

COACHES' ENCOURAGEMENT: ATHLETES' AND COACHES' PERCEPTION OF
PERFORMANCE STRATEGIES USE IN PRACTICE AND COMPETITION

By

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Abstract

The aim of this thesis was to investigate athletes' and coaches' perceptions of coaches' encouragement of performance strategies in practice and competition, underpinned by revised model of coaching efficacy. This thesis consists of six chapters, with the three empirical studies. Chapter 1 is a review of the literature on performance strategies and its measuring tools, and the role of coaches in developing performance strategies, and elements of coaching efficacy such as sources of coaching efficacy information, coach's efficacy belief, coach behaviour, athletes' perceptions of coach efficacy, athletes' characteristics, and athlete outcomes. Chapter 2 examined athletes' perceptions of coaches' encouragement of performance strategies and whether there were differences between genders, sport type, and levels of competition. This chapter also examines the significant variables that positively predict coach satisfaction and confidence in athletes' physical and mental preparation in the revised model. Following a similar study design to Chapter 2, Chapter 3 explored the similar variables within the practice by comparing athletes' own use and coaches' encouragement of performance strategies. This chapter also examines the significant predictors of coaching satisfaction and quality of training as athlete's outcomes. After examining athletes' perceptions of coaches' encouragement in Chapter 2 and 3, chapter 4 examined which study variables are predicting direction of anxiety symptoms while controlling athletes' characteristics, cognitive anxiety intensity and coaching behaviour dimension in practice and competition. However, Chapter 5 explored which study variables are predicting athlete's motivation of coachability while controlling coaches' characteristics, coaching qualification,

and encouragement of PS in practice and competition. This chapter also examined whether motivation efficacy was the significant predictor of performance strategies. Overall, this thesis makes new contributions to the sport psychology literature by adding new psychological variables to the revised model of coaching efficacy, testing the individual elements of coaching efficacy, and highlighting the role of coaches in encouraging performance strategies for their athletes in different settings.

Dedication

This thesis is dedicated to my parents Halimah Shuaib and Che Samsudin Che Hamat, my beloved husband Razin Hafiz Abd Razak and my three wonderful children Hana Naureen and Hani Naeema, and Haydr Nadeem who have always supported, motivated and encouraged me throughout the years.

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Conference presentations produced during the PhD

Conference Presentations

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List of Abbreviations

Abbreviation	Meaning
PS	Performance Strategies
MST	Mental Skill Training
CE	Coaching Efficacy
CES	Coaching Efficacy Model
CBS	Coaching Behaviour Scale
TOPS-CC	Test of Performance Strategies – competition for coach
TOPS-CP	Test of Performance Strategies – practice for coach
TOPS-2P	Test of Performance Strategies – practice for athletes’ own use

Chapter 1

General Introduction

Introduction

As the margins between success and failure grow smaller at higher levels of sport, the psychological characteristics of the athletes become more important. Nearly 50 years of sports psychology research has shown that more successful athletes can be distinguished from their less successful counterparts by psychological characteristics, especially during competition. (e.g., Gould et al., 2002; Macnamara & Collins, 2013; Orlick & Partington, 1988). For example, a study on Olympic athletes by Taylor et al. (2008) reported that medallist athletes showed greater emotional control and automaticity than non-medallists in competition. Similarly, qualitative studies by Gould and Maynard (2009) and Orlick and Partington (1988) found that medallist wrestlers reported as being more prepared with their focus of attention, engaged in positive self-talk and used more mental practice than non-medallist wrestlers. This extensive research area supports Orlick and Partington's (1988) conclusion that the mental aspect of performance is essential for high achievement in sport.

The psychological characteristics associated with successful performance are developed through training and competing. Coaches are a major influence on athletes' psychological development (Gould et al., 1999, 2002; Orlick & Partington, 1988). There is growing research describing the role played by coaches in helping athletes to develop important performance strategies such as imagery, self-talk, and goal setting (Weinberg, 2008). For example, qualitative research by Thelwell et al. (2008) reported that elite coaches that employ self-talk and imagery in different time frames (before, during and after training and competition) significantly benefit athletes' performance. For example, the use of self-talk during competition significantly helps to boost athletes' confidence and

control their emotions. However, the use of imagery before training and competition can help athletes to overcome difficulties and be more focused. Similarly, Gould et al.'s (2002) study of Olympic athletes and coaches agreed that self-regulation, positive imagery, and self-talk were associated with achieving optimal psychological states. Thus, coaches played a significant role in the development of psychological characteristics for their athletes before, during and after training and competition.

This chapter offers background information on coaches' encouragement of performance strategies in sports. Starting with defining performance strategies and related concepts, it employs a conceptual model to describe their function within youth mental skills training. Next, guided by the revised coaching efficacy model by Boardley (2018) this chapter also explore how athletes view of PS in competition and practice setting, based on coach behaviour, and athletes' behaviour, and athletes' outcomes. It includes an exploration of athletes' adoption of these strategies, an analysis of the coach's role using Boardley's (2018) revised coaching efficacy model, the identification of knowledge gaps, and the objectives of this thesis. The conclusion outlines how the research from Chapters 2 to 5 achieved these aims and discusses their implications for research and practice. Lastly, literature gaps are identified, and thesis aims are articulated.

Understanding performance strategies in sports

Previous research has agreed that successful athletes display higher levels of focus, confidence, and motivation to reduce anxiety than non-successful athletes (Gould et al., 1992; Ribeiro et al., 2022; William et al., 2021). Also, recent academic research found that psychological skills such as self-talk and goal setting have a greater positive impact on the performance of elite compared with non-elite swimmers. (Meggs and Chen, 2019).

Conversely, a separate investigation conducted by Ribeiro et al. (2022) determined that mental imagery emerged as the most pivotal strategy for volleyball players during games. In line with the conclusions drawn by Cook et al. (2021), Henderson et al. (2021), Thelwell et al. (2008), and Villalon and Martin (2020), it is advised that athletes and their coaches adopt performance strategies to enhance both athletic performance and well-being. Significantly, failure on the part of coaches to incorporate PS into their training regimen can have deleterious effects on their athletes' performance and overall satisfaction, particularly in challenging competitions (Gould et al., 2002; Weinberg & Gould, 2018; Zakrajsek et al., 2011).

On the other hand, the performance strategies that are utilised vary depending on the athlete's age and gender. According to Ndakotsu (2023), high-level athletes employ a greater number of performance strategies to attain their goals. Subsequently, this variable was studied by comparing the ways in which female and male athletes utilise performance strategies in response to increasing emotional stress or anxiety (Wahl et al., 2020). The stage of athletes' development, or the experience level has influence on duration of using these strategies. This is in addition to the fact that most PS strategies were employed by younger athletes as opposed to older athletes. The findings of this study highlight the need to consider a variety of factors, including age, gender, competitive level, and type of sports in addition to other psychological qualities or strategies while doing research on highly competitive athletes. The following section emphasizes the utilization of performance strategies by athletes, encompassing the definition and theoretical explanation of their effectiveness.

Athletes' use of performance strategies

The extensive body of research on the fundamental psychological aspects of successful athletes' performance and well-being has resulted in the use of various related terms, including mental techniques, mental skills, and mental qualities (Connaughton et al., 2008; Durand-Bush & Salmela, 2002; Holland et al., 2010; MacNamara et al., 2010; Woodcock et al., 2011). The term 'performance strategies' in this thesis will be a general reference to mental skills, techniques and abilities that are integrated into one framework. Thus, this key term also reflects both the performance and well-being of athletes and coaches. Overall, 'performance strategies' is a broader term that better reflects the multifactorial nature of sports psychology research. These terms are defined and illustrated in Table 1.1.

Table 1.1

Definitions and examples of mental skills, techniques, and qualities

	Mental Techniques	Mental Skills	Mental Qualities
Definition	“Cognitive or practical techniques used to build mental skills and qualities. It can be learned through experience or taught by model others” (Holland et al., 2010, p. 20)	“The capabilities to regulate thoughts, feelings, and actions by yourself” (Holland et al., 2010, p. 20)	“The capabilities to display positive characteristics by or within an individual (e.g., confidence, enjoyment, mental toughness” (Holland et al., 2010, p. 20)
Example	Goal setting, relaxation, self-talk	Emotional control, Attentional control, Activation	Confidence, mental toughness, enjoyment

Despite these definitions, there are still inconsistencies in the use of these terms within the sport psychology literature, which can cause conceptual confusion as well as inhibit the understanding and evaluation of their meaning among researchers. Addressing these conceptual issues is beyond the scope of the present PhD thesis. Nevertheless, to address its purposes, I use the term “performance strategies” throughout because it encompasses all aspects and constructs of mental techniques, skills and qualities. Moreover, Hardy et al. (2010) developed a self-reported measurement, the Test of Performance Strategies (TOPS) to assess athletes’ use of performance strategies such as attentional control, positive thinking, emotional control, goal setting, imagery and relaxation. Because the TOPS is being utilized as a measurement tool in this thesis, a more detailed discussion regarding its nature will be presented later in this section. Before delving into the specifics of TOPS, however, it is essential to establish a theoretical understanding of performance strategies and how they operate. This thesis uses Holland et al.'s (2017) conceptual process model of youth mental skills training and self-regulation principles to build a strong framework for performance strategies for athletes and coaches. Following the conclusion of this theoretical investigation, the narrative will then provide a complete introduction to the test of performance strategies (TOPS), elaborating on its relevance and applicability within the larger framework of this thesis. Thus, can help readers understand the process of transforming theoretical models into practical assessment tools that may contribute to the sports psychology literature.

