). *Personal coping: Theory, research, and application*. Westport: Praeger/Greenwood.
- Carr, S. (2012). Relationships and sport performance. In S. M. Murphy, *The Oxford handbook of sport and performance psychology* (pp. 400–417). Oxford: Oxford University Press
- Carron, A. V., Hausenblas, H. A., & Eys, M. A. (2005). *Group dynamics in sport (3rd ed)*. Morgantown: Fitness Information Technology.

- Carver, C. S., Scheier, M. F., & Weintraub, J. K. (1989). Assessing coping strategies: A theoretically based approach. *Journal of Personality and Social Psychology*, *56*(2), 267–283. <https://doi.org/10.1037/0022-3514.56.2.267>
- Cassidy, T., Jones, R. L., & Potrac, P. (2009). Understanding sports coaching: the social, cultural and pedagogical foundations of coaching practice. *Sports Coaching Review*, *629*(2), 229. doi.org/10.1080/21640629.2016.1173232
- Cerin, E., Szabo, A., Hunt, N., & Williams, C. (2000). Temporal patterning of competitive emotions: A critical review. *Journal of Sports Sciences*, *18*(8), 605–626. doi.org/10.1080/02640410050082314
- Chaiken, S., Giner-Sorolla, R., & Chen, S. (1996). Beyond accuracy: Defence and impression motives in heuristic and systematic information processing. In P.M. Gollwitzer & J.A. Bargh (Eds.), *The psychology of action linking cognition and motivation to behaviour* (pp. 553-578). New York: The Guilford Press.
- Chelladurai, P. (1993). Leadership. In R. N. Singer, M. Murphey, & L. K. Tennant (Eds.), *Handbook on research in sport psychology* (pp. 647-671). New York: MacMillan.
- Ciarrochi, J., Forgas, J. P., & Mayer, J. D. (2001). *Emotional intelligence in everyday life: A scientific inquiry*. London: Psychology Press.
- Clark, A. J. (2010). Empathy: An integral model in the counseling process. *Journal of Counseling and Development: JCD*, *88*(3), 348–356. doi.org/10.1002/j.1556-6678.2010.tb00032.x
- Clements, K., Holtzworth-Munroe, A., Schweinle, W., & Ickes, W. (2007). Empathic accuracy of intimate partners in violent versus nonviolent relationships. *Personal Relationships*, *14*(3), 369–388. doi.org/10.1111/j.1475-6811.2007.00161.x
- Cohan, C. L., & Bradbury, T. N. (1997). Negative life events, marital interactions, and the longitudinal course of newlywed marriage. *Journal of Personality and Social Psychology*, *73*, 114-128.
- Cohen, S., Schulz, M. S., Weiss, E., & Waldinger, R. J. (2012). Eye of the beholder: The individual and dyadic contributions of empathic accuracy and perceived empathic effort to relationship satisfaction. *Journal of Family Psychology*, *26*, 236-245.
- Colman, A. M. (2009). *A dictionary of psychology*. Oxford: Oxford University Press.
- Compas, B. E., Banez, G. A., Malcarne, V., & Worsham, N. (1991). Perceived control and coping with stress: A developmental perspective. *Journal of Social Issues*, *47*(4), 23–34. doi.org/10.1111/j.1540-4560.1991.tb01832.x
- Compas, B. E., Orosan, P. G., & Grant, K. E. (1993). Adolescent stress and coping: Implications for psychopathology during adolescence. *Journal of Adolescence*, *16*(3), 331–349. doi.org/10.1006/jado.1993.1028
- Cook, M. (1971). *Interpersonal perception*. Middlesex: Penguin Education.
- Copeland, J. T. (1993). Motivational approaches to expectancy confirmation. *Current Directions in Psychological Science*, *2*(4), 117–121. doi.org/10.1111/1467-8721.ep10772600

- Côté, J., Young, B., North, J., & Duffy, P. (2007). Towards a definition of excellence in sport coaching. *International Journal of Coaching Science*, 1(1), 3–18. Retrieved from [http://www.researchgate.net/publication/236124942_Ct_J._Young_B.W._Duffy_P._North_J._\(2007\)._Towards_a_definition_of_excellence_in_sport_coaching._International_Journal_of_Coaching_Science_1_3-18](http://www.researchgate.net/publication/236124942_Ct_J._Young_B.W._Duffy_P._North_J._(2007)._Towards_a_definition_of_excellence_in_sport_coaching._International_Journal_of_Coaching_Science_1_3-18)
- Coulomb-Cabagno, G., Rascle, O., & Souchon, N. (2005). Players' gender and male referees' decisions about aggression in French soccer: A preliminary study. *Sex Roles*, 52(7–8), 547–553. doi.org/10.1007/s11199-005-3720-z
- Creswell, J., Klassen, L., & Clark, V., & Smith, K. (2011). Best practice for mixed methods research in the health sciences. Bethesda: Office of Behavioural and Social Sciences Research (OBSSR), National Institute of Health (NIH). doi.org/10.1002/cdq.12009.
- Creswell, J. W. (2009). *Research design: Qualitative, quantitative, and mixed methods approaches*. California: SAGE.
- Crocker, P. R. E., & Graham, T. R. (1995). Coping by competitive athletes with performance stress: Gender differences and relationships with affect. *The Sport Psychologist*, 9(3), 325–338. doi.org/10.1123/tsp.9.3.325
- Csikszentmihalyi, M. (1990). *Flow. The psychology of optimal experience*. New York: Harper & Row.
- Cuff, B. M. P., Brown, S. J., Taylor, L., & Howat, D. J. (2016). Empathy: A review of the concept. *Emotion Review*, 8, 144-153. doi.org/10.1177/1754073914558466
- Culver, D., & Trudel, P. (2000). Coach-athlete communication within an elite alpine ski team. *Journal of Excellence*, 3, 28–54. Retrieved from http://www.zoneofexcellence.ca/Journal/Issue03/Coach_Athlete_Comm.pdf
- Dale, G. A. (2000). Distractions and coping strategies of elite decathletes during their most memorable performances. *The Sport Psychologist*, 14, 17-4.
- Dale, J., & Weinberg, R. S. (1989). The relationship between coaches' leadership style and burnout. *The Sport Psychologist*, 3(1), 1–13. doi.org/10.1123/tsp.3.1.1
- Darley, J. M., & Fazio, R. H. (1980). Expectancy confirmation processes arising in the social interaction sequence. *American Psychologist*, 35(10), 867–881. doi.org/10.1037/0003-066X.35.10.867
- Davis, M. H. (1983). Measuring individual differences in empathy: Evidence for a multidimensional approach. *Journal of Personality and Social Psychology*, 44(1), 113–126. doi.org/10.1037//0022-3514.44.1.113
- Davis, M. H. (1994). *Empathy: A social psychological approach*. Oxford: Social Psychology Series.
- Dawes, R. M. (1980). Social dilemmas. *Annual Review of Psychology*, 31(1), 169–193. doi.org/10.1146/annurev.ps.31.020180.001125
- Decety, J., & Lamm, C. (2006). Human empathy through the lens of social neuroscience. *The Scientific World Journal*, 6, 1146–1163. doi.org/10.1100/tsw.2006.221

- Decety, J., & Michalska, K. J. (2013). A neuroscience perspective on empathy and its development. *Neural Circuit Development and Function in the Healthy and Diseased Brain*, 379–393. doi.org/10.1016/B978-0-12-397267-5.00026-1
- DeMarco, G., Mancini, V., & West, D. (1997). Reflections on change: A qualitative analysis of baseball coaches' behaviour. *Journal of Sport Behaviour*, 20(2), 135-163.
- Denscombe, M. (2007). *The good research guide for small-scale social research projects*. Maidenhead: Open University Press.
- Denzin, N.K., & Lincoln, Y. S. (2005). *The sage handbook of qualitative research*. Thousand Oaks: SAGE.
- Derntl, B., Finkelmeyer, A., Toygar, T. K., Hülsmann, A., Schneider, F., Falkenberg, D. I., & Habel, U. (2009). Generalised deficit in all core components of empathy in schizophrenia. *Schizophrenia Research*, 108(1–3), 197–206. doi.org/10.1016/j.schres.2008.11.009
- Dewe, P., Cox, T., & Ferguson, E. (1993). Individual strategies for coping with stress at work: A review. *Work & Stress*, 7(1), 5–15. doi.org/http://dx.doi.org/10.1080/02678379308257046
- Dieffenbach, K., Gould, D., & Moffett, A. (2002). The coach's role in developing champions. *Olympic Coach*, 12(2), 2–4.
- Dohrenwend, S., & Dohrenwend, B.P. (1974). *Stressful life events: Their nature and effects*. New York: Wiley.
- Downey, J. (1929). *Creative imagination*. New York: Harcourt, Brace.
- Dugdale, J. R., Eklund, R. C., & Gordon, S. (2008). Expected and unexpected stressors in major international competition: Appraisal, coping, and performance. *The Sport Psychologist*, 16(1), 20–33. Retrieved from papers://80fe50aa-617d-4177-8a03-845617c8ec5b/Paper/p997
- Durand-Bush, N., & Samela, J. H. (2002). The development and maintenance of expert athletic performance: Perceptions of World and Olympic champions. *Journal of Applied Sport Psychology*, 14, 154-171.
- Eagly, A. H., & Koenig, A. M. (2006). *Social role theory of sex differences and similarities*. New York: Lawrence Erlbaum Associates.
- Eden, D. (1984). Self-fulfilling prophecy as a management tool: Harnessing pygmalion. *Academy of Management Review*, 9(1), 64–73. doi.org/10.5465/AMR.1984.4277938
- Eisenberg, N. (1991). Values, sympathy, and individual differences: Toward a pluralism of factors influencing altruism and empathy. *Psychological Inquiry*, 2(2), 128–131. doi.org/10.1207/s15327965pli0202_5
- Eisenberg, N., & Lennon, R. (1983). Sex-Differences in empathy and related capacities. *Psychological Bulletin*, 94(1), 100–131. doi.org/10.1037/0033-2909.94.1.100
- Eisenberg, N., & Morris, A. S. (2001). The origins and social significance of empathy-related responding. *Social Justice Research*, 14(1), 95–120. doi.org/10.1023/A:1012579805721

- Eisenberg, N., Shea, C. L., Carlo, G., & Knight, G. P. (1991). Empathy-related responding and cognition. *Handbook of Moral Behaviour and Development*, 2, 63–88. doi.org/10.1080/0034408630580208
- Eisenberg, N., & Strayer, J. (1987). *Empathy and its development*. Cambridge: Cambridge University Press.
- Eklund, J., Andersson-Stråberg, T., & Hansen, E. M. (2009). “I’ve also experienced loss and fear”: Effects of prior similar experience on empathy. *Scandinavian Journal of Psychology*, 50(1), 65–69. doi.org/10.1111/j.1467-9450.2008.00673.x
- Endler, N. S., & Parker, J. D. (1990). Multidimensional assessment of coping: A critical evaluation. *Journal of Personality and Social Psychology*, 58(5), 844–854. doi.org/10.1037/0022-3514.58.5.844
- Epley, N., Keysar, B., Van Boven, L., & Gilovich, T. (2004). Perspective taking as egocentric anchoring and adjustment. *Journal of Personality and Social Psychology*, 87(3), 327–339. doi.org/10.1037/0022-3514.87.3.327
- Falconier, M. K., Nussbeck, F., Bodenmann, G., Schneider, H., & Bradbury, T. (2015). Stress from daily hassles in couples: Its effects on intradyadic stress, relationship satisfaction, and physical and psychological well-Being. *Journal of Marital and Family Therapy*, 41(2), 221–235. doi.org/10.1111/jmft.12073
- Fazio, R. H., & Zanna, P. (1981). Direct experience and attitude-behaviour consistency. *Advances in Experimental Social Psychology*, 14, 161–202. doi.org/10.1016/S0065-2601(08)60372-X
- Ferguson, E., & Cox, T. (1997). The functional dimensions of coping scale: Theory, reliability, and validity. *British Journal of Health Psychology*, 2(2), 109–129. doi.org/10.1111/j.2044-8287.1997.tb00528.x
- Fernandez, Y. M., Marshall, W. L., Lightbody, S., & O’Sullivan, C. (1999). The child molester empathy measure: Description and examination of its reliability and validity. *Sexual Abuse: Journal of Research and Treatment*, 11(1), 17–31. doi.org/10.1177/107906329901100103
- Feshbach, N. D., & Roe, K. (1968). Empathy in six- and seven-year-olds. *Child Development*, 39, 133–145. doi.org/10.2307/1127365
- Finch, L. (1994). *The relationship among coping strategies, trait anxiety, and performance in collegiate softball players* (Unpublished doctoral dissertation). University of North Carolina, Greensboro.
- Fiske, S. T. (1993). Controlling other people: The impact of power on stereotyping. *American Psychologist*, 48(6), 621–628. doi.org/10.1037/0003-066X.48.6.621
- Fiske, S. T., & Neuberg, S. L. (1990). A continuum of impression formation, from category-based to individuating processes: Influences of information and motivation on attention and interpretation. *Advances in Experimental Social Psychology*, 23(C), 1–74. doi.org/10.1016/S0065-2601(08)60317-2
- Fletcher, G. (2002). *The new science of intimate relationships*. Oxford: Blackwell Publishing
- Fletcher, D., & Hanton, S. (2003). Sources of organisational stress in elite sports performers. *The Sport Psychologist*, 17(17), 175–195. doi.org/10.1123/tsp.17.2.175

- Fletcher, D., Hanton, S., & Mellalieu, S. D. (2006). An organisational stress review: Conceptual and theoretical issues in competitive sport. *Literature Reviews in Sport Psychology*, 321–374.
- Fletcher, D., & Scott, M. (2010). Psychological stress in sports coaches: A review of concepts, research, and practice. *Journal of Sports Sciences*, 28(2), 127–137. doi.org/10.1080/02640410903406208
- Folkman, S. (1992). Making the case for coping. *Personal Coping: Theory, Research, and Application*, 8, 268.
- Folkman, S., & Lazarus, R. S. (1988). The relationship between coping and emotion: Implications for theory and research. *Social Science and Medicine*, 26(3), 309–317. doi.org/10.1016/0277-9536(88)90395-4
- Folkman, S., Lazarus, R. S., Dunkel-Schetter, C., DeLongis, A., & Gruen, R. J. (1986). Dynamics of a stressful encounter. Cognitive appraisal, coping, and encounter outcomes. *Journal of Personality and Social Psychology*, 50(5), 992–1003. doi.org/10.1037/0022-3514.50.5.992
- Folkman, S., & Moskowitz, J. T. (2004). Coping: Pitfalls and promise. *Annual Review of Psychology*, 55(1), 745–774. doi.org/10.1146/annurev.psych.55.090902.141456
- Freudenberger, H. J. (1974). Staff burn-out. *Journal of Social Issues*, 30(1), 159–165. doi.org/10.1111/j.1540-4560.1974.tb00706.x
- Frey, M. (2007). College coaches' experiences with stress: "Problem solvers" have problems too. *The Sport Psychologist*, 21(1), 38–57. doi.org/10.1123/tsp.21.1.38
- Funder, D. C. (1995). On the accuracy of personality judgment: A realistic approach. *Psychological Review*, 102(4), 652–670. doi.org/10.1037/0033-295X.102.4.652
- Galinsky, A. D., Magee, J. C., Inesi, M. E., & Gruenfeld, D. H. (2006). Power and perspective not taken. *Psychological Science*, 17(12), 1068–1074. doi.org/doi: 10.1111/j.1467-9280.2006.01824.x
- Gaudreau, P., & Blondin, J. P. (2004). Different athletes cope differently during a sport competition: A cluster analysis of coping. *Personality and Individual Differences*, 36(8), 1865–1877. doi.org/10.1016/j.paid.2003.08.017
- Giacobbi, P., Foore, B., & Weinberg, R. S. (2004). Broken clubs and expletives: The sources of stress and coping responses of skilled and moderately skilled golfers. *Journal of Applied Sport Psychology*, 16(2), 166–182. doi.org/10.1080/10413200490437688
- Giacobbi, P. R., Poczwardowski, A., & Hager, P. F. (2005). A pragmatic research philosophy for applied sport psychology. *Journal of the Sport Psychologist*, 19, 18–31. doi.org/10.1123/tsp.19.1.18
- Gilbert, D. T., Pelham, B. W., & Krull, D. S. (1988). On cognitive busyness: When person perceivers meet persons perceived. *Journal of Personality and Social Psychology*, 54(5), 733–740. doi.org/10.1037/0022-3514.54.5.733
- Gilligan, C. (1982). Psychological theory and women's development. *In a Different Voice*, 24–39. doi.org/10.2307/2067520

- Glaser, R., & Kiecolt-Glaser, J. K. (2005). Stress-induced immune dysfunction: Implications for health. *Nature Reviews Immunology*, 5(3), 243-251. doi.org/10.1038/nri1571
- Goldman, A. I. (2006). *Simulating minds: The philosophy, psychology, and neuroscience of mindreading*. Oxford: Oxford University Press.
- Goldsmith, P. A., & Williams, J. M. (1992). Perceived stressors for football and volleyball officials from three rating levels. *Journal of Sport Behaviour*, 15(2), 106–118.
- Goodger, K., Gorely, T., Lavalley, D., & Harwood, C. (2007). Burnout in sport: A systematic review. *Applied Research The Sport Psychologist*, 21, 127–151. doi.org/10.1123/tsp.21.2.127
- Gould, D., Eklund, R. C., & Jackson, S. A. (1993). Coping strategies used by U.S. olympic wrestlers. *Research Quarterly for Exercise and Sport*, 64(1), 83–93. doi.org/10.1080/02701367.1993.10608782
- Gould, D., Finch, L. M., & Jackson, S. A. (1993). Coping strategies used by national champion figure skaters. *Research Quarterly for Exercise and Sport*, 64(4), 453–468. doi.org/10.1080/02701367.1993.10607599
- Gould, D., Guinan, D., Greenleaf, C., & Chung, Y. (2002). A survey of U.S. olympic coaches: Variables perceived to have influenced athlete performances and coach effectiveness. *The Sport Psychologist*, 16, 229–250.
- Gould, D., Guinan, D., Greenleaf, C., & Medbery, R. (1999). Factors affecting olympic performance perceptions of athletes and coaches from more and less successful teams. *The Sport Psychologist*, 13, 371–394. doi.org/10.1123/tsp.13.4.371
- Gould, D., Jackson, S., & Finch, L. (1993). Sources of stress in national champion figure skaters. *Journal of Sport & Exercise Psychology*, 15(2), 134–159. doi.org/10.1123/jsep.15.2.134
- Gould, D., Petlichkoff, L., Simons, J., & Vevera, M. (1987). Relationship between competitive state anxiety - inventory-2 subscale scores and pistol shooting performance. *Journal of Sport Psychology*, (9), 33–42.
- Gould, D., Udry, E., Bridges, D., & Beck, L. (1997). Stress sources encountered when rehabilitating from season-ending ski injuries. *Applied Research The Sport Psychologist*, 11, 361–378. doi.org/10.1123/tsp.11.4.361
- Goyen, M. J., & Anshel, M. H. (1998). Sources of acute competitive stress and use of coping strategies as a function of age and gender. *Journal of Applied Developmental Psychology*, 19(3), 469–486. doi.org/10.1016/S0193-3973(99)80051-3
- Graham, T., & Ickes, W. (1997). When women's intuition isn't greater than men's. In W. Ickes, (Eds.), *Empathic accuracy* (pp. 117–143). New York: The Guildford Press.
- Grawitch, M. J., & Munz, D. C. (2004). Are your data nonindependent? A practical guide to evaluating nonindependence and within-group agreement. *Understanding Statistics*, 3(4), 231-257.
- Greenleaf, C., Gould, D., & Dieffenbach, K. (2001). Factors influencing olympic performance: Interviews with Atlanta and Nagano U.S. olympians. *Journal of Applied Sport Psychology*, 13(2), 154–184. doi.org/10.1080/104132001753149874

- Grinker, R. R., & Spiegel, J. P. (1945). *Men under stress*. London: J.&A. Churchill Ltd.
- Hall, M., Bysse, D., Nowell, P., Nofzinger, E., Houck, P., Reynolds, C., & Kupfer, D. (2000). Symptoms of stress and depression as correlates of sleep in primary insomnia. *Psychosomatic Medicine*, *62*(2), 227–230. doi.org/10.1097/00006842-200003000-00014
- Hamilton, D. L., Sherman, S. J., & Ruvolo, C. M. (1990). Stereotype-based expectancies: Effects on information processing and social behaviour. *Journal of Social Issues*, *46*(2), 35–60. doi.org/10.1111/j.1540-4560.1990.tb01922.x
- Hammermeister, J., & Burton, D. (2004). Gender differences in coping with endurance sport stress: Are men from Mars and women from Venus? *Journal of Sport Behaviour*, *27*, 148–165.
- Hanton, S., & Fletcher, D. (2005). Organisational stress in competitive sport: More than we bargained for? *International Journal of Sport Psychology*, *36*, 273–283.
- Hanton, S., Fletcher, D., & Coughlan, G. (2005). Stress in elite sport performers: A comparative study of competitive and organisational stressors. *Journal of Sports Sciences*, *23*(10), 1129–1141. doi.org/10.1080/02640410500131480
- Hanton, S., & Jones, G. (1999). The acquisition and development of cognitive skills and strategies: Making the butterflies fly in formation. *The Sport Psychologist*, *13*(1), 1–21. doi.org/10.1123/tsp.13.1.1
- Hardy, L., Jones, G., & Gould, D. (1996). *Understanding psychological preparation for sport: Theory and practice of elite performers*. Chichester: Wiley.
- Hays, K., Maynard, I., Thomas, O., & Bawden, M. (2007). Sources and types of confidence identified by world class sport performers. *Journal of Applied Sport Psychology*, *19*(4), 434–456. doi.org/10.1080/10413200701599173
- Hein, G., & Singer, T. (2008). I feel how you feel but not always: The empathic brain and its modulation. *Current Opinion in Neurobiology*, *18*, 153–158. doi.org/10.1016/j.conb.2008.07.012
- Hektner, J. M., Schmidt, J. A., & Csikszentmihalyi, M. (2007). *Experience sampling method: Measuring the quality of everyday life*. London: SAGE.
- Hendrix, A. E., Acevedo, E. O., & Hebert, E. (2000). An examination of stress and burnout in certified athletic trainers at division I-A universities. *Journal of Athletic Training*, *35*(2), 139–144.
- Henwood, K., & Pidgeon, N. (1995). Remaking the link: Qualitative research and feminist standpoint theory. *Feminism & Psychology*, *5*(1), 7–30. doi.org/10.1177/0959353595051003
- Hermans, E. J., Henckens, M. J. A. G., Joels, M., & Fernandez, G. (2014). Dynamic adaptation of large-scale brain networks in response to acute stressors. *Trends in Neurosciences*, *37*(6), 304–314. doi.org/10.1016/j.tins.2014.03.006
- Herzberg, P. Y. (2013). Coping in relationships: The interplay between individual and dyadic coping and their effects on relationship satisfaction. *Anxiety Stress Coping*, *26*, 136–153. doi: 10.1080/10615806.2012.655726