How do performance strategies work?

Performance strategies can be effectively implemented through practice, learning and the use of mental techniques to help create positive attributes that optimize performance. Although numerous models exist to assist researchers and practitioners in the planning and implementation of mental skills training (MST) programs, only a few of these models explicitly clarify the workings of MST. This thesis focuses on a conceptual process model of youth mental skills training (Holland et al., 2017) because it integrates the antecedents, process, and outcomes of the mental aspect. From this point forward, this model is referred to as “the Mental Skills Training (MST) process model”. MST was defined as “the learning and implementation of mental techniques that assist individuals in the development of mental skills to achieve performance success and well-being” (Vealey, 2007, p. 288). The development and application of mental skill techniques promote the development of mental qualities that support successful performance and well-being.

MST process model highlights the cognitive strategies that facilitate and have and explicit effects in performance, well-being and personal development. The three components (cognitive strategies, skills, and attributes) (see Figure 1.1) work together as the fundamental mechanism underlying MST. For example, athletes need to focus and set objectives to succeed (cognitive strategies), and to do so, they must regulate their emotions and manage anxiety levels (cognitive skills) during competition to foster greater self-confidence (cognitive attribute), especially when facing pressure and challenging situations. However, to customize the MST process, it is necessary to consider the antecedents of individual and environmental factors in order to target specific outcomes. For instance, Holland et al. (2010) study with young male elite rugby players identified 11

essential mental qualities: confidence, team spirit, self-awareness, determination, game sense, mental toughness, regulation of performance state, enjoyment, adaptability, attentional focus, and self-responsibility. The qualities such as team spirit, adaptability, and self-responsibility appear to be common in the developmental phase of athletes, but the study by McAuliffe et al. (2021) found that highly competitive level athletes employ various PS such as confidence, self-regulation and motivation in their rugby game that boost athletes' performance. In addition, this PhD research therefore sought to investigate the variables such as age, gender, and competitive level that might help explain the coach's encouragement of performance strategies used in practice and competition.

Later in this introduction, the revised conceptual model for coaching efficacy will be introduced as the model adopted in this thesis to provide an over-arching structure to grasp the complex aspects of what makes coaching effective. Complimenting this framework, Holland et al.'s (2017) MST process model provides an in-depth understanding of how a coach's attributes interact with their tactical coaching methods. When considered together, the MST process model may help to explain how a coach's behaviour matches or not with their actual coaching practices. Such an alignment is crucial to forming the coach's beliefs in their efficacy and subsequently influences their coaching actions. Defined as intentional methods used by coaches to boost athletes' performance, encouraging athletes to use performance strategies represents the concrete expression of a coach's efficacy beliefs as well as the MST process model within the coaching environment. All these performance strategies involve initiating strategies, such as setting goals or teaching and giving feedback on PS to regulate one's attentional focus, emotional control, and activation. The use of these strategies is essential when considering how the

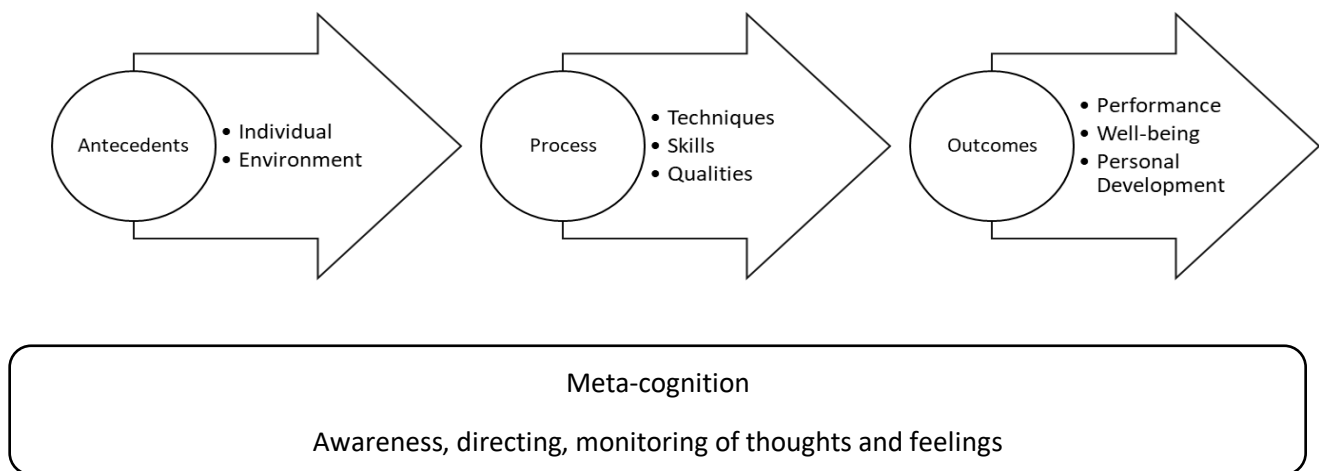
coach responds behaviourally and their impingement on athlete outcomes. Further, the integration of the MST process model and a revised coaching efficacy model proposed in this thesis may indicate an effective interplay between the athletes and coach's characteristics, coach behaviour, and how these antecedents can influence athletes' outcomes.

Given the importance of individual and environmental factors for explaining coaching effectiveness, understanding further how these facilitate or inhibit processes, mediating their effects must be a priority. Possible mediators include coach characteristics, their self-efficacy belief, and specific aspects of their coaching. Through the investigation of these processes, we can identify how coaches encourage the PS are correlated with athletes' characteristics and athletes' outcomes and impact athletes' performance. Additionally, extensive research shows that athletes at a higher competitive level are more likely to use imagery (mental technique) (Hall et al., 2009; Jedlic et al., 2007; Monroe-Chandle et al., 2008). In turn, research shows that greater imagery use is associated with mental qualities such as confidence (Hall et al., 2009; Hays et al., 2007; Hanton et al., 2004) and mental toughness (Crust & Azadi, 2010; Kristjánsdóttir et al., 2019), and results in better performance (outcome) (Frey et al., 2003; Taylor et al., 2008). The MST process model views mental skills as self-regulatory capacities through which athletes can control their thought processes, emotions and actions (Holland et al., 2017). Successful self-regulation based on PS, in turn, enhances positive emotional states and peak performance levels that underline the quality of functioning (Zimmerman, 2002). Athletes are required to employ PS to meet their specific needs and requirements, especially in challenging situations (Cleary

& Zimmerman 2001). This process is based on metacognition which includes general awareness, direction and monitoring of their thoughts and feelings (see Figure 1.1).

Figure 1.1

A conceptual process model of youth mental skills training (Holland et al., 2017)



Self-regulation and metacognition

All athletes, at any competitive level, will benefit from improving their self-regulation skills and suffer when they are lacking. Self-regulation, or self-control, refers to the cognitive and behavioural processes that individuals employ to manage negative thoughts, emotions, and behaviours to achieve their goals (Zimmerman & Kitsantas, 2005, p. 511). Self-regulation practices are shown to improve performance, and well-being in various settings, such as sports. According to Kitsantas et al. (2008), athletes who set self-referenced standards are believed to use a form of self-regulation when they compete as this is an actual part of training for them overall. Additionally, to successfully self-employ self-regulation the person must have a foundational knowledge of meta cognition and self-

control. (Ntoumanis & Cumming, 2016). However, self-control is defined as the ability to control thoughts, emotions and behaviour, while metacognition is defined as the ability to evaluate and improve one's learning strategies (Schraw & Dennison, 1994, p. 460), thus differentiating what they find most effective based on individual characteristics. Recent empirical evidence suggests a significant correlation between metacognition and daily accomplishments in self-control (Burgler et al., 2022).

Athletes' capacity to utilize metacognition and self-control for self-regulation not only enhances their performance but also makes a substantial contribution to their overall well-being in competitive settings. Metacognition has been closely associated with self-regulation and given that an influence of strategies on self-regulating behaviour is proposed, the link between metacognition & performance appears key to put examination and improve upon these performing strategy associations. In essence, it optimizes the ability to apply and adjust strategies to be congruent with both specific demands of sports competitions and individual requirements. This can allow them to cope with the specific demands and their personal needs that can help them to enhance their performance (Anderson, 2002; Zimmerman, 2000). In the next section of this thesis, we will investigate the theoretical concepts and practicality of these skills on how coaches may use these PS in training to improve their maximum performance and charisma as well personal development of an athlete. This will be followed by a brief explanation of performance strategies using an established measurement tool, the Test of Performance Strategies (TOPS), to show how PS are implemented in practice and competition situations.

The Test of Performance Strategies (TOPS)

Performance strategies in sports are often measured using self-report questionnaires, which play a significant role in improving the understanding of how performance strategies have been utilised in real-world practice. The Test of Performance Strategies (TOPS) and its revised version the TOPS-2 are two sets of questionnaires, which have been among some of the most popular tools to measure mental skills, techniques, and qualities. (Hardy et al., 2010; Thomas et al., 1999). The TOPS-2 was therefore selected for use in the present thesis because (a) it has been widely used in research (e.g., (Fletcher & Hanton, 2001; Filby et al., 2008; Gould et al., 2002), which makes it easier to compare the results of the current study with the existing body of research; (b) it measures performance strategies across different contexts (e.g., practice and competition); (c) there is evidence to support its validity and reliability; and (d) it has previously been adapted by researchers without compromising the psychometric properties of the questionnaire.

The TOPS evaluates the performance strategies employed by athletes in both competition and practice, recognizing the important distinction between these contexts. Examining performance strategies in each of these contexts is important since many athletes experience distinct psychological and situational demands while competing compared to practice. Differentiating between contexts facilitates a more elaborate assessment of how athletes are using mental skills and techniques as well as offers more comprehensive methods of evaluation. The 64 items are scored on a 5-point Likert scale ranging from (1) never to (5) always and reflect specific instances that athletes may encounter during practice or competition; there are eight factors associated with each category of either practice or competition.

Each of the 64 items, rated a 5-point Likert scale from 1 (*never*) to 5 (*always*), describes specific situations that athletes encounter during practice and competition, with 8 subscales for practice and 8 subscales for competition. For practice, the subscales consist of the mental skills of activation, attentional control, automaticity, and emotional control, and the mental techniques of goal setting, imagery, self-talk, and relaxation. For competition, the same subscales are used except attentional control is switched for negative thinking. For instance, the two subscales contain items of techniques such as goal setting, imagery and self-talk. The competition subscale additionally highlights coping with pressure and strategies used to focus only on the specific demands of a competitive setting, whereas items in the practice scale relate to learning or improving skills during training. The definition of each performance strategies that consists of both techniques and skills are explained in Table 1.2.

The original TOPS demonstrated good construct validity, and most subscales showed mostly acceptable levels of internal consistency, ranging between .66 and .81 (Thomas et al., 1999). However, the subscales for activation and automaticity in practice had Cronbach's alphas below .70 in both Thomas et al.'s (1999) study and subsequent research (Lane et al., 2004). Furthermore, the original questionnaire was published based solely on exploratory factor analyses. Lane et al. (2004) found mixed results when conducting a CFA on a sample of athletes under 18 years of age, highlighting the need for further validation. Research with the TOPS also showed that moderate correlations existed between the subscales, especially between activation and automaticity in practice (Thomas et al., 1999). In response to these issues, Hardy et al. (2010) extended the analyses using CFA to cross-validate the factor structure and revisited the psychometric properties of the

questionnaire with a broader range of athletes in terms of age and ability. As a result of this CFA, they undertook significant refinements to the instrument, including the development of new items to replace problematic ones identified in earlier versions and renamed this version as the TOPS-2.

Changes included adding a distractibility competition subscale that the TOPS-2 has nine competition and eight practice subscales. All together, these changes were meant to improve the assessment of athletes' psychological skills by increasing reliability and validity. In conclusion, Hardy et al. (2010) review of the TOPS and concluded that future research, need to choose the correct version of TOPS based on the nature of the research. Additionally, the results from the CFA suggest that it is appropriate to use the subscales separately in practice and competition. Consequently, for the purposes of this thesis, the TOPS-2, the revised version of the instrument, has been adapted to align with the specific research goals and facilitate a more comprehensive analysis of the distinct strategies employed in both practice and competitive environments.

Table 1.2

Defining TOPS-2 subscales and examples of the items.

TOPS-2 subscales	Definition	Example of the competition item	Example of the practice item
Self-talk	“As what people say to themselves either out loud or as a small voice inside their head” (Theodorakis et al., 2000, p. 254).	Talk positively to get the most out of the competition	Say things to myself to help my practice performance
Emotional control	“As part of emotion regulation, but mostly refers to an individual's	Emotions get out of control under pressure	Performance suffers when something upsets me

	attempts to control emotion generation, experience, expression, and/or response” (Gross, 1999, p. 556).		
Automaticity	“The ability to perform quickly, effortlessly, and relatively independently” (Hasher & Zacks, 1979).	Able to trust my body to perform skills	Able to perform skills without consciously thinking
Goal setting	“A goal is what a person tries to achieve; it is the object or aim of an action” (Locke et al., 1981).	Set personal performance goal	Set realistic but challenging goals
Imagery	“Is described as an experience that mimics real experience and involves using a combination of different sensory modalities in the absence of actual perception” (Cumming & Ramsey, 2009).	Rehearse performance in mind	Visualize successful past performance
Activation	“The mental preparation of a response to an anticipated situation or stimuli” (Barry et al., 2005).	Can get myself “up” if I feel flat	Can get my intensity levels just right
Relaxation	“Psychological technique used by athletes to control or reduce stress-related emotions during high-pressure situations” (Hardy et al., 1996).	Use relaxation strategies as a coping strategy	Use the practice to work on relaxation technique
Negative Thinking	“Negative thinking refers to the presence of pessimistic or unproductive thoughts that can hinder performance and affect an athlete's	I lose confidence in my ability when I am performing poorly.	I have trouble believing I can improve during practice.

	confidence and focus” (Beck, 1976).		
Attentional control	“The ability to control how information is processed in order to reach goals” (Botvinick et al., 2001).	Focus attention effectively	Attention wanders while training
Distractibility	Distractibility refers to the degree to which an athlete's focus and concentration can be disrupted by external or internal stimuli (Weinberg & Gould, 2018).	I am distracted by the crowd when competing.	I am easily distracted during practice

Where and when do athletes use performance strategies?

Athletes’ use performance strategies in a variety of settings and in different timeframes (Feddersen et., al 2021; Ribeiro et al., 2022). These strategies may vary depending on athletes’ characteristics such as gender, level of competition, and type of sport they compete in. Athletes use performance strategies in a variety of settings (e.g., sports, home, school, work) but the focus of this thesis is on the sport setting, specifically in practice and competition. Athletes use performance strategies at different time frames such as before, during and after practice and competition.

Extensive research on the use of different performance strategies with athletes has shown that athletes employ performance strategies more in competition than in training (Cotterill, 2017; Gould et al., 1992; Hardy et al., 1996; Harmison, 2011; Tan et al., 2022; Thomas & Over, 1994). For example, elite athletes reported using more self-talk, goal setting, imagery and relaxation performance strategies to cope with competitive anxiety and adversity (Crust & Azadi, 2010; Gucciardi et al., 2009). Frey et al. (2003) argue that a

reason for greater use of performance strategies in competition is that athletes may fail to realize the connection between practice and competition. Athletes may not fully appreciate how the skills and performance strategies that they get from practice transfer to their competitive game. This misunderstanding can cause these PS are only important during a competition, rather than being critical throughout athlete development level. Therefore, athletes may not train in to improve those skills and fail to rehearse these strategies in ways that are less stressful than during competition. This highlights the need for PS knowledge on a deeper level of understanding that can be shared with the athletes on how and why they can be beneficial from the utilisation of those strategies to train during practice, and competition.

Explicitly delineating this knowledge gap to coaches should motivate the use of PS in both practice and competition, which would improve athletes' readiness and directly impact their performance outcomes (Frey et al. 2003; Weinberg & Gould, 2015; Thelwell et al., 2010). Athletes may also believe that competition is more important than practice, which is why they do not use all their PS when they are training and only use them to their full potential when they are competing. However, athletes must spend time and effort practicing performance strategies during practice as it is essential for integrating these skills into the competition (Frey et al., 2003). Additionally, coaches also play an important role in training athletes' attitudes toward PS by emphasizing the importance of these strategies in competition and training (Gould et al., 1999; Thomas et al., 2007; Weinberg & Comar, 1994).

From the coaches' perspective, the purpose of using different performance strategies at different times (e.g., before, during and after) for the specific context is important because

it is based on the goals and outcomes of the individual or team (Thelwell et al., 2008). For example, a qualitative study by Thelwell et al. (2008) examined where, when and for what purposes elite coaches promote the use of self-talk, imagery, relaxation and goal-setting skills and this study found that coaches promote the use of self-talk during competition to manage anxiety, as well as pre- and post-competition to help plan the session and to help in the recovery process. To date, the use of performance strategies seems to show some variability depending on location, number of times and reasons.

Correlates of performance strategy use

It is believed that performance strategies help athletes to better cope with different challenges and adversity in training and competition (Dohme et al., 2020). Despite the benefits, performance strategies are also associated with different desired outcomes such as performance, satisfaction, confidence, response to anxiety level and athletes' motivation under different conditions (Cerin et al., 2000; Hatzigeorgiadis et al., 2009; Mamassis & Doganis, 2004; Theodorakis et al., 2000; Woodman & Hardy, 2003). For example, Hagan et al. (2017) examined elite table tennis players' competitive anxiety response and use performance strategies in low (i.e., preliminary rounds) and high (i.e., more advanced rounds) stressful phases of a national championships. They found that the players varied their use of self-talk, goal setting, imagery, and relaxation to manage the specific demands of the situation, with greater use of these strategies found in the high stress condition. This study utilized the TOPS, directly linking the findings to the measure employed in this PhD thesis. The application of the TOPS in Hagan et al.'s (2017) research highlight its relevance in assessing the psychological skills and strategies of athletes under stress.

However, in a different study by Kruk et al. (2017) found that the frequent use of relaxation techniques during the pre-season was associated with improved endurance performance and greater satisfaction with personal and team results later in the season. They also reported that lower levels of distractibility in the pre-season predicted higher satisfaction with personal tactics later in the season. Tomé-Lourido et al. (2019) discovered that the use of all TOPS performance strategies, except for negative thinking, was associated with greater performance satisfaction, whereas negative thinking correlated with lower performance satisfaction. Similarly, Frey et al. (2003) found that greater use of performance strategies in both practice and competition, as measured by the original TOPS, was related to higher perceptions of success in these settings. Further research has supported the relationship between performance strategies and a range of factors for effective evaluation. Fernandes et al. (2019) reported the beneficial effects of performance strategies on sports outcomes.