- Hilton, J. L., & Darley, J. M. (1991). The effects of interaction goals on person perception. *Advances in Experimental Social Psychology*, 24(C), 235–267. doi.org/10.1016/S0065-2601(08)60331-7
- Hobfoll, S. E. (1998). Stress, culture, and community: The psychology and physiology of stress. *American Journal of Public Health*, 89(3), 424.
- Hock, S. (1987). Perceived consensus and predictive validity: The pros and cons of projection. *Journal of Personality and Social Psychology*, 53, 221-234.
- Hodges, S. D., & Biswas-Diener, R. (2007). Balancing the empathy expense account: Strategies for regulating empathic response. In T.Farrow & P.Woodruff (Eds.), *Empathy in mental illness* (pp. 389–407). Cambridge: Cambridge University Press.
- Hodges, S. D., Laurent, S. M., & Lewis, K. L. (2011). Specially motivated, feminine, or just female: Do women have an empathic accuracy advantage? In J. Smith, W. Ickes, J. Hall, & S. Hodges, (Eds.), *Managing interpersonal sensitivity: Knowing when and when not to understand others* (pp. 59-73). New York: Nova Science Publishers.
- Hodges, S. D., & Wegner, D. M. (1997). Automatic and controlled empathy. In W. Ickes, *Empathic accuracy* (pp.311-339). New York: The Guilford Press.
- Hoffman, M. L. (1977). Sex differences in empathy and related behaviours. *Psychological Bulletin*, 84(4), 712–722. doi.org/10.1037/0033-2909.84.4.712
- Hoffman, M. L. (1984). Interaction of affect and cognition in empathy. In C. E. Izard, J. Kagan, & R. Zajonc (Eds.), *Emotions, cognition, and behaviour* (pp. 103-131). New York: Wiley.
- Holmes, T. H., & Rahe, R. H. (1967). The social readjustment rating scale. *Journal of Psychosomatic Research*, 11(2), 213–218. https://doi.org/10.1016/0022-3999(67)90010-4
- Holt, N. L., & Dunn, J. G. H. (2004). Longitudinal idiographic analyses of appraisal and coping responses in sport. *Psychology of Sport and Exercise*, 5(2), 213–222. doi.org/10.1016/S1469-0292(02)00040-7
- Holt, N. L., & Hogg, J. M. (2002). Perceptions of stress and coping during preparations for the 1999 women's soccer World Cup finals. *The Sport Psychologist*, 16(3), 251–271. doi.org/10.1123/tsp.16.3.251
- Holt, N. L., & Mandigo, J. L. (2004). Coping with performance worries among youth male cricket players. *Journal of Sport Behaviour*, 27(1), 39–57.
- Horn, T. S. (1984). Expectancy effects in the interscholastic athletic setting: Methodological considerations. *Journal of Sport Psychology*, 6, 60-76.
- Horn, T. S., Lox, C. I., & Labrador, F. (2010). The self-fulfilling prophecy theory: When coaches' expectations become reality. In J. M. Williams (Ed.), *Applied sport psychology: Personal growth to peak performance* (pp. 81-105). New York: McGraw-Hill.
- Ickes, W. (1993). Empathic Accuracy. *Journal of Personality*, 61(4), 587–610. doi.org/10.1111/j.1467-6494.1993.tb00783.x
- Ickes, W. (1997). *Empathic accuracy*. New York: The Guilford Press.

- Ickes, W. (2001). Measuring Empathic Accuracy. In J.A. Hall & F.J. Bernieri (Eds.), *Interpersonal sensitivity: Theory and measurement* (pp. 219–241). New Jersey: Lawrence Erlbaum Associates.
- Ickes, W., Gesn, P. R., & Graham, T. (2000). Gender differences in empathic accuracy: Differential ability or differential motivation? *Personal Relationships*, 7(1), 95–109. doi.org/10.1111/j.1475-6811.2000.tb00006.x
- Ickes, W., Marangoni, C., & Garcia, S., W. (1997). Studying empathic accuracy in a clinically relevant context. In W. Ickes, (Ed.) *Empathic accuracy* (pp. 282–310). New York: The Guilford Press.
- Jackson, S. A, Mayocchi, L., & Dover, J. (1998). Life after winning gold: Coping with change as an olympic gold medalist. *The Sport Psychologist*, 12, 137–155. doi.org/10.1123/tsp.12.2.137
- James, B., & Collins, D. (1997). Self-presentational sources of competitive stress during performance. *Journal of Sport and Exercise Psychology*, 19(1), 17-35.
- Janssen, J., & Dale, G. (2002). *The seven secrets of successful coaches*. North Carolina: Janssen Peak Performance Inc.
- Johnson, R. B., Onwuegbuzie, A. J., & Turner, L. A. (2007). Toward a definition of mixed methods research. *Educational Researcher*, 1(2), 112–133. doi.org/10.1177/1558689806298224
- Jones, E. E., & McGillis, D. (1976). Correspondent inferences and the attribution cube: A comparative reappraisal. In J. H. Harvey, W. J. Ickes, & R. F. Kidd (Eds.), *New directions in attribution research*, (pp.389-420). New Jersey: Lawrence Erlbaum Associates.
- Jones, G. (2002). Performance excellence: A personal perspective on the link between sport and business. *Journal of Applied Sport Psychology*, 14(4), 268–281. doi.org/10.1080/10413200290103554
- Jones, G., Hanton, S., & Swain, A. (1994). Intensity and interpretation of anxiety symptoms in elite and non-elite sports performers. *Personality and Individual Differences*, 17(5), 657–663. doi.org/10.1016/0191-8869(94)90138-4
- Jones, M. R. (1988). What does expectancy mean? *Behavioural and Brain Sciences*, 11(3), 387–388. doi.org/10.1017/S0140525X00058131
- Jones, M. V., Paull, G. C., & Erskine, J. (2002). The impact of a team’s aggressive reputation on the decisions of association football referees. *Journal of Sports Sciences*, 20(12), 991–1000. doi.org/10.1080/026404102321011751
- Jowett, S. (2005a). On enhancing and repairing the coach-athlete relationship. In S. Jowett & M. Jones 9Eds.), *The Psychology of Sport Coaching*, (pp.14–26). Leicester, UK: The British Psychological Society.
- Jowett, S. (2005b). The coach-athlete relationship. *The Psychologist*, 18, 112-115. doi.org/10.1080/1612197X.2012.645127
- Jowett, S. (2007). Interdependence analysis and the 3+1Cs in the coach-athlete relationship. In S. Jowett & D. Lavalee (Eds.), *Social psychology in sport* (pp. 15–27). Champaign: Human Kinetics.

- Jowett, S., & Clark-Carter, D. (2006). Perceptions of empathic accuracy and assumed similarity in the coach-athlete relationship. *British Journal of Social Psychology*, 45(3), 617–637. doi.org/10.1348/014466605X58609
- Jowett, S., & Cockerill, I. (2002). Incompatibility in the coach-athlete relationship. In I.M. Cockerill (Ed.), *Solutions in sport psychology*, (pp. 16–31). London: Thompson Learning.
- Jowett, S., & Cockerill, I. M. (2003). Olympic medallists' perspective of the athlete-coach relationship. *Psychology of Sport and Exercise*, 4(4), 313–331. doi.org/10.1016/S1469-0292(02)00011-0
- Jowett, S., & Frost, T. (2007). Race/ethnicity in the all male coach-athlete relationship: Black footballers' narratives. *International Journal of Sport and Exercise Psychology*, 3, 255–269. doi.org/10.1080/1612197X.2007.9671835
- Jowett, S., Frost, T., & Timson-Katchis, M. (2006, March). *Race/ethnicity in the all male coach-athlete relationship: Black footballers' narratives*. Poster session presented at BPS Annual Conference, City Hall, Cardiff.
- Jowett, S., Paull, G., & Pensgaard, A. M. (2005). Coach-athlete relationship. In J. Taylor, & G. S. Wilson, *Applying sport psychology: Four perspectives* (pp. 153-170). Champaign: Human Kinetics.
- Jowett, S., & Poczwadowski, A. (2007). Understanding the Coach-Athlete Relationship. In S. Jowett & D. Lavalley (Eds.), *Social Psychology in Sport* (pp. 3–14). Champaign, IL: Human Kinetics.
- Jowett, S., & Wylleman, P. (2006). Interpersonal relationships in sport and exercise settings: Crossing the chasm. *Psychology of Sport and Exercise*, 7(2), 119–123. doi.org/10.1016/j.psychsport.2005.08.001
- Jussim, L. (1986). Self-fulfilling prophecies: A theoretical and integrative review. *Psychological Review*, 93(4), 429–445. doi.org/10.1037/0033-295X.93.4.429
- Jussim, L. (1990). Social reality and social problems: The role of expectancies. *Journal of Social Issues*, 46(2), 9–34. doi.org/10.1111/j.1540-4560.1990.tb01921.x
- Jussim, L. (1993). Accuracy in interpersonal expectations: A reflection-construction analysis of current and classic research. *Journal of Personality*, 61(4), 637–668. doi.org/10.1111/j.1467-6494.1993.tb00785.x
- Jussim, L., & Harber, K. D. (2005). Teacher expectations and self-fulfilling prophecies. *Personality and Social Psychology Review*, 9(2), 131–155. doi.org/10.1207/s15327957pspr0902
- Kaissidis-rodafinos, A., & Anshel, M. H. (2000). Psychological predictors of coping responses among greek basketball referees. *Journal of Social Psychology*, 140(3), 329–344. doi.org/10.1080/00224540009600474
- Kaissidis-Rodafinos, A., Anshel, M. H., & Sideridis, G. (1998). Sources, intensity, and responses to stress in Greek and Australian basketball referees. *International Journal of Sport Psychology*, 29(4), 303–323.

- Kaissidis-Rodafinos, A., Anshel, M. H., & Porter, A. (1997). Personal and situational factors that predict coping strategies for acute stress among basketball referees. *Journal of Sports Sciences, 15*(4), 427–436. doi.org/10.1080/026404197367218
- Karabatsos, G., Malousaris, G., & Apostolidis, N. (2006). Evaluation and comparison of burnout levels in basketball, volleyball and track and field coaches. *Studies in Physical Culture and Tourism, 1*, 79-83.
- Kelley, B. C. (1994). A model of stress and burnout in collegiate coaches: Effects of gender and time of season. *Research Quarterly for Exercise and Sport, 65*(1), 48–58. doi.org/10.1080/02701367.1994.10762207
- Kelley, B. C., Eklund, R. C., & Ritter-Taylor, M. (1999). Stress and burnout among collegiate tennis coaches. *Journal of Sport & Exercise Psychology. doi.org/10.1123/jsep.21.2.113*
- Kelley, B. C., & Gill, D. L. (1993). An examination of personal situational variable, stress appraisal, and burnout in collegiate teacher coaches. *Research Quarterly for Exercise and Sport, 64*(1), 94–102.
- Kellman, M., & Kallus, K. W. (1994). Interrelation between stress and coaches' behaviour during rest periods. *Perceptual Motor Skills, 79*(1), 207-210.
- Kenny, D. A. (1994). *Interpersonal perception: A social relations analysis*. New York: The Guilford Press.
- Kenny, D. A. & Judd, C. A. (1986). Consequences of violating the independence assumption in analysis of variance. *Psychological Bulletin, 99*, 422-431.
- Kenny, D.A., Kashy, D. A., & Cook, W. L. (2006). *Dyadic data analyses*. New York: The Guildford Press.
- Kenny, D. A., & Cook, W. (1999). Partner effects in relationship research: Conceptual issues, analytic difficulties, and illustrations. *Personal Relationships, 6*, 433-448.
- Kenny, D. A., & Depaulo, B. M. (1993). Do people know how others view them? An empirical and theoretical account. *Psychological Bulletin, 114*(1), 145–161. doi.org/10.1037/0033-2909.114.1.145
- Kerr, R., McHugh, M., & McCrory, M. (2009). HSE management standards and stress-related work outcomes. *Occupational Medicine, 59*, 574-579.
- Kerr, G. A., & Minden, H. (1988). Psychological factors related to the occurrence of athletic injuries. *Journal of Sport and Exercise Psychology, 10*, 167-173.
- Keysar, B., Lin, S., & Barr, D. J. (2003). Limits on theory of mind use in adults. *Cognition, 89*(1), 25–41. doi.org/10.1016/S0010-0277(03)00064-7
- Kilpatrick, S. D., Bissonnette, V. L., & Rusbult, C. E. (2002). Empathic accuracy and accommodative behaviour among newly married couples. *Personal Relationships, 9*(4), 369–393. doi.org/10.1111/1475-6811.09402
- Kinman, G., & Jones, F. (2008). Effort-reward imbalance, over-commitment and work-life conflict: Testing an expanded model. *Journal of Managerial Psychology, 23*, 236-251.

- Kivimaki, M., Virtanen, M., Elovainio, M., Kouvonen, A., Vaananen, A., & Vahtera, J. (2006). Work stress in the etiology of coronary heart disease - a meta-analysis. *Scandinavian Journal of Work Environment & Health*, 32(6), 431–442. doi.org/10.5271/sjweh.1049
- Kleine, D., Sampedro, R. M., & Melo, S. L. (1988). Anxiety and performance in runners: Effects of stress and anxiety on physical performance. *Anxiety Research*, 1(3), 235-246.
- Knapp, M. L., & Hall, J. A. (2002). *Nonverbal communication in human interaction*. New York: Wadsworth/Thomson Learning.
- Kobasa, S. (1979). Stressful life events, personality & health. *Journal of Personality & Social Psychology*, 37, 1011.
- Kohler, W. (1929). *Gestalt psychology*. New York: Liveright.
- Kowalski, K. C., & Crocker, P. R. E. (2001). Development and validation of the coping function questionnaire for adolescents in sport. *Journal of Sport & Exercise Psychology*. doi.org/10.1123/jsep.23.2.136
- Krane, V., Eklund, R., & McDermott, M. (1991). Collaborative action research and behavioural coaching intervention: A case study. In W. K Simpson, A. LeUnes, & J. S. Picou (Eds.), *The applied research in coaching and athletics annual* (pp. 119-147). Boston: American Press.
- Kreiner-phillips, K., & Orlick, T. (1993). Winning after winning: The psychology of ongoing excellence. *The Sport Psychologist*, 7, 31–48. doi.org/http://dx.doi.org/10.1123/tsp.7.1.31
- Kroll, W. (1979). The stress of high performance athletes. In P. Klavora & V. L. Daniel (Eds.), *Coach, athlete, and the sport psychologist* (pp. 211-219). Chichester: Wiley.
- Kroll, W., & Gundersheim, J. (1982). Stress factors in coaching. *Coaching Science Update*, 23, 47-49.
- Kuhn, T. S. (1970). *The structure of scientific revolution*. Chicago: University of Chicago Press.
- Kvale, S., & Brinkmann, S. (2009). *InterViews: Learning the craft of qualitative research interviewing*. London: SAGE.
- LaFrance, M., & Henley, N. M. (1993). On pressing hypotheses: Or differences in nonverbal sensitivity revisited. In L. Radtke & H. Stam (Eds.), *Power and gender* (pp. 287-311). London: SAGE.
- Laing, R. D., Phillipson, H., & Lee, A. R. (1966). *Interpersonal perception: A theory and a method of research*. New York: Harper & Row.
- Langer, A., Lawrence, E., & Barry, R. A. (2008). Using a vulnerability-stress-adaptation framework to predict physical aggression trajectories in newlywed marriage. *Journal of Consulting and Clinical Psychology*, 76(5), 756–768. doi.org/10.1037/a0013254
- Laurent, S. M., & Hodges, S. D. (2008). Gender roles and empathic accuracy: The role of communion in reading minds. *Sex Roles*, 60, 387-398. doi.10.1007/s11199-008-9544-x
- LaVoi, N. M. (2007). Expanding the interpersonal dimension: Closeness in the coach-athlete relationship. *International Journal of Sports Science & Coaching*, 2(4), 497–512. doi.org/10.1260/174795407783359632

- Lazarus, R. S. (1966). *Psychological stress and the coping process*. New York: McGraw-Hill.
- Lazarus, R. S. (1991). Psychological stress in the workplace. *Journal of Social Behaviour and Personality*, 6(7), 1–13.
- Lazarus, R. S. (1993). From psychological stress to the emotions: A history of changing outlooks. *Annual Review of Psychology*, 44(1), 1–21. doi.org/10.1146/annurev.psych.44.1.1
- Lazarus, R. S. (1999). *Stress and emotion: A new synthesis*. New York: Springer.
- Lazarus, R. S. (2000). Toward better research on stress and coping. *American Psychologist*, 55(6), 665–673. doi.org/10.1037/0003-066X.55.6.665
- Lazarus, R. S., Baker, R.W., Broverman, D. M., & Mayer, J. (1957). Personality and psychological stress. *Journal of Personality*, 25(5), 559–577. doi.org/10.1111/j.1467-6494.1957.tb01548.x
- Lazarus, R. S., Deese, J., & Osler, S. F. (1952). The effects of psychological stress upon performance. *Psychological Bulletin*, 49(4), 293–317. doi.org/10.1037/h0061145
- Lazarus, R. S., & DeLongis, A. (1983). Psychological stress and coping in aging. *The American Psychologist*, 38(3), 245–254. doi.org/10.2190/T43T-84P3-QDUR-7RTP
- Lazarus, R. S., & Folkman, S. (1984). *Stress, appraisal, and coping*. New York: Springer Publishing Company.
- Lehman, D. R., & Reifman, A. (1987). Spectator influence on basketball officiating. *The Journal of Social Psychology*, 127, 673–675.
- Lemyre, F., Trudel, P., & Durand-Bush, N. (2007). How youth-sport coaches learn to coach. *The Sport Psychologist*, 21(2), 191–209. doi.org/10.1123/tsp.21.2.191
- Le Poine, B. A., & Yoshimura, S. M. (1999). The effects of expectancies and actual communication outcomes: A test of interaction adaptation theory. *Communication Monographs*, 66, 1–30.
- Leslie, A. M., Friedman, O., & German, T. P. (2004). Core mechanisms in “theory of mind.” *Trends in Cognitive Sciences*, 8, 528–533. doi.org/10.1016/j.tics.2004.10.001
- Levy, A., Nicholls, A., Marchant, D., & Polman, R. (2009). Organisational stressors, coping, and coping effectiveness: A longitudinal study with an elite coach. *International Journal of Sports Science & Coaching*, 4(1), 31–45. doi.org/10.1260/1747-9541.4.1.31
- Lewis, K. L., Hodges, S. D., Laurent, S. M., Srivastava, S., & Biancarosa, G. (2012). Reading between the minds: The use of stereotypes in empathic accuracy. *Psychological Science*, 23(9), 1040–1046. doi.10.1177/0956797612439719
- Liamputtong, P., & Ezzy, D. (2005). *Qualitative research methods*. Melbourne: Oxford University Press.
- Lin, S., Keysar, B., & Epley, N. (2010). Reflexively mindblind: Using theory of mind to interpret behaviour requires effortful attention. *Journal of Experimental Social Psychology*, 46(3), 551–556. doi.org/10.1016/j.jesp.2009.12.019
- Lincoln, Y. S., & Guba, E. G. (1985). *Naturalistic inquiry*. California: SAGE.