Additionally, Kristjánsdóttir et al. (2018; 2019), further supported the arguments for performance strategies to enhance athletic performances. The 2018 study concluded that mentally resilient handball players were more likely to resort to psychological skills such as goal-setting, imagery or self-talk and score lower on scales of competitive anxiety than their less tough counterparts so the learning substantial degree of these techniques should have a positive impact in coping with stress. However, a study in 2019 found that the athletes scored higher on competitive trait anxiety, with female athletes scoring more anxious than males and individual sports are the most stressful than sports. Sport Anxiety Scale 2 is the best tool to measure the level of competitive anxiety and has a strong

framework on gender and type of sports that may impact individuals' abilities to accurately measure their competitive anxiety levels.

According to Crust and Azadi (2009) and Beheshti et al., (2021) found that mental toughness was significantly associated with performance strategies, suggesting the idea of stress coping effects, which refers to how utilizing these strategies can increase an athlete's psychological resilience. In contrast, Zilli et al. (2021) investigated the relationship between performance strategies and individual differences in anxiety and found a positive finding that PS can help to overcome anxiety in the individual level. Comprehensive evaluation of the TOPS in numerous studies indicates that it has potential for providing valuable information to optimize sport performance and psychological well-being.

How do athletes develop performance strategies?

There are a variety of methods in which athletes can learn these strategies. Either is through structured training regimens developed by sport psychologists (like MST), and another is through natural learning experience (Fournier et al., 2005). However, the process of developing performance strategies may vary according to age, experience and competitive level and depends on the athletes' characteristics (Harwood et al., 2015; Hill et al., 2021; Ivarsson & Fallby, 2020; Park et al., 2022). These processes evolve throughout the athletes' development pathways. For example, when athletes reach a certain age (13-16 years), they begin to prioritize certain things depending on their progress and past experiences, such as encouragement from coaches, parents, and peers, positive feedback from coaches, and participation in sports (Côté al., 2007). However, McCarthy et al. (2010) investigated the understanding of psychological skills between young and older athletes and reported that younger athletes were less able to explain the meaning of goal

setting, mental imagery, self-talk and relaxation compared to older adults. Thus, to develop the performance strategies at an earlier stage, coaches should teach and adapt the skills during practice and competition.

Apart from athlete-specific characteristics, there are other sources that can influence the use of performance strategies in sport, such as coaches, teammates, parents, and peers (Fournier et al., 2005; Collins & Macnamara, 2013; Gould et al., 2002; Orlick & Partington, 1988). Coaches are some of the people closest to athletes and play a significant role in their development in sport. Because coaches may also play an important role in helping athletes develop performance strategies, this was the focus of the present thesis and will be described further below.

The role of coaches

Coaches have been recognized for many years as key influencers in athletes' psychological development and escalating the use of performance strategies (Smith & Smoll, 2007). Given their influential role in the training environments of athletes, coaches play a crucial part in both enhancing and encouraging use of performance strategies during practice as well as competition (Jones et al., 2002). This means outlining strategies to be implemented early in the development process of athletes for enhanced performance outcomes. In addition, athletes turn towards their coaches as primary source of support when faced with struggles (Gould et al., 2009). This means that coaches need to create an environment where performance strategies are reliably integrated into training. The coach can ensure that the determined psychological preparation strategies best align with individual needs (Arthur et al., 2019; Feddersen et al., 2021; Thelwell et al. 2008).

However, Baker et al. (2003) reported that coaches should help the athletes to learn and improve their strategies by teaching and delivering psychological techniques and skills. Despite the importance of coaches' role in developing athletes' performance strategies, there is still limited research examining the degree to which coaches promote these strategies in practice and competition. A noteworthy notable study conducted by Dana et al. (2022) highlighted that an important part of PS training, varying techniques were used including goal setting, relaxation skills, positive self-talk and imagery are known as essential components to improving athletes' performance. These are tools that elite athletes need to be able to manage their mental states properly and perform at an optimal level while under pressure. For instance, Maleki et al. (2014) observed that elite athletes, including basketball and gymnastics players, exhibited unique cognitive abilities inherent to their respective PS training of sport. (Maleki et al., 2014). Also, the value of coaching for mental preparation can never be undervalued. Research by Jeong et al. (2022) indicates coaching behaviours are crucial for martial arts and have an enormous impact on athlete outcomes. Such an environment could facilitate the optimal utilization of PS and in turn increase performance, provided coaches employ some supportive strategies as well (e.g., autonomy-supportive). The result indicates that combining variations in player characteristics, coach behaviours and strategies with the use of PS can impact players. While this study provided useful preliminary findings on the use of PS in practice and competition, it did not make a thorough assessment of other performance strategies that are encouraged by coaches and measured by the TOPS. As a result, this underlines the requirement for an expanded examination of how coaches influence athletes' perception of PS use during both practice and competition.

Even though the advantages of sports coaching are substantial for both coaches and athletes, there can be a negative side to an athlete's psychological performance due to poor approaches from their coaches. Gould et al. (2009) identified multiple self-reported issues that hindered performance in Olympic-level athletes with a lack of communication, encouragement, motivation, and coaching skills that affect athletes' performance. Similarly, Gould et al. (1999) provided evidence that negative behaviours by coaches and a lack of trust between athletes and coaches can decrease the quality of elite athletes' performances. This research highlights the importance of positive coaching and an environment encouraging athlete success. This implies that the quality of coaching is particularly important for an athlete psychologically and in terms of performance in general. Poor coaching techniques divert the focus and lead to athletes losing trust in their coach. On the other hand, high-quality coaching must involve clear, consistent communication and good planning, and provide positive support which can thrive in understanding about guiding athletes' development, and deal with all the adversity in different settings. The next section will outline different models of effective coaching. These create a solid theoretical guide in which coaches can develop their practice sessions to encourage both physical and PS among the athletes. These models also show the several types of coaching dimensions in coaching efficacy and effectiveness and how it influences athlete's outcome.

Models of effective coaching

This section will introduce Horn's (2008) model of Coaching Effectiveness, the Coaching Efficacy Model (Feltz et al., 1999), and the Revised Coaching Efficacy Model (Boardley, 2018). For each model there will be an explanation of key concepts, purposes,

components, and proposed relationships. The final model, which underpins this PhD thesis, will also be discussed in terms of its relevance to understanding how coaches encourage performance strategies and its connection to the previously introduced MST process model.

Horn's (2008) Model of Coaching Effectiveness

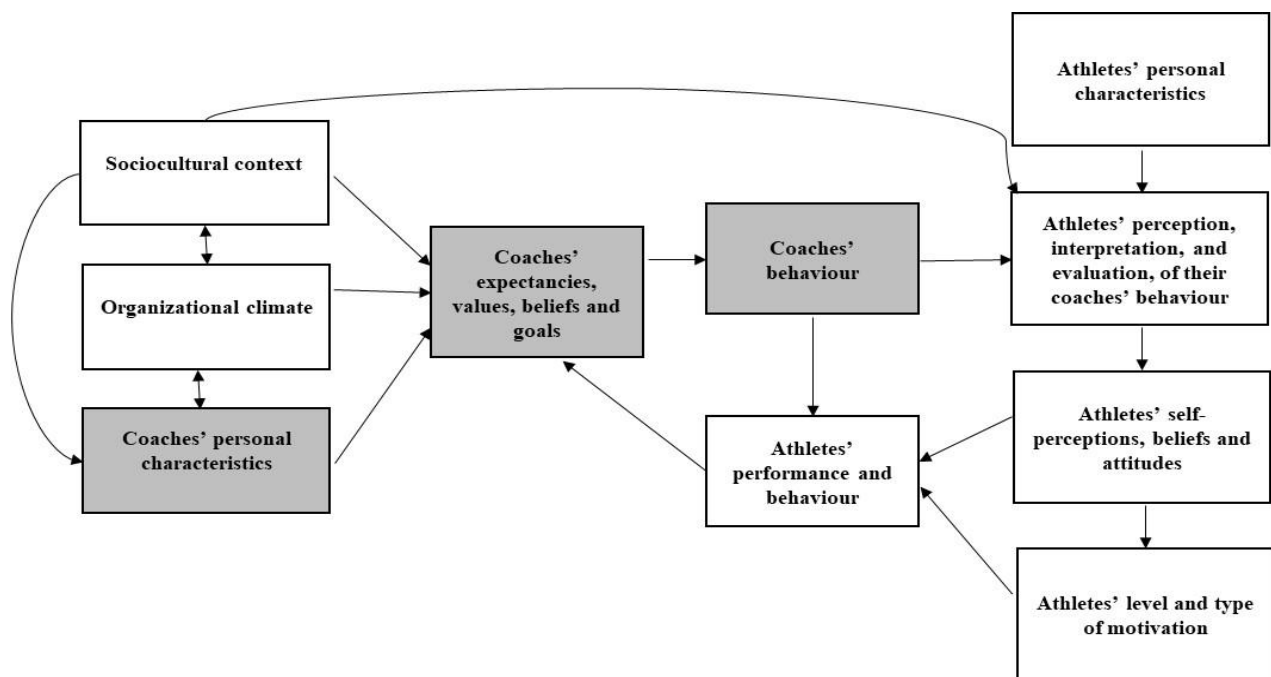
Horn (2008) developed a model of coaching effectiveness to explain the importance of athletes' perception of their coaches' behaviour in the context of determining the effectiveness of the coaching received (Figure 1.2). According to Horn, coaches are extremely important to the athletes' learning process and have a significant influence on their development and behaviour. Additionally, successful performance results (e.g., win-loss percentages, player development, satisfaction, and higher-level competition) and athletes' psychological responses to coaching can determine coaching efficacy. In addition, the capabilities of coaches to attain such outcomes are determined by coaching characteristics (e.g., coach experience), coaches' values and belief (e.g., motivation, game strategy), and athletes' performance and behaviour (e.g., athletes' perception, belief, and attitude) that help encourage their learning process and performance among athletes in specific settings.