- Lincoln, Y. S., & Guba, E. G. (2007). *Naturalistic inquiry*. California: SAGE.
- Lishner, D. A., Vitacco, M. J., Hong, P. Y., Mosley, J., Miska, K., & Stocks, E. L. (2012). Evaluating the relation between psychopathy and affective empathy: Two preliminary studies. *International Journal of Offender Therapy and Comparative Criminology*, *56*(8), 1161–1181. doi.org/10.1177/0306624X11421891
- Lloyd, C., King, R., & Chenoweth, L. (2002). Social work, stress and burnout: A review. *Journal of Mental Health*. doi.org/10.1080/09638230020023642
- Locke, L. F. (1989). Qualitative research as a form of scientific inquiry in sport and physical education. *Research Quarterly for Exercise and Sport*, *60*(1), 1–20. doi.org/10.1080/02701367.1989.10607407
- Lorimer, R. (2013). The development of empathic accuracy in sports coaches. *Journal of Sport Psychology in Action*, *4*(1), 26–33. doi.org/10.1080/21520704.2012.706696
- Lorimer, R., & Jowett, S. (2009a). Empathic accuracy, meta-perspective, and satisfaction in the coach-athlete relationship. *Journal of Applied Sport Psychology*, *21*(2), 201–212. doi.org/10.1080/10413200902777289
- Lorimer, R., & Jowett, S. (2009b). Empathic accuracy in coach-athlete dyads who participate in team and individual sports. *Psychology of Sport and Exercise*, *10*(1), 152–158. doi.org/10.1016/j.psychsport.2008.06.004
- Lorimer, R., & Jowett, S. (2010). The influence of role and gender in the empathic accuracy of coaches and athletes. *Psychology of Sport and Exercise*, *11*(3), 206–211. doi.org/10.1016/j.psychsport.2009.12.001
- Losoya, S. H., & Eisenberg, N. (2001). Affective empathy. In J. A. Hall & F. J. Bernieri (Eds.), *Interpersonal sensitivity* (pp. 21-43). New Jersey: Lawrence Erlbaum Associates.
- Lubker, J. R., Watson II, J. C., Visek, A. J., & Geer, J. (2005). Physical appearance and the perceived effectiveness of performance enhancement consultants. *The Sport Psychologist*, *19*, 446–458. doi.org/10.1123/tsp.19.4.446
- Lyle, J. (2002). *Sports coaching concepts: A framework for coaches' behaviour*. London: Routledge. doi.org/10.1089/tmj.1.1995.1.347
- Lynch, J. (2001). *Creative coaching*. Champaign: Human Kinetics.
- Mace, R., & Carroll, D. (1986). Stress inoculation training to control anxiety in sport: two case studies in squash. *British Journal of Sports Medicine*, *20*(3), 115–117. doi.org/10.1136/bjism.20.3.115
- Macrae, C. N., & Bodenhausen, G. V. (2000). Social cognition: Thinking categorically about others. *Annual Review of Psychology*, *51*(1), 93–120. doi.org/10.1146/annurev.psych.51.1.93
- Macrae, C. N., Bodenhausen, G. V., Milne, A. B., & Ford, R. L. (1997). On regulation of recollection: The intentional forgetting of stereotypical memories. *Journal of Personality and Social Psychology*, *72*(4), 709–719. doi.org/10.1037/0022-3514.72.4.709
- Madden, C., Summers, J. J., & Brown, D. F. (1990). The influence of perceived stress on coping with competitive basketball. *International Journal of Sport Psychology*, *21*, 21-35.

- Madon, S., Guyll, M., Spoth, R., & Willard, J. (2004). Self-fulfilling prophecies: The synergistic accumulative effect of parents' beliefs on children's drinking behaviour. *Psychological Science*, *15*(12), 837–845. doi.org/10.1111/j.0956-7976.2004.00764.x
- Magee, J. C., & Smith, P. K. (2013). The social distance theory of power. *Personality and Social Psychology Review*, *17*(2), 158–186. doi.org/10.1177/1088868312472732
- Maguire, J. (1993). Globalisation, sport and national identities: “The empires strike back”? *Society and Leisure*, *16*(2), 293–321. doi.org/10.1080/07053436.1993.10715455
- Manley, A. J., Greenlees, I. A., Thelwell, R. C., & Smith, M. J. (2010). Athletes' use of reputation and gender information when forming initial expectancies of coaches. *International Journal of Sports Science & Coaching*, *5*(4), 517–532. doi.org/10.1260/1747-9541.5.4.517
- Marangoni, C., Garcia, S., Ickes, W., & Teng, G. (1995). Empathic accuracy in a clinically relevant setting. *Journal of Personality and Social Psychology*, *68*(6), 854–869. doi.org/10.1037/0022-3514.68.5.854
- Martinek, T., Crowe, P., & Rejeski, W. (1982). *Pygmalion in the gym: Causes and effects of expectations in teaching and coaching*. New York: Leisure Press.
- Martinek, T. J., & Karper, W. B. (1986). Motor ability and instructional contexts: Effects on teacher expectations and dyadic interactions in elementary physical education classes. *Journal of Classroom Interaction*, *21*, 16-25.
- Mascarenhas, D., O'Hare, D., & Plessner, H. (2006). The psychological and performance demands of association football refereeing. *International Journal of Sport Psychology*, *37*(2–3), 99–120.
- Maslach, C., Jackson, S. E., & Leiter, M. P. (1997). *The Maslach burnout inventory: Third edition*. Palo Alto: Consulting Psychologists Press. doi.org/10.1017/S0033291798257163
- Matthews, K. A., Katholi, C. R., McCreath, H., Whooley, M. A., Williams, D. R., Zhu, S., & Markovitz, J. H. (2004). Blood pressure reactivity to psychological stress predicts hypertension in the cardia study. *Circulation*, *110*(1), 74–78. doi.org/10.1161/01.CIR.0000133415.37578.E4
- Maxcy, S. J. (2003). Pragmatic threads in mixed methods research in the social sciences: The search for multiple modes of inquiry and the end of the philosophy of formalism. In A. Tashakkori & C. Teddlie (Eds.), *Handbook of mixed methods in social and behavioural research* (pp. 51–89). Thousand Oaks: SAGE.
- Mayer, J. D., & Salovey, P. (1997). What is emotional intelligence? In P. Salovey & D. Sluyter (Eds.) *Emotional development and emotional intelligence: Implications for educators* (pp. 3–31). New York: Basic Books. doi.org/10.1177/1066480710387486
- Mayer, J. D., Salovey, P., & Caruso, D. R. (2000). Models of emotional intelligence. In R. J. Sternberg (Ed.), *Handbook of intelligence* (pp. 396-420). Cambridge: Cambridge University Press.
- McCann, S. (1997). Overcoaching and undercoaching: What pressure can do to coaches. *Olympic Coach*, *7*, 12.
- McDougall, W. (1908). *An introduction to social psychology*. Boston: Luce.

- McGonagle, K. A., & Kessler, R. C. (1990). Chronic stress, acute stress, and depressive symptoms. *American Journal of Community Psychology*, 18(5), 681–706. doi.org/10.1017/CBO9781107415324.004
- McKay, J., Niven, A. G., Lavallee, D., & White, A. (2008). Sources of strain among elite UK track athletes. *The Sport Psychologist*, 22(2), 143–163. doi.org/10.1123/tsp.22.2.143
- McKenna, J., & Mutrie, N. (2003). Emphasizing quality in qualitative papers. *Journal of Sports Sciences*, 21(12), 955–958. doi.org/10.1080/02640410310001641359
- McNamara, C. (2009). *General Guidelines for Conducting Interviews*, 2–4. doi.org/10.1017/CBO9781107415324.004
- McNatt, D. B. (2000). Ancient pygmalion joins contemporary management: A meta-analysis of the result. *Journal of Applied Psychology*, 85(2), 314–322. doi.org/10.1037/0021-9010.85.2.314
- Mead, G. H. (1934). *Mind, self, and society from the standpoint of a social behaviourist*. Chicago: University of Chicago Press.
- Mellalieu, S. D., Neil, R., Hanton, S., & Fletcher, D. (2009). Competition stress in sport performers: Stressors experienced in the competition environment. *Journal of Sports Sciences*, 27(7), 729–744. doi.org/10.1080/02640410902889834
- Merton, R. K. (1948). The self-fulfilling prophecy. *Antioch Review*, 8(3), 193–210.
- Miki, H., Tsuchiya, H., & Nishino, A. (1993). Influence of expectancy of opponents' competence upon information processing of their discrete attributes. *Perceptual and Motor Skills*, 77, 987–993.
- Miller, L. H., Smith, A. D., & Rothstein, L. (1994). *The stress solution: An action plan to manage the stress of your life*. New York: Pocket Books.
- Miller, D. T., & Turnbull, W. (1986). Expectancies and interpersonal processes. *Annual Review of Psychology*, 37(1), 233–256. doi.org/10.1146/annurev.ps.37.020186.001313
- Mitchell, J. P. (2009). Inferences about mental states. *Philosophical Transactions of the Royal Society B: Biological Sciences*, 364(1521), 1309–1316. doi.org/10.1098/rstb.2008.0318
- Nash, J. M., & Thebarger, R. W. (2006). Understanding psychological stress, its biological processes, and impact on primary headache. *Headache*, 46(9), 1377–1386. doi.org/10.1111/j.1526-4610.2006.00580.x
- Navarro, J. (2008). *What every body is saying: An ex-FBI agent's guide to speed-reading people*. New York: Collins.
- Neil, R., Hanton, S., Mellalieu, S. D., & Fletcher, D. (2011). Competition stress and emotions in sport performers: The role of further appraisals. *Psychology of Sport and Exercise*, 12(4), 460–470. doi.org/10.1016/j.psychsport.2011.02.001
- Neuberg, S. L., & Fiske, S. T. (1987). Motivational influences on impression formation: Outcome dependency, accuracy-driven attention, and individuating processes. *Journal of Personality and Social Psychology*, 53(3), 431–444. doi.org/10.1037//0022-3514.53.3.431

- Neyer, F. J., Banse, R., & Asendorpf, J. B. (1999). The role of projection and empathic accuracy in dyadic perception between older twins. *Journal of Social and Personal Relationships*, *16*(4), 419–442. doi.org/10.1177/0265407599164001
- Nicholls, A. R., Holt, N. L., Polman, R. C., & Bloomfield, J. (2006). Stressors, coping, and coping effectiveness among professional rugby union players. *The Sport Psychologist*, *20*, 314–329.
- Nicholls, A. R., Jones, C. R., Polman, R. C. J., & Borkoles, E. (2009). Acute sport-related stressors, coping, and emotion among professional rugby union players during training and matches. *Scandinavian Journal of Medicine and Science in Sports*, *19*(1), 113–120. doi.org/10.1111/j.1600-0838.2008.00772.x
- Nicholls, A. R., & Ntoumanis, N. (2010). Traditional and new methods of assessing coping in sport. In A. R. Nicholls (Ed.) *Coping in sport: Theory, methods, and related constructs* (pp. 35-51). Retrieved from <http://eprints.bham.ac.uk/386/>
- Nicholls, A. R., & Perry, J. L. (2016). Perceptions of coach-athlete relationship are more important to coaches than athletes in predicting dyadic coping and stress appraisals: An actor-partner independence mediation model. *Frontiers in Psychology*, *7*(447), 1-12. doi: 10.3389/fpsyg.2016.00447
- Nicholls, A. R., & Polman, R. C. J. (2007). Coping in sport: A systematic review. *Journal of Sports Sciences*, *25*(1), 11-31. doi.org/10.1080/02640410600630654
- Nicholls, A. R., Polman, R., Levy, A. R., Taylor, J., & Cobley, S. (2007). Stressors, coping, and coping effectiveness: Gender, type of sport, and skill differences. *Journal of Sports Sciences*, *25*(13), 1521–1530. doi.org/10.1080/02640410701230479
- Noblet, A. J., & Gifford, S. M. (2002). The Sources of stress experienced by professional Australian footballers. *Journal of Applied Sport Psychology*, *14*(1), 1–13. doi.org/10.1080/10413200209339007
- Novak, J. D., Bob Gowin, D., & Johansen, G. T. (1983). The use of concept mapping and knowledge vee mapping with junior high school science students. *Science Education*, *67*(5), 625–645. doi.org/10.1002/sce.3730670511
- Nowicki Jr, S., & Duke, M. P. (1994). Individual differences in the nonverbal communication of affect. *Journal of Nonverbal Behaviour*, *18*, 9–35. doi.org/10.1007/BF02169077
- Olson, J. M., Roese, N. J., & Zanna, M. P. (1996). Expectancies. In E.T. Higgins & A. W. Kruglanski (Eds.), *Social psychology: Handbook of basic principles* (pp. 211–238). New York: The Guilford Press.
- Olusoga, P., Butt, J., Hays, K., & Maynard, I. (2009). Stress in elite sports coaching: Identifying stressors. *Journal of Applied Sport Psychology*, *21*(4), 442–459. doi.org/10.1080/10413200903222921
- Olusoga, P., Butt, J., Maynard, I., & Hays, K. (2010). Stress and coping: A study of world class coaches. *Journal of Applied Sport Psychology*, *22*(3), 274–293. doi.org/10.1080/10413201003760968
- Overbeck, J. R., & Droutman, V. (2013). One for all: Social power increases self-anchoring of traits, attitudes, and emotions. *Psychological Science*, *24*(8), 1466–1476. doi.org/10.1177/0956797612474671