Horn's (2008) model suggests that three primary factors contribute to effective coaching that consists of sociocultural, organizational climate, and personal characteristics of coaches. These factors indirectly impact coaches' behaviour while influencing their expectations, beliefs and goal setting. The athletes' perceptions and evaluations of the coach's behaviour, as well as the overall team performance, depend on how those coaches act. The third and final aspect of the model is that coaches' behaviour indirectly affects

athlete's perceptions, interpretations, and appraisals (performance experience) thereby impacting performance and behavioural intentions. Paquette and Sullivan (2012) assessed Horn's (2008) model to investigate the links between coaches' behaviours and the impact on the athletes' perception. They found that positive and supportive coaching behaviours significantly enhanced athletes' self-perception, motivation, and overall performance, whereas negative and critical behaviours were associated with diminished athlete confidence and satisfaction.

Figure 1.2:

Horn's (2008) Model of Coaching Effectiveness



Paquette and Sullivan (2012) tested Horn's (2008) model to investigate the links between coaches' behaviours and the impact on the athletes' perception. They found that positive and supportive coaching behaviours significantly enhanced athletes' self-

perception, motivation, and overall performance, whereas negative and critical behaviours were associated with diminished athlete confidence and satisfaction. However, Baker et al. (2000) found that coaches can help athletes feel less anxiety during competitions by giving them support and encouragement and showing them how to use the correct techniques and strategies. Similarly, Nicolas et al., (2011) emphasized the significance that how coaches behave can help athletes manage their stress during competition. However, Myers et al. (2006) suggest that efficacy is a self-perception, which fits better with Horn's definition of coaches' beliefs, expectancies, values, and goals. The model contributes to understanding of coaching effectiveness by highlighting the critical role of coaches' self-perceptions in shaping their behaviour and, consequently, athlete outcomes. Nonetheless, a limitation of this model is its insufficient emphasis on the dynamic interactions between coaches and athletes. This limitation is addressed by the next model, which incorporates these interactions to provide a more comprehensive framework for coaching effectiveness.

The Coaching Efficacy Model (Feltz et al., 1999)

The coaching efficacy (CE) model (Figure 1.3) established by Feltz et al. (1999) is an example of a model that considers psychological aspects as an integral part of the coaching process for both athletes and coaches. The model has been widely used to guide research on the psychology of sports coaching (Myers et al., 2006; Vargas-Tonsing et al., 2003). The self-efficacy theory developed by Bandura (1997) offers the conceptual framework for the CE model. Bandura (1997, p. 3) defines self-efficacy as “the belief in one’s capabilities to organise and execute the courses of action to produce given attainments”. CE has been described as the extent to which a coach believes in their personal ability to influence athlete learning and performance (Feltz et al., 1999). The CE

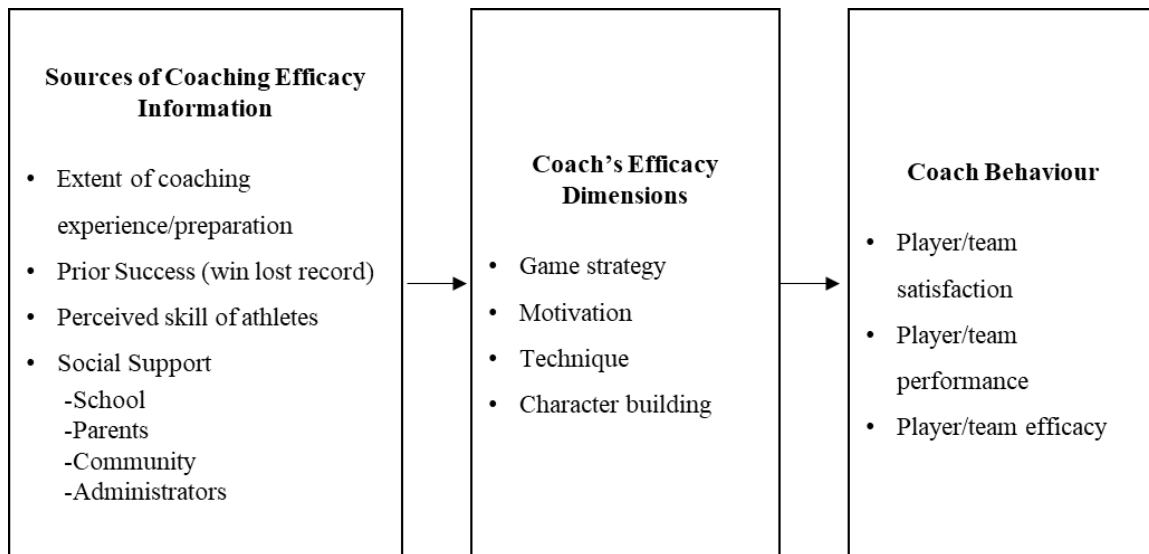
model consists of three multidimensional aspects: 1) sources of coaching efficacy information; 2) the coach's efficacy dimension; and 3) coach behaviour. For the first aspect of the CE model, sources of coaching efficacy information include the extent of coaching experience and preparation, prior success, perceived skills of athletes and social support.

Secondly, the coaching efficacy dimension consists of four dimensions: game strategy (GS), motivation, technique and character building (CB). Game strategy efficacy represents coaches' belief in their ability to guide their teams to win during the competition. Motivation efficacy refers to the belief of coaches in their ability to affect the mental abilities and emotional states of their athletes. Technique efficacy relates to coaches' confidence in their teaching and assessing athletes' skills. Character-building efficacy exhibits the confidence that coaches have in their ability to assist their athletes in self-development and the building of a good attitude toward their sport.

Finally, the third aspect of the CE model is coach behaviour which consists of player/team satisfaction, player/team performance, and player/team efficacy. A higher level of coaching efficacy should lead to several desirable outcomes for athletes and coaches. For example, coaches who provide positive feedback to their athletes during training have been reported to be related to motivation and technique efficiency (Sullivan & Kent, 2003), team efficiency, satisfaction with the coach and team performance (Adie et al., 2012; Myers et al., 2005; Vargas-Tonsing et al., 2003), and athlete motivation, satisfaction, performance and confidence (Feltz et al., 1999). Positive athlete-related outcomes have been associated with a coach that has a high level of efficacy (Feltz et al., 1999; Kavussanu et al., 2008; Malete & Feltz, 2016).

Figure 1.3:

Feltz et al.'s (1999) conceptual model of coaching efficacy



There is considerable evidence to support all the aspects of the CE model in coaching research. For example, Kavussanu et al. (2008) examined whether coaching experience and coach/athlete sex mismatch predicted dimensions of CE. The findings show male coaches' game strategy efficacy had a positive effect on athletes' performance, coaching experience has a positive impact on technique efficacy. Similarly, Myers et al. (2010) and Sullivan et al. (2014) found that coaching preparation (e.g., education) was a significant predictor of dimensions of CE. Further, a study by Short et al. (2005) showed psychological skills of imagery positively predicted CB efficacy, thus imagery may be one of the factors to increase CE as part of self-efficacy belief.

On the other hand, outcomes of coaching efficacy from previous studies related to CE also proposed a wide range of key outcomes of CE. For example, Hwang et al. (2013)

found that leadership style has a strong predictor for CE and mediated the effect of emotional intelligence (EI), while Vargas-Tonsing et al. (2003) found that team, motivation and CB efficacy were the best predictors for team and player efficacy belief. Overall, previous studies support the original model of Feltz et al. (1999) by showing links between coaching efficacy and theoretically related antecedents and outcomes.

But the original has some flaws that needed a revised model to explore the lacking parts of the dimensions. It is problematic as, because firstly, it focuses on the proactive dimension of coaching efficacy which accentuates coaches' capabilities to motivate and instruct athletes. It addresses the facilitative functions but lack of adjusting them with inhibitive aspects (i.e., how coaches handle and curtail deviant behaviour to prevent unethical behaviours). According to Bandura (1991), one limitation is that it only examined how persons are motivated when they will morally perform desired behaviours, but not what specific processes keep them from doing negative or immoral activities. Inhibitive condition involves processes wherein cognitive and behavioural keep people from acting against their moral practice by creating deterrent factors which obstruct unethical behaviour. Moreover, the original model is from a coaching perspective and does not fully capture how coaches and athletes recursively co-regulate each other. It also fails to acknowledge the factors specific to context, such as organisational support and cultural differences which can have an enormous effect on how effective coaching might be. At the same time, these limitations suggest that a more comprehensive and interactive model is necessary to elucidate the relation between coaching efficacy and its variables. The next section will explore the limitations of the original model by Feltz et al. (1999) and the

revised version by Boardley (2018) suggests several types of antecedents including the psychological variables of coaching efficacy and effectiveness.

The Revised Coaching Efficacy Model (Boardley, 2018)

Moving forward from the original CE model, Boardley (2018) developed a revised model of coaching efficacy based on new antecedents and outcomes found in previous studies that went beyond the original model (Figure 1.4). The revised model has been further developed to make future research more effective.

The revised model incorporates the original model CE, which includes new elements based on research conducted since the original model was developed. Firstly, Boardley (2018) introduced coaching experience in context as a proxy for replacing coaching experience/preparation as a source of information about coaching effectiveness. This is needed because coaching might gain experience in different situations. This is conceptually supported by Côté and Gilbert (2009) who believe that coaches gain experience in different situations (e.g., training with young and older athletes). Boardley (2018) also said that other psychological skills, such as self-talk, imagery, relaxation, and setting goals, could also be sources of CE that could help coaches with their preparation strategies. Furthermore, as previously stated, imagery (Short et al. 2005) and emotional intelligence (Thelwell et al., 2008) are positive predictors of CE.

Secondly, the revised model of CE replaces the coach efficacy dimension of the previous model with coach efficacy belief, but the same four dimensions of CE (game strategy, motivation, techniques and character building) were retained. To address critiques of the original model (i.e., its overemphasis on the proactive aspect of morality while insufficiently addressing the inhibitive aspect), Boardley (2018) expanded the character-

building dimension by assessing coaches' confidence in their ability to keep athletes from engaging in unsporting behaviour, not engaging in such behaviour themselves, and not placing winning above sporting behaviour.

Next, the revised model of CE introduced coaching behaviour, an aspect that was not in the original model. This addition is important because athletes' perceptions and evaluations of their coach are directly influenced by their coach's behaviour. Coach behaviour can consist of competition strategies, mental preparation, technical skills, and positive and negative personal rapport (Côté et al., 1999). The revised version also includes an original domain of E-C which is coaching efficacy (CE), or athletes' perceptions that their coach can influence. The incorporation of athletes' perceptions has its importance due to these being key outcomes and determiners in predicting the motivation, confidence and performance level (Feltz et al., 2008; Myers et al., 2005). One of the potential benefits of athletes having confidence in their coach is that they are more likely to accept and comply with their coach's decisions, training programs, positive support on their performance (Horn 2008).

Athlete perceptions of their coach's efficacy are proposed to be related to the coach's own belief in their efficacy, which is based on the four dimensions of CE: game strategy, motivation, technique, and character building. For example, in a competitive context, a coach's efficacy in game strategy is critical for devising winning tactics and making real-time decisions during matches. If athletes perceive their coach as highly effective in this dimension, they are more likely to execute strategies with confidence and precision (Boardley et al., 2008). In contrast, in a practice context, the coach's efficacy in technique and character building becomes more prominent. Athletes who perceive their

coach as competent in teaching techniques and fostering personal development are more likely to engage fully in practice sessions and develop the necessary skills and resilience for competition (Sullivan et al., 2012). Motivation is a crucial dimension in both contexts, as a coach's ability to inspire and maintain athlete motivation directly affects both daily training engagement and competitive performance (Vargas-Tonsing et al., 2004). The comparison between different contexts highlights the dynamic nature of CE. In high-pressure competitive scenarios, game strategy and motivation might take precedence, whereas in the more controlled environment such as practice, technique and character building are emphasized. Thus, understanding and enhancing athlete perceptions of their coach's efficacy across these dimensions can lead to more tailored and effective coaching interventions, ultimately enhancing athlete performance and satisfaction (Feltz et al., 2008). The original model is modified by including the athlete perspective of their coaches that included the confidence in each other throughout this mutual relationship that support their success. It provides holistic insight into successful coaching practices due to consideration of both perspectives (Horn, 2008).

Next, the revised model revamps several athlete characteristics to perceive their perceptions regarding the effectiveness of their coach. These variables included playing experience, athlete preferences and development stage, gender of the athlete/coach as well as their reputation. This is important because it recognizes that an athlete's perception does not form within themselves but is influenced by personal experiences and contextual factors. Athletes will perceive and react to the coaching strategies slightly differently based on their competitive level, especially experienced players who may desire different things than novices. Essential to how a particular coaching session was received and evaluated

are the preferences that athletes have for being communicated with, and preferential motivation techniques. Additionally, age and stage of development are important as young athletes may require different coaching strategies than older ones due to their specific needs. This perspective might affect the communication, trust, relationship between coach and athletes, and also mix match of gender of their coach. The reputation of the coach (that is based on past successes and failures record) also matters for athletes' perception toward their coach. These characteristics were derived from the model proposed by Horn (2008), which emphasizes the multifaceted nature of coaching effectiveness, and are supported by earlier studies conducted by Kavussanu et al. (2008) and Thelwell et al. (2013). Kavussanu et al. (2008) highlighted the importance of the coach's ethical behaviour and its impact on athlete perceptions, while Thelwell et al. (2013) emphasized the role of psychological skills and strategies in effective coaching. By integrating these athlete characteristics into the revised model of coaching efficacy, we achieve a more comprehensive understanding of the factors that influence athletes' perceptions of their coaches.

Finally, athletes' and team-level outcomes were proposed in the revised model that matched the four C categories (confidence, connection, competence and character) by Cote and Gilbert (2009) to identify and evaluate the measurable indicators of effective coaching. Different outcomes of effective coaching can be achieved at individual and team levels. Therefore, future research should be considered to examine different outcomes for both athletes and team levels. In summary, these models have examined the relationships between CE and a variety of important psychological factors in both coaches and athletes and will guide future research examining psychological processes central to sports coaching. Thus, for the present thesis, I adopted the revised coaching efficacy model to test

the athletes' perception of coaches' encouragement of performance strategies used in practice and competition and predict various of athletes' outcomes (e.g., confidence, satisfaction, quality of training, competitive anxiety, and athletes' motivation efficacy).

How the revised model of coaching efficacy fit in the current studies

In the coaching efficacy model and Côté and Gilbert's categorization of the 4 Cs (Competence, Confidence, Connection, and Character), athletes' satisfaction, confidence, and training quality are examined as potential outcomes resulting from the utilization of performance strategies advocated by their coaches. The investigation of these outcomes is an important part of this PhD thesis, as they might influence athletes' perception of PS by their coaches in competition and practice settings. These outcomes also determine the relationship between the coaching efficacy model and the 4 Cs framework. The next section will highlight the athletes' outcomes of all the empirical studies.

Athlete satisfaction and confidence

Athlete satisfaction acts as an overarching outcome of the 4 Cs. It captures how a coach affects an athletes' competency (skill and performance), confidence (self-belief and resilience), connection (relationships, team dynamics) and character (integrity; sportsmanship). The coaches with high efficacy beliefs are expected to provide a supportive and positive environment which is achieved through competent instruction, motivated feedback, effective communication and ethical guidance towards athlete satisfaction.

1. Competence - requires not only the technical and tactical capacity of athletes but also their ability to cope with the pressure over time. A coach who is very effective in this area can help athletes perform at higher levels, which results to feel more satisfied with their progress and achievements.
2. Confidence - an athlete sense of self-esteem and strength. With coaches who are able to help their athletes through positive feedback and mental skills training, this in turn enables the athlete coping with the adversity and maintaining high levels of motivation as a key factor to overall satisfaction.
3. Connection - highlights the importance of relationships and team dynamics. A coach's ability to foster a strong sense of community and support within the team can enhance the athlete's sense of belonging and satisfaction. This includes building trust, promoting teamwork, and ensuring open lines of communication.
4. Character - refers to the development of personal integrity, sportsmanship and ethical conduct. Athletic related coaching can help build satisfaction by providing a means for athletes' continued improvements and personal gain, as long as the values established throughout sport programs (e.g. respectfulness) are those an individual would associate with being ethical in their own right; coaches who model what they preach themselves will likely have positive impacts on young athlete development outside of athletic consideration alone. It provides

ethical guidance that enables athletes to develop more fully positive character, in addition to their sport.

The revised model of coaching efficacy has included these key dimensions, providing an idea of which potential future constructs associated with the satisfaction derived from sports participation can be examined. Research has demonstrated that athlete satisfaction with coaching is determined by how athletes perceive four facets of coaching effectiveness (Feltz et al., 2008; Myers et al., 2005). For example, Frey et al. (2003) found that the perceived use of performance strategies during practice and competition by athletes was positively related to performance satisfaction and success. However, a similar finding by Kavussanu et al. (2008) and Thelwell et al. (2013) found that the influence of a nurturing, positive environment where athletes can enjoy their experiences of sport tends to show their intrinsic motivation through satisfaction.

Confidence is a crucial outcome of coaching efficacy because it can increase athletes' motivation in their performance. Athletes believe that when coaches have higher qualifications, knowledge in delivering their coaching, and have good relationships with their coaches, they will feel more confident and motivated in their training and competition, it shows more effective strategies coaches can share and give to their athletes (Gul, 2023; Wilson et al., 2011). It has been demonstrated by studies that when athletes perceive their coaches to be efficacious, the athlete will increase their confidence level which itself correlates with improved performance and psychological hardiness (Bandura 1997; Vargas-Tonsing, 2007).

Quality of training

Coaching efficacy has a positive impact on athletes' training. Effective training coaches with high efficacy provide structured, effective, and enjoyable coaching sessions. Research by Côté and Gilbert (2009) and Gilbert and Trudel (2004), indicate that when athletes perceive their coaches as competent, confident, and knowledgeable about the sport they coach it lends positively to high-quality training. Good coaches can create an atmosphere in which training is a positive experience, enhancing the learning and skill acquisition that accompanies sport-specific development over time. There is a correlation between motivation and coaching efficacy as well. A coach who can add value and inspire their athletes will connect more with the athlete, therefore increasing engagement in practice sessions. Studies have shown that athletes' intrinsic motivation is positively influenced by coaches who are perceived as supportive and efficacious (Deci & Ryan, 2000; Mageau & Vallerand, 2003). These coaches use motivational strategies that cater to the individual needs of athletes, fostering a sustained drive to achieve their goals.