- Park, J. K. (2000). Coping strategies used by Korean national athletes. *The Sport Psychologist*, *14*, 63–80. doi.org/10.1123/TSP.14.1.63
- Pastore, D. L. (1991). Male and female coaches of women's athletics teams: Reasons for entering and leaving the profession. *Journal of Sports Management*, *5*, 128-143.
- Patmore, A. (1986). *Sportsmen under stress*. London: Stanley Paul.
- Patton, M. Q. (2002). *Qualitative research and evaluation methods*. California: SAGE. doi.org/10.1002/nur.4770140111
- Pelham, B. W., & Neter, E. (1995). The effect of motivation of judgment depends on the difficulty of the judgment. *Journal of Personality and Social Psychology*, *68*(4), 581–594. doi.org/10.1037/0022-3514.68.4.581
- Pendry, L. F., & Macrae, C. N. (1994). Stereotypes and mental life: The case of the motivated but thwarted tactician. *Journal of Experimental Social Psychology*, *30*(4), 303–325. doi.org/10.1006/jesp.1994.1015
- Pensgaard, A. M., Roberts, G. C., & Ursin, H. (1999). Motivational factors and coping strategies of Norwegian paralympic and olympic winter sport athletes. *Adapted Physical Activity Quarterly*, *16*(3), 238–250. doi.org/10.1123/apaq.16.3.238
- Petty, R. E., & Wegener, D. T. (1998). Attitude change: Multiple roles for persuasion variables. In D.T. Gilbert, S.T. Fiske, & G. Lindzey (Eds.) *The handbook of social psychology* (pp. 323–390). New York: McGraw-Hill. doi.org/10.1017/CBO9781107415324.004
- Phelps, E. A., Lempert, K. M., & Sokol-Hessner, P. (2014). Emotion and decision making: Multiple modulatory neural circuits. *Annual Review of Neuroscience*, *37*(1), 263–287. doi.org/10.1146/annurev-neuro-071013-014119
- Philippe, R. A., Seiler, R., & Mengisen, W. (2004). Relationships of coping styles with type of sport. *Perceptual and Motor Skills*, *98*, 479–486. doi.org/10.2466/pms.98.2.479-486
- Piaget, J. (1929). *The child's conception of the world*. New Jersey: Littlefield Adams.
- Pines, A. M. (1993). Burnout: An existential perspective. In W. B. Schaufeli, C. Maslach, & T. Marek (Eds.), *Professional burnout: Recent developments in theory and research* (pp. 33–51). Washington: Taylor and Francis.
- Pithers, W. D. (1999). Empathy: Definition, enhancement, and relevance to the treatment of sexual abusers. *Journal of Interpersonal Violence*, *14*(3), 257–284. doi.org/10.1177/088626099014003004
- Plessner, H. (1999). Expectation biases in gymnastics judging. *Journal of Sport & Exercise Psychology*, *21*, 133-144. doi.org/10.1123/jsep.21.2.131
- Plessner, H. (2005). Positive and negative effects of prior knowledge on referee decisions in sport. In T. Betsch & S. Haberstroh (Eds.), *The routines of decision making* (pp. 311-324). New Jersey: Lawrence Erlbaum Associates.
- Plessner, H., & Haar, T. (2006). Sports performance judgments from a social cognitive perspective. *Psychology of Sport and Exercise*, *7*(6), 555–575. doi.org/10.1016/j.psychsport.2006.03.007

- Poczwadowski, A., Barott, J. E., & Jowett, S. (2006). Diversifying approaches to research on athlete-coach relationships. *Psychology of Sport and Exercise, 7*, 125-142. doi.10.1016/j.psychsport.2005.08.002
- Poczwadowski, A., & Conroy, D. E. (2002). Coping responses to failure and success among elite athletes and performing artists. *Journal of Applied Sport Psychology, 14*(4), 313-329. doi.org/10.1080/10413200290103581
- Price, M. S., & Weiss, M. R. (2000). Relationships among coach burnout, coach behaviours, and athletes' psychological responses. *The Sport Psychologist, 14*, 391-409.
- Prymachuk, S., & Richards, D. A. (2007). Predicting stress in pre-registration nursing students. *British Journal of Health Psychology, 12*(1), 125-144. doi.org/10.1348/135910706X98524
- Ptacek, J. T., Smith, R. E., Espe, K., & Raffety, B. (1994). Limited correspondence between daily coping reports and retrospective coping recall. *Psychological Assessment, 6*(1), 41-49. doi.org/10.1037/1040-3590.6.1.41
- Raedeke, T. D. (2004). Coach commitment and burnout: A one-year follow-up. *Journal of Applied Sport Psychology, 16*(4), 333-349. doi.org/10.1080/10413200490517995
- Rainey, D. W., & Hardy, L. (1999). Sources of stress, burnout and intention to terminate among rugby union referees. *Journal of Sports Sciences, 17*(10), 797-806. doi.org/10.1080/026404199365515
- Rameson, L. T., Morelli, S. A., & Lieberman, M. D. (2012). The neural correlates of empathy: experience, automaticity, and prosocial behaviour. *Journal of Cognitive Neuroscience, 24*(1), 235-245. doi.org/10.1162/jocn_a_00130
- Randall, A. K., & Bodenmann, G. (2009). The role of stress on close relationships and marital satisfaction. *Clinical Psychology, 29* (2), 105-115. doi.org/10.1016/j.cpr.2008.10.004
- Reeves, C. W., Nicholls, A. R., & McKenna, J. (2009). Stressors and coping strategies among early and middle adolescent premier league academy soccer players: Differences according to age. *Journal of Applied Sport Psychology, 21*(1), 31-48. doi.org/10.1080/10413200802443768
- Rejeski, W., Darracott, C., & Hutslar, S. (1979). Pygmalion in youth sport: A field study. *Journal of Sport Psychology, 1*, 311-319.
- Rhind, D. J. A., & Jowett, S. (2010). Relationship maintenance strategies in the coach-athlete relationship: The development of the COMPASS model. *Journal of Applied Sport Psychology, 22*(1), 106-121. doi.org/10.1080/10413200903474472
- Richardson, A. M., & Matthiesen, S. B. (2014, August 11). Less stress when work relationships are good [Web log post]. Retrieved from <https://www.bi.edu/research/business-review/articles/2014/08/less-stress-when-work-relationships-are-good/>
- Rimmele, U., & Lobmaier, J. S. (2012). Stress increases the feeling of being looked at. *Psychoneuroendocrinology, 37*(2), 292-298. doi.org/10.1016/j.psyneuen.2011.06.013
- Rogers, C. R. (1957). The necessary and sufficient conditions of therapeutic personality change. *Journal of Consulting Psychology, 21*, 271-278.

- Rogers, C. R. (1959). A theory of therapy, personality, and interpersonal relationships as developed in the client-centred framework. In Koch, S. (Ed.), *Psychology: A study of a science. Vol III. Formulations of the person and the social context*. New York: McGraw Hill.
- Rorty, R. (2007). Pragmatism as anti-authoritarianism. In J. R. Shook, & J. Margolis (Eds.), *A companion to pragmatism* (pp. 257–266). Oxford: Blackwell Publishing Ltd.doi.org/10.1002/9780470997079.ch26
- Rosenthal, R., & Jacobson, L. (1968). Pygmalion in the classroom. *The Urban Review*, 3(1), 16–20. doi.org/10.1007/BF02322211
- Rosenthal, R., & Rubin, D. B. (1978). Interpersonal expectancy effects: The first 345 studies. *Behavioural and Brain Sciences*, 1(3), 377–386. doi.org/10.1017/S0140525X00075506
- Ross, L., & Ward, A. (1996). Naive realism in everyday life: Implications for social conflict and misunderstanding. *Values and Knowledge*, (48), 103–135. Retrieved from <http://books.google.com/books?hl=en&lr=&id=4Pcj9MQx8wIC&oi=fnd&pg=PA103&dq=Naive+realism+in+everyday+life:+Implications+for+social+conflict+and+misunderstanding&ots=wYYIek4VXg&sig=WAY2JG76382wWMPj1wGi2UyNr0>
- Rotella, R. J., McGuire, R. T., & Ganseder, B. M. (1985). *Stress and basketball officials: Impacts on health, performance, and retention*. Unpublished manuscript, Department of Psychology, University of Virginia, Charlottesville.
- Rottmann, N., Hansen, D. G., Larsen, P. V., Nicolaisen, A., Flyger, H., Johansen, C., et al. (2015). Dyadic coping within couples dealing with breast cancer: A longitudinal, population-based study. *Health Psychology*, 34, 486–495. [doi: 10.1037/hea0000218](https://doi.org/10.1037/hea0000218)
- Rudolph, U., Roesch, S. C., Greitemeyer, T., & Weiner, B. (2004). A meta-analytic review of help giving and aggression from an attributional perspective: Contributions to a general theory of motivation. *Cognition and Emotion*, 18(6), 815–848. doi.org/10.1080/02699930341000248
- Rychta, T. (1982). Sport as a human personality development factor. In T. Orlick, J. Partington, & J. Salmela (Eds.), *Mental training for coaches and athletes* (pp.101-102). Coaching Association of Canada.
- Sabiston, C. M., Sedgwick, W. A., Crocker, P. R. E., Kowalski, K. C., & Mack, D. E. (2007). Social physique anxiety in adolescence: An exploration of influences, coping strategies, and health behaviours. *Journal of Adolescent Research*, 22(1), 78–101. doi.org/10.1177/0743558406294628
- Sagar, S. S., Lavalley, D., & Spray, C. M. (2009). Coping with the effects of fear and failure: A preliminary investigation of young elite athletes. *Journal of Clinical Sport Psychology*, 3, 73–98.
- Salminen, S., & Liukkonen, J. (1996). Coach-athlete relationship and coaching behaviour in training sessions. *International Journal of Sport Psychology*, 27(1), 59–67.
- Saunders, M., Lewis, P., & Thornhill, A. (2009). *Research methods for business students*. London: Pearson Education.