Competitive Anxiety

Effective coaching can help with one factor that may contribute to competitive anxiety. It is not only the amount of anxiety that can affect performance but also how athletes view their feelings of anxiousness. It has been found that the interpretation of anxiety as either facilitative or debilitative is often far more influential in determining performance. When athletes believe that anxiety is a good thing, they interpret it as being facilitative and activating or even useful

for attention-concentration. When individuals see anxiety as debilitating (negative effect), it will disrupt performance hence, leading to worrying, and feel more anxious and anxiety especially in challenging situations (Rice et al., 2019). Moreover, coaches play an important part in how athletes manage their anxiety during an event (Breslin et al., 2022; Tissera et al., 2023). Recent research Smith et al. (2007) has found that coaches' efficacy beliefs effectively influence athletes' view of pressure-related to anxiety and their perceptions of situational demands and stressors as either facilitative or debilitating. Similarly, study by Rice et al. (2019) also reported that track and field athletes require several PS for successful performance where strategies can be adopted to help the athletes in controlling with pre-competition state anxiety. This will help athletes deal with how they react toward increasing feelings to regulate their effects either physiologically or psychologically. This means that strategies help in a way to accommodate the needs of anxiety is perceived and hence how much it affects performance (Iwuagwu et al., 2021). Coaches could also help athletes perceive their anxiety as a positive situation during competition, by providing a supportive environment and employing the specific PS when needed. However, athletes can perform better and have greater well-being when they believe their coach is qualified to help them manage anxiety Kassim & Boardley (2018).

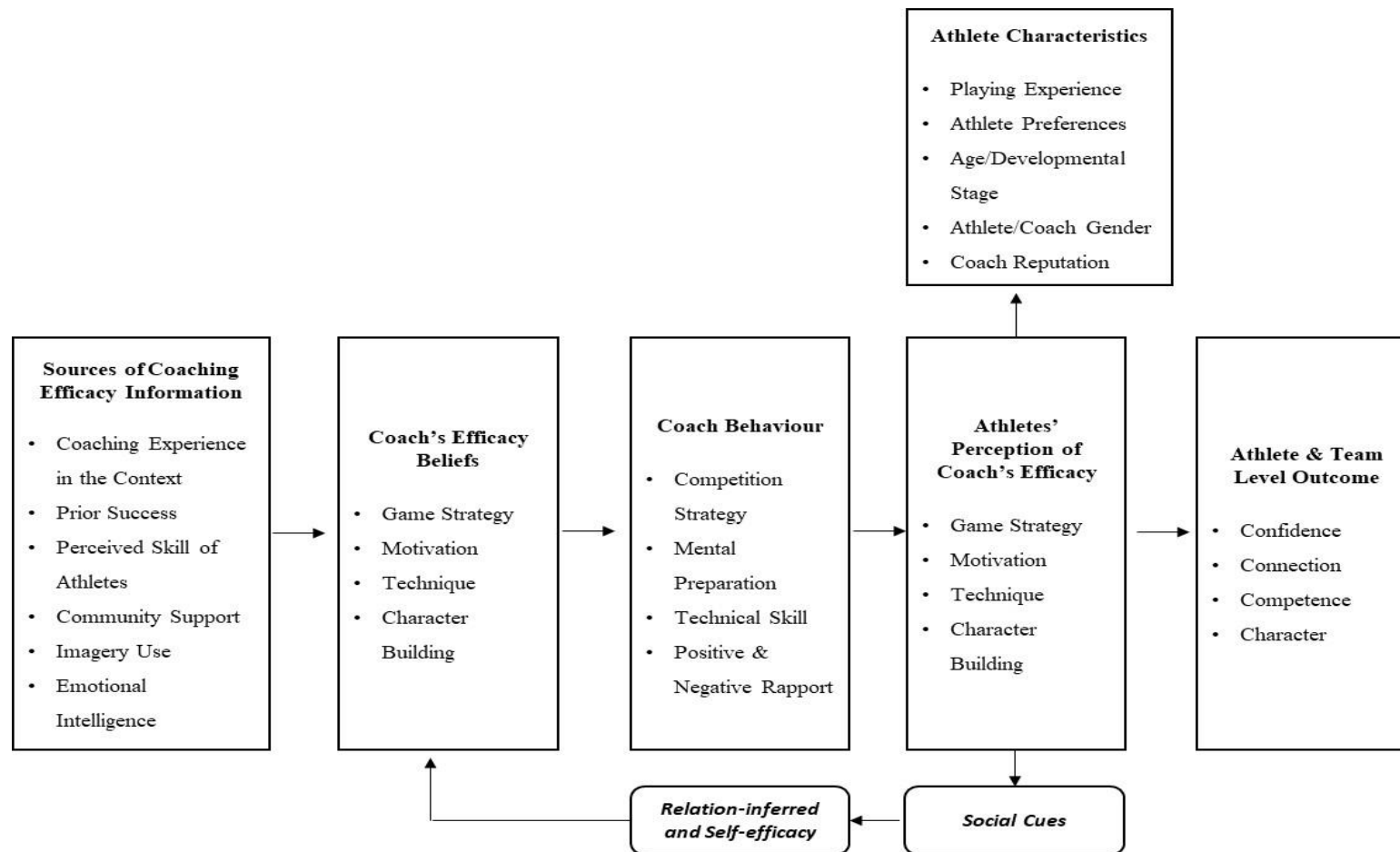
The revised coaching efficacy model is therefore coherent with these current studies, by contributing to the understanding of multifaceted variables that may influence coaches and athlete outcomes. The model also attributes to several other key factors such as playing experience, age and developmental level, gender and coach reputation that can provide insight into why athletes may be negatively or positively influenced by the encouragement of PS use in practice and competition. This has a holistic appeal like the multidimensional framework offered by Horn (2008); it is also congruent with Vargas-Tonsing et al. (2004) in terms of coaching efficacy that explored whether efficacy-enhancing techniques increase satisfaction and performance in athletes.

Conclusively, the revised coaching efficacy model is well-connected to the current research about athlete satisfaction, confidence, quality of training, competitive anxiety, and anxiety. This enables the model to provide a robust understanding of athlete outcomes across key components in performance environments whilst also considering the context of different settings. This holistic notion in coaching ensures that the adaptation of practice and competition suits various levels of athletes which hopefully will result in success not only in performance but also well-being. Therefore, the focus of this PhD thesis is to examine how athletes' perception of using PS in training practice and competition influences athlete's satisfaction, confidence, and quality of training, competitive anxiety, and motivation efficacy for assessing effectiveness in coaching. These indicators establish a direct link between the coach's actions and the athlete's development and experiences. According to the coaching efficacy model, coaches who possess confidence in their abilities are more likely to engage in behaviours that positively influence their athletes (Feltz et al., 2008; Vargas-Tonsing, 2007). These findings are also persistent with Côté and

Gilbert's 4 Cs: confidence, competence, connection, and character (Côté & Gilbert; 2009). This is so important not only to the temporary success and well-being of athletes but also to their long-term development and how much they enjoy playing sports. The research suggests that effective coaching practices can improve athletes' confidence and lead to performance enhancement and athletes' satisfaction (Horn 2008; Mageau & Vallerand, 2003). These outcomes can be shaped by the beliefs, behaviours and interactions of the coaches (Smith et al., 2007), leading to a positive environment of sports performance as well as personal development.

Figure 1.4:

The revised conceptual model of coaching efficacy. Adapted from Boardley (2018)



Gaps in Literature

The above review of the literature reveals some significant gaps and limitations that warrant research attention, and that could be examined within the conceptual framework of this thesis provided by the revised model of coaching efficacy with the MST process model. First, both athletes and coaches believe that performance strategies are important in competition and practice. Previous research has examined the correlates of athletes' own use of performance strategies, but the role of coaches as an important influence on athletes' use of performance strategies has not yet been fully explored. This raises several questions that have not yet been addressed by previous research. First, which performance strategies do coaches encourage and how does this vary according to the setting (i.e., practice vs. competition). Secondly, how does the coaches' encouragement of strategies compare to athletes' own use? Despite training in physical, tactical and technical abilities, research has shown that coaches consider performance strategies to be one of the most significant techniques that can improve players' performance (Gould & Maynard, 2009; Thelwell et al., 2003, 2008). But it is not yet clear if the strategies that coaches encourage their athletes to use align with athletes' own use. Therefore, the present thesis will investigate the role of coaches by examining the coaches' encouragement of performance strategies used in practice and competition from the perspectives of both athletes and coaches and this research will be underpinned by the revised coaching efficacy model and MST process model.

A further gap addressed by this thesis was to explore and understand the process of coaching efficacy. More specifically, this thesis focused on what sources of coaching efficacy, coach's efficacy belief, coach behaviour, athletes' perception of coach's efficacy, athletes' characteristics, and athlete's outcome that underpins the current research on coaches'

encouragement of performance strategies in practice and competition. This thesis also investigated relationships between athletes' own use and/or coaches' encouragement of performance strategies that influence athletes' outcomes (satisfaction with coaching, confidence in mental and physical preparation, quality of training, competitive anxiety level, and athletes' motivation efficacy).

A final gap in this review of literature is there has been no valid and reliable way of measuring coaches' encouragement of athletes' use of performance strategies. For example, Jedlic et al. (2007) developed "the Coaches' Encouragement of Athletes' Imagery Use Questionnaires" (CEAIUQ), which was an adaptation of the Imagery Use Questionnaire (IUQ) (Hall et al., 1990) and the original Sports Imagery Questionnaires (SIQ) (Hall et al., 1998). Additionally, it was designed to assess athletes' perception of how their present coach promoted the use of imagery. However, Paquette and Sullivan (2012) used "the Mental Skills Questionnaires" (MSQ) developed by Bull et al. (2002) to assess coaches' behaviour. The MSQ highlights the use of seven mental skills such as capability to use imagery, mental preparation, self-confidence, anxiety, and worry management, concentration ability, relaxation ability and motivation. Although this measure was similar to TOPS-2 as it measures a range of performance strategies, it doesn't consider both practice and competition contexts. Similarly, Arthur et al. (2019) developed the Coaching of Psychological Skills Scale which contains two scales: the fundamental "coaching of psychological skills behaviours" (CPS-F) and "the needs supportive coaching of psychological skills" (CPS-NS). Both scales were developed to measure coaching behaviour and athletes' personal experiences of the coaching received. However, this scale did not measure the practice and competition setting

together. Although there are many measurement tools for assessing psychological skills, they differ depending on the conditions and situations, as well as the objective of the study.

Thus, in this thesis, I used the Test of Performance Strategies (TOPS-2) developed by Hardy et al. (2010) which consists of all constructs of mental skills and techniques in practice and competition setting simultaneously. However, several stems of the TOPS-2 items have been modified to tailor the coaches' perspective. Based on the current literature and existing gaps, the following section will explain the aims of this research project.

Thesis Aims

Overall, this thesis makes a novel contribution to the literature by investigating coaches' encouragement of athletes' use of performance strategies in competition and practice. This thesis explored the relationship between performance strategies and other psychological outcomes such as confidence, quality of training, satisfaction, anxiety responses and motivation efficacy as predictors. Previous research showed that athletes used performance strategies in practice and competition to enhance their performance. However, to my knowledge there has been no research investigating the coaches' encouragement of performance strategies in competition and practice. Additionally, none of the previous studies have explored and tested the revised coaching efficacy model within sports psychology research.

Therefore, the overall aim of this thesis is to investigate the performance strategies encouraged by coaches in competition and practice through the following five aims. (See Table 1.3 which demonstrates which chapters meet each aim throughout the thesis). By doing so, this thesis contributes to and extends the previous literature by combining sport psychology and coaching by comparing athletes' own use of and coaches' encouragement of performance

69 strategies. It also adds further support to the reliability and validity of the TOPS-2
70 questionnaire about coach encouragement of performance strategies, as well as testing a
71 revised coaching efficacy model within sports psychology literature. The findings may also
72 have practical implications for enhancing the important of PS delivered to coaches, athletes
73 and other related stakeholders. Furthermore, the result also would educate and upgrade the
74 knowledge of PS to help coaches feel more confident in delivering psychological skills to their
75 athletes and can strengthen the trust and belief to their athletes.

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80 **Table 1.3**

81 *Overview of thesis aims and the chapters.*

82 *Thesis mapping is based on the coaching efficacy model.*

Aims	Variable measured & Dimensions of revised CE model being tested	Chapter 2	Chapter 3	Chapter 4	Chapter 5
To examines athletes' perceptions of coaches' encouragement of performance strategies in competition	Athlete characteristics – gender, sport type, competitive level, coaching years, experience years, training hours Coach behaviour - encouragement of PS in competition Athlete outcomes - satisfaction and confidence in mental and physical preparation	X			
To examines athletes' perceptions of coaches' encouragement of performance strategies in practice	Athlete characteristics – gender, sport type, competitive level, coaching years, experience years, training hours		X		

	Coaching behaviour - encouragement of PS in practice Athlete outcomes - satisfaction and quality of training				
To examines athletes’ perceptions of performance strategies used in practice and competition. -which study variables are predicting direction of anxiety symptoms	Athlete characteristics - cognitive and somatic anxiety intensity Coach Behaviour – encouragement of PS in practice and competition Athlete outcome - Direction of cognitive and somatic anxiety-			X	
To examines coaches’ perceptions of performance strategies used in practice and competition. -which variables are predicting athletes’ motivation of coachability	Coach characteristics – gender, sport type, and level of competition, coaching experience, highest coaching qualification, years working with athletes’ Coach Behaviour - encouragement of PS in practice and competition				X

	Athlete outcomes – athletes' motivation efficacy of coachability				
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Chapter 2

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Coaches' Encouragement of Athletes' Use of Performance Strategies

in Competition

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Introduction

There is now considerable evidence that performance strategies are an important determinant of athletes' success in competition (Cook et al., 2021; Einarsson et al., 2020; Gould et al., 2016; Ribeiro et al., 2022). In fact, coaches play an important role in helping athletes develop performance strategies (Thelwell et al., 2008; Paquette & Sullivan, 2012). Previous research show that coaches offer additional support for performance strategies for elite athletes compared to their less skilled counterparts (Einarsson et al., 2020; Vaz et al., 2017; Zilli et al., 2021). These methods are linked to cognitive, emotional, and affective regulation responses (Holland et al. 2017).

Success in competition is thought to be a result of athletes' performance strategies in self-directed thinking, feeling, and behaving (Jarukasemthawee et al., 2021), whereas athletes who fail to regulate, under-regulate, or mis regulated are less likely to perform at their best (Macnamara & Collins, 2013). Self-regulation enables athletes to adapt to their social and physical environment and, therefore, also affects their psychological functioning (Kitsantas et al., 2018). In competition, self-regulation processes help athletes to cope with challenges and stressors (Foster et al., 2016), as well as for optimizing intrinsic motivation (Adie & Jowett, 2010), self-confidence (Gould et al., 1999), attention (Macnamara & Collins, 2013; Sharp et al., 2013), emotions (Dohme et al., 2020), focus and concentration (Crust and Azadi, 2010).

Performance strategies result from effective mental skills, techniques, and specific self-regulation methods, such as imagery, self-talk, goal setting, and routines (Holland et al., 2018). In their process model of youth mental skills training, Holland et al. (2018) explain that techniques develop mental skills, which in turn contribute to achieving the desired mental

state (also known as mental qualities). Within the model, mental techniques are defined as "cognitive or practical techniques used to build mental skills and qualities" (Holland et al., 2018, p. 43). However, mental skills are the ability to control thoughts, feelings and actions (Holland et al., 2018). In support, Hanton et al. (2004) and Connaughton et al. (2008) suggest that elite athletes utilize self-talk, imagery and goal setting as a means of enhancing performance by building their confidence, preventing stress, and coping with pressure. Other researchers have found that mental techniques are associated with building interpersonal competencies and emotional control (Cote et al., 2009), increases in athletes' openness, honesty, and aids team cohesion when preparing for competition (Sharp et al., 2013).

The use of performance strategies is also associated with psychological functioning, such as motivation, mental toughness, coping with the adversity that could benefits athletes' performance (Hagan et al., 2017; Hatzigeorgiadis et al., 2014; Kruk et al., 2017). In support, researchers have found a relationship between the TOPS subscales, performance, and psychosocial outcomes (Hagan et al., 2017; Hayslip et al., 2010; Hatzigeorgiadis et al., 2014). More frequent use of performance strategies has been associated with a lower handicap in golf (Hayslip et al., 2010) and endurance performance in soccer (Kruk et al., 2017). Further, Hatzigeorgiadis et al. (2014) reported that using self-talk in competitive young swimmers can increase athletes' motivation. But further investigation of the relationship between the TOPS subscales and other psychosocial outcomes is still needed. Also, it is not yet clear what social influences exist on athletes' use of the performance strategies, such as coaches.

A popular measure to assess athletes' use of mental techniques and skills is the Test of Performance Strategies (TOPS; Thomas et al., 1999). When contextualized to competition,

the most recent version of the TOPS (TOPS-2; Hardy et al., 2010) has subscales representing mental skills and techniques; for example, activation, automaticity, distractibility, emotional control, goal setting, imagery, negative thinking, relaxation, and self-talk. Although the questionnaire developers referred to these subscales as "performance strategies", we propose that a conceptual distinction between techniques and skills be made according to Holland et al.'s (2017) definitions. More specifically, goal setting, imagery, relaxation, and self-talk could be classed as techniques because they refer to specific self-directed thoughts and behaviours. For example, an imagery item is "I visualize competition going exactly the way I want it", whereas an item reflecting athletes' self-talk is "I say specific cue words or phrases to help performance". In contrast, activation, automaticity, emotional control, distractibility, and negative thinking could be classed as mental skills because they enable athletes to regulate thoughts, feelings, and actions. For example, an automaticity item is "I perform at competition without consciously thinking about it", whereas an item reflecting athletes' emotional control is "My emotions get out of control under the pressure of competition".

Research with the TOPS has found that athletes report using activation, goal setting, and emotional control most in competition, while the least used are relaxation, distractibility, and negative thinking (Frey et al., 2003; Hardy et al., 2010; Sheard & Golby, 2006).

However, these patterns can differ according to the competitive level (Crust & Azadi, 2010; Nicholls et al., 2009), gender (Einarsson et al., 2019; Taylor et al., 2008) and sport type of the athletes (Nicholls et al., 2009; Thelwell et al., 2006). Studies show that athletes at higher competitive levels report more use of the performance strategies measured by the TOPS (Crust & Azadi, 2010; Kristjánsdóttir et al., 2019; Neil et al., 2006). For example, Crust and

167 Azadi (2010) reported elite athletes to score higher in activation and goal setting than
168 club/university athletes. For gender, Kristjánsdóttir et al. (2018) found that men score higher
169 than women in goal setting and emotional control while women score higher than men in
170 activation, imagery, and self-talk. For both men and women, automaticity was the least
171 employed in competition, potentially because skills execution process is integrated with
172 other skills such as attention and memorization and requires lots of practice to familiarized
173 and employ it during competition. On the other hand, individual sport athletes report using
174 performance strategies more than team sport athletes (Einarsson et al., 2020; Fletcher &
175 Streeter, 