- Scanlan, T. K., Stein, G. L., & Ravizza, K. (1991). An in-depth study of former elite figure skaters: Sources of stress. *Journal of Sport and Exercise Psychology*, *13*(2), 103–120. doi.org/10.1123/jsep.13.2.103
- Schaufeli, W. B., & Buunk, B. P. (2004). Burnout: An Overview of 25 Years of Research and Theorising. In M. J. Schabracq, J. A. M. Winnubst, & C. L. Cooper (Eds.) *The handbook of work and health psychology* (pp. 383–425). Chichester: Wiley. doi.org/10.1002/0470013400.ch19
- Scheer, J. K., & Ansoorge, C. J. (1979). Influence due to expectations of judges: A function of internal-external locus of control. *Journal of Sport Psychology*, *1*(1), 53–58.
- Schilling, J. (2006). On the pragmatics of qualitative assessment designing the process for content analysis. *European Journal of Psychological Assessment*, *22*(1), 28–37. doi.org/10.1027/1015-5759.22.1.28
- Schneider, D., Lam, R., Bayliss, A. P., & Dux, P. E. (2012). Cognitive load disrupts implicit theory-of-mind processing. *Psychological Science*, *23*(8), 842–847. doi.org/10.1177/0956797612439070
- Seggar, J. F. (1997). A measure of stress for athletic performance. *Perceptual and Motor Skills*, *84*(1), 227. doi.org/10.2466/PMS.84.1.227-236
- Selye, H. (1956). Stress and psychiatry. *The American Journal of Psychiatry*, *113*(5), 423–427.
- Shweder, R. A., & D'Andrade, R. G. (1980). The systematic distortion hypothesis. *New Directions for Methodology of Social and Behavioural Sciences*, *4*, 37–57.
- Simpson, J. A., Ickes, W., & Blackstone, T. (1995). When the head protects the heart: Empathic accuracy in dating relationships. *Journal of Personality and Social Psychology*, *69*(4), 629–641. doi.org/10.1037/0022-3514.69.4.629
- Sinclair, D. A., & Vealey, R. S. (1989). Effects of coaches' expectations and feedback on self-perceptions of athletes. *Journal of Sport Behaviour*, *12*, 77–91.
- Singer, T., & Klimecki, O. M. (2014). Empathy and compassion. *Current Biology*, *24*(18), 875–878. doi.org/10.1016/j.cub.2014.06.054
- Singer, T., & Lamm, C. (2009). The social neuroscience of empathy. *Annals of the New York Academy of Sciences*, *1156*, 81–96. doi.org/10.1111/j.1749-6632.2009.04418.x
- Smale, G. G. (1977). *Prophecy, behaviour, and change: An examination of self-fulfilling prophecies in helping relationships*. London: Routledge & Kegan Paul.
- Smith, B., & Sparkes, A. C. (2005). Analysing talk in qualitative inquiry: Exploring possibilities, problems, and tensions. *Quest*, *57*(2), 213–242. doi.org/10.1080/00336297.2005.10491854
- Smith, J. A. (2004). Reflecting on the development of interpretative phenomenological analysis and its contribution to qualitative research in psychology. *Qualitative Research in Psychology*, *1*(1), 39–54. doi.org/10.1191/1478088704qp004oa
- Smith, J. A., Flowers, P., & Larkin, M. (2009). *Interpretative phenomenological analysis*. London: SAGE.

- Smith, R. E. (1986). Toward a cognitive-affective model of athletic burnout. *Journal Of Sport Psychology*, 8, 36–50. doi.org/10.1017/CBO9781107415324.004
- Smith, R. E., Leffingwell, T. R., & Ptacek, J. T. (1999). Can people remember how they coped? Factors associated with discordance between same-day and retrospective reports. *Journal of Personality and Social Psychology*, 76(6), 1050–1061. doi.org/10.1037/0022-3514.76.6.1050
- Smith, R. E., Schutz, R. W., Smoll, F. L., & Ptacek, J. T. (1995). Development and validation of a multidimensional measure of sport-specific psychological skills: The athletic coping skills inventory-28. *Journal of Sport and Exercise Psychology*, 17(4), 379–398. doi.org/10.1123/jsep.17.4.379
- Smith, R. E., & Smoll, F. L. (1997). Coaching the coaches: Youth sports as a scientific and applied behavioural setting. *Current Directions in Psychological Science*, 6(1), 16–21. doi.org/10.1111/1467-8721.ep11512606
- Smoll, F. L., & Smith, R. E. (1989). Leadership behaviours in sport: A theoretical model and research paradigm. *Journal of Applied Social Psychology*, 19(18), 1522–1551. doi.org/10.1111/j.1559-1816.1989.tb01462.x
- Snodgrass, S. E. (1985). Women's intuition. The effect of subordinate role on interpersonal sensitivity. *Journal of Personality and Social Psychology*, 49(1), 146–155. doi.org/10.1037/0022-3514.49.1.146
- Snodgrass, S. E. (1992). Futher effects of role versus gender on interpersonal sensitivity. *Journal of Personality and Social Psychology*, 62, 154-158.
- Snodgrass, S. E., Hecht, M. A., & Ploutz-Snyder, R. (1998). Interpersonal sensitivity: Expressivity or perceptivity? *Journal of Personality and Social Psychology*, 74(1), 238–249. doi.org/10.1037/0022-3514.74.1.238
- Snyder, M., & Stukas, A. (2011). Interpersonal processes in context: Understanding the influence of settings and situations on social interaction. In K. Fiedler (Ed.), *Social communication* (pp. 363–388). New York: Taylor and Francis. doi.org/10.4324/9780203837702
- Solomon, G. B. (2001). Performance and personality impression cues as predictors of athletic performance: An extension of expectancy theory. *International Journal of Sport Psychology*, 32(1), 88–100.
- Solomon, G. B. (1993). *The expectancy rating scale*. Unpublished manuscript, Department of Psychology, Univeristy of Virginia, Charlottesville, Virginia.
- Solomon, G. B. (2002). Sources of expectancy information among assistant coaches: The influence of performance and psychological cues. *Journal of Sport Behaviour*, 25(3), 279–286.
- Solomon, G. B. (2003). *Solomon expectancy sources scale*. Unpublished manuscript, Department of Psychology, California state University, Sacramento, California.
- Solomon, G. B. (2008). Expectations and perceptions as predictors of coaches' feedback in three competitive contexts. *Journal of the Study of Sports and Athletics in Education*, 2, 161-179.
- Solomon, G. B. (2010). The influence of coach expectations on athlete development. *Journal of Sport Psychology of Action*, 1(2), 76-85.

- Solomon, G. B., DiMarco, A. M., Ohlson, C. J., & Reece, S. D. (1998). Expectations and coaching experience: Is more better? *Journal of Sport Behaviour*, *21*(4), 444–455.
- Solomon, G. B., Golden, A., Ciaponni, T., & Martin, A. (1998). Coach expectations and differential feedback: Perceptual flexibility revisited. *Journal of Sport Behaviour*, *21*, 298–310.
- Solomon, G. B., & Kosmitzki, C. (1996). Perceptual flexibility and differential feedback among intercollegiate basketball coaches. *Journal of Sport Behaviour*, *19*, 163–177.
- Solomon, G. B., & Lobinger, B. H. (2011). Sources of expectancy information among coaches: A cross cultural investigation. *Theories and Applications: The International Edition*, *1*, 46–57.
- Solomon, G. B., & Rhea, D. J. (2009). Sources of expectancy information among college coaches: A qualitative test of expectancy theory. *International Journal of Sports Science and Coaching*, *3*(2), 251–268. doi.org/10.1260/174795408785100725
- Sommerville, J. A., Bernstein, D. M., & Meltzoff, A. N. (2013). Measuring beliefs in centimeters: Private knowledge biases preschoolers' and adults' representation of others' beliefs. *Child Development*, *84*(6), 1846–1854. doi.org/10.1111/cdev.12110
- Sparkes, A. C., & Smith, B. (2013). *Qualitative research methods in sport exercise and health: From process to product*. New York: Taylor and Francis.
- Spears, R., & Haslam, S. A. (1997). Stereotyping and the burden of cognitive load. In R. Spears, P.J. Oakes, N. Ellemers, & S.A. Haslam (Eds.), *The social psychology of stereotyping and group life*. (pp. 171–207). Oxford: Blackwell Publishing.
- Starcke, K., & Brand, M. (2012). Decision making under stress: A selective review. *Neuroscience and Biobehavioural Reviews*, *36*(4), 1228–1248. doi.org/10.1016/j.neubiorev.2012.02.003
- Stephens, A. (1989). Stress, coping, and stage fright in professional musicians. *Psychology of Music*, *17*(1), 3–11. doi.org/10.1177/0305735689171001
- Stephens, A., Hamer, M., & Chida, Y. (2007). The effects of acute psychological stress on circulating inflammatory factors in humans: A review and meta-analysis. *Brain, Behaviour, and Immunity*, *21*, 901–912. doi.org/10.1016/j.bbi.2007.03.011
- Stewart, M. J., & Ellery, P. J. (1998). Sources and magnitude of perceived psychological stress in high school volleyball officials. *Perceptual and Motor Skills*, *87*(3), 1275–1282. Retrieved from <http://ovidsp.ovid.com/ovidweb.cgi?T=JS&PAGE=reference&D=emed4&NEWS=N&AN=10052089>
- Stinson, L., & Ickes, W. (1992). Empathic accuracy in the interactions of male friends versus male strangers. *Journal of Personality and Social Psychology*, *62*(5), 787–797. doi.org/10.1037/0022-3514.62.5.787
- Story, L. B., & Bradbury, T. N. (2004). Understanding marriage and stress: Essential questions and challenges. *Clinical Psychology Review*, *23*, 1139–1162. doi.org/10.1016/j.cpr.2003.10.002
- Stotland, E. (1969). Exploratory investigations of empathy. *Advances in Experimental Social Psychology*, *4*, 271–314. doi.org/10.1016/S0065-2601(08)60080-5

- Strauss, A. L., & Corbin, J. M. (1998). *Basics of qualitative research: Techniques and procedures for developing grounded theory*. London: SAGE. doi.org/10.4135/9781452230153
- Sullivan, H. (1940). *Conceptions of modern psychiatry*. New York: Norton.
- Sullivan, P. A., & Nashman, H. W. (1993). The 1992 United States olympic team sport coaches: Satisfactions and concerns. *Applied Research in Coaching and Athletics Annual, March*, 1-4.
- Sweller, J. (1988). Cognitive load during problem solving: Effects on learning. *Cognitive Science*, 12(2), 257–285. doi.org/10.1016/0364-0213(88)90023-7
- Taft, R. (1955). The ability to judge people. *Psychological Bulletin*, 52, 1-23.
- Takahashi, T., Ikeda, K., & Hasegawa, T. (2007). A hyperbolic decay of subjective probability of obtaining delayed rewards. *Behavioural and Brain Functions*, 3, 52. doi.org/10.1186/1744-9081-3-52
- Tamres, L. K., Janicki, D., & Helgeson, V. S. (2002). Sex differences in coping behaviour: A meta-analytic review and an examination of relative coping. *Personality and Social Psychology Review*, 6(1), 2–30. doi.org/10.1207/S15327957PSPR0601_1
- Tashakkori, A., & Teddlie, C. (1998). *Mixed methodology. Combining qualitative and quantitative approaches*. Thousand Oaks: SAGE. doi.org/10.2307/2655606
- Tashakkori, A., & Teddlie, C. (2003). *Handbook of mixed methods in social and behavioural research*. Thousand Oaks: SAGE
- Taylor, J. (1992). Coaches are people too: An applied model of stress management of sport coaches. *Journal of Applied Sport Psychology*, 4(1), 27-50.
- Taylor, A. H., & Daniel, J. V. (1988, April). *Sources of stress in soccer officiating: An empirical study*. Paper presented at the meeting of the North American Society for Psychology and Physical Activity, Knoxville, Tennessee.
- Taylor, S. E., Klein, L. C., Lewis, B. P., Gruenewald, T. L., Gurung, R. A. R., & Updegraff, J. A. (2000). Biobehavioural responses to stress in females: Tend-and-befriend, not fight-or-flight. *Psychological Review*, 107(3), 411–429. doi.org/10.1037/0033-295X.107.3.411
- Thelwell, R. C., Page, J. L., Lush, A., Greenlees, I. A., & Manley, A. J. (2013). Can reputation biases influence the outcome and process of making competence judgments of a coach? *Scandinavian Journal of Medicine and Science in Sports*, 23(1). doi.org/10.1111/sms.12000
- Thelwell, R. C., Weston, N. J. V., Greenlees, I. A., Page, J. L., & Manley, A. J. (2010). Examining the impact of physical appearance on impressions of coaching competence. *International Journal of Sport Psychology*, 41(3), 277–292.
- Thelwell, R. C., Weston, N. J. V., Greenlees, I. A., & Hutchings, N. V. (2008). A qualitative exploration of psychological-skills use in coaches. *Sport Psychologist*, 22(1), 38–53.
- Thelwell, R. C., Weston, N. J. V., & Greenlees, I. A. (2007). Batting on a sticky wicket: Identifying sources of stress and associated coping strategies for professional cricket batsmen. *Psychology of Sport and Exercise*, 8(2), 219–232. doi.org/10.1016/j.psychsport.2006.04.002

- Thelwell, R., Weston, N. J. V, & Greenlees, I. (2010). Coping with stressors in elite sport: A coach perspective. *European Journal of Sport Science*, 10(4), 243–253. doi.org/10.1080/17461390903353390
- Thomas, G., & Fletcher, G. J. O. (2003). Mind-reading accuracy in intimate relationships: Assessing the roles of the relationship, the target, and the judge. *Journal of Personality and Social Psychology*, 85, 1079-1094. doi.org/10.1037/0022-3514.85.6.1079
- Thomas, G., Fletcher, G. J. O., & Lange, C. (1997). On-line empathic accuracy in marital interaction. *Journal of Personality and Social Psychology*, 72(4), 839–850. doi.org/10.1037/0022-3514.72.4.839
- Thomas, J., & Nelson, J. K. (2001). *Research methods in physical activity*. Champaign: Human Kinetics.
- Thomas, R. (2012). Review of five ways of doing qualitative analysis: Phenomenological psychology, grounded theory, discourse analysis, narrative research, and intuitive inquiry. *British Journal of Psychology*, 103(2), 291–292. doi.org/10.1111/j.2044-8287.2011.02054.x
- Thompson, B. M., Kirk, A., & Brown, D. F. (2005). Work based support, emotional exhaustion, and spillover of work stress to the family environment: A study of policewomen. *Stress and Health*, 21(3), 199–207. doi.org/10.1002/smi.1056
- Tibi-Elhanany, Y., & Shamay-Tsoory, S. G. (2011). Social cognition in social anxiety: first evidence for increased empathic abilities. *The Israel Journal of Psychiatry and Related Sciences*, 48(2), 98–106.
- Titchener, E. (1909). *Experimental psychology of the thought processes*. New York: Macmillan.
- Tomlinson, A., & Yorganci, I. (1997). Male coach/female athlete relations: Gender and power relations in competitive sport. *Journal of Sport and Social Issues*, 21(2), 134–155. doi.org/10.1177/019372397021002003
- Towler, A., & Dipboye, R. L. (2006). Effects of trainer reputation and trainees' need for cognition on training outcomes. *Journal of Psychology: Interdisciplinary and Applied*, 140(6), 549–564. doi.org/10.3200/JRLP.140.6.549-564
- Trusz, S., & Babel, P. (2016). *Interpersonal and intrapersonal expectancies*. New York: Routledge.
- Udry, E., Gould, D., Bridges, D., & Tuffey, S. (1997). People helping people? Examining the social ties of athletes coping with burnout and injury stress. *Journal of Sport and Exercise Psychology*, 19(4), 368-395. doi.org/10.1123/jsep.19.4.368
- van der Weele, C. (2011). Empathy's purity, sympathy's complexities; de Waal, Darwin, and Adam Smith. *Biology and Philosophy*, 26, 583-593. doi.10.1007/s10539-011-9248-4.
- Vealey, R. S., Armstrong, L., Comar, W., & Greenleaf, C. A. (1998). Influence of perceived coaching behaviours on burnout and competitive anxiety in female college athletes. *Journal of Applied Sport Psychology*, 10(2), 297–318. doi.org/10.1080/10413209808406395
- Vealey, R. S., Udry, E. M., Zimmerman, V., & Soliday, J. (1992). Intrapersonal and situational predictors of coaching burnout. *Journal of Sport Exercise Psychology*, 14(1), 40–58. doi.org/10.1123/jsep.14.1.40

- Vernacchia, R. A., McGuire, R. T., Reardon, J. P., & Templin, D. P. (2000). Psychosocial characteristics of olympic track and field athletes. *International Journal of Sport Psychology*, *31*(1), 5–23.
- Vinkers, C. H., Zorn, J. V., Cornelisse, S., Koot, S., Houtepen, L. C., Olivier, B., Verster, J. C., Kahn, R. S., Boks, M. P., Kalenscher, T., & Joels, M. (2013). Time-dependent changes in altruistic punishment following stress. *Psychoneuroendocrinology*, *38*(9), 1467–1475. <https://doi.org/10.1016/j.psyneuen.2012.12.012>
- Von Dawans, B., Fischbacher, U., Kirschbaum, C., Fehr, E., & Heinrichs, M. (2012). The social dimension of stress reactivity: Acute stress increases prosocial behaviour in humans. *Psychological Science*, *23*(6), 651–660. doi.org/10.1177/0956797611431576
- Wang, J., & Ramsey, J. (1998). The relationship of school type, coaching experience, gender, and age to new coaches' challenges and barriers at the collegiate level. *Applied Research in Coaching and Athletics*, *13*, 1-22.
- Weaver, J., Moses, J. F., & Snyder, M. (2016). Self-fulfilling prophecies in ability settings. *Journal of Social Psychology*, *156*(2), 179–189. doi.org/10.1080/00224545.2015.1076761
- Weinstein, R. S., Marshall, H. H., Sharp, L., & Botkin, M. (1987). Pygmalion and the student: Age and classroom differences in children's awareness of teacher expectations. *Child Development*, *58*(4), 1079–1093. doi.org/10.1111/j.1467-8624.1987.tb01442.x
- Weinstein, R. S., & Middlestadt, S. E. (1979). Student perceptions of teacher interactions with male high and low achievers. *Journal of Educational Psychology*, *71*(4), 421–431. doi.org/10.1037/0022-0663.71.4.421
- Werthner, P., & Orlick, T. (1986). Retirement experiences of successful olympic athletes. *International Journal of Sport Psychology*, *17*(5), 337–363.
- Weston, N. J. V., Thelwell, R. C., Bond, S., & Hutchings, N. V. (2009). Stress and coping in single-handed round-the-world ocean sailing. *Journal of Applied Sport Psychology*, *21*(4), 460–474. doi.org/10.1080/10413200903232607
- White, K. J., Jones, K., & Sherman, M. D. (1998). Reputation information and teacher feedback: Their influences on children's perceptions of behaviour problem peers. *Journal of Social and Clinical Psychology*, *17*, 11-37.
- Wilhelm, P., & Perrez, M. (2004). How is my partner feeling in different daily-life setting? Accuracy of spouses' judgements about their partner's feelings at work and at home. *Social Indicators Research*, *67*, 183–246. doi.org/10.2307/27522087
- Wilks, B. (1991). Stress management for athletes. *Sports Medicine*, *11*(5), 289–299. doi.org/10.2165/00007256-199111050-00002
- Wilson, M. A., & Stephens, D. E. (2007). Great expectations: An examination of the differences between high and low expectancy athletes' perception of coach treatment. *Journal of Sport Behaviour*, *30*(3), 358–373.
- Winefield, A. H., & Jarrett, R. (2001). Occupational stress in university staff. *International Journal of Stress Management*, *8*(4), 285–298. doi.org/10.1023/A:1017513615819

- Wispé, L. (1986). The distinction between sympathy and empathy. To call forth a concept, a word is needed. *Journal of Personality and Social Psychology*, 50(2), 314–321. doi.org/10.1037/0022-3514.50.2.314
- Woodman, T., & Hardy, L. (2001). A case study of organisational stress in elite sport. *Journal of Applied Sport Psychology*, 13(2), 207–238. doi.org/10.1080/104132001753149892
- Woodman, T., & Hardy, L. (2001). A case study of organisational stress in elite sport. *Journal of Applied Sport Psychology*, 13(6), 207–238. doi.org/10.1080/104132001753149892
- Zakowski, S. G., Hall, M. H., Klein, L. C., & Baum, A. (2001). Appraised control, coping, and stress in a community sample: A test of the goodness-of-fit hypothesis. *The Society of Behavioural Medicine*, 23(3), 158–165. doi.org/10.1207/S15324796ABM2303_3
- Zimmer-Gembeck, M. J., & Skinner, E. A. (2011). The development of coping across childhood and adolescence: An integrative review and critique of research. *International Journal of Behavioural Development*, 35(1), 1–17. doi.org/10.1177/0165025410384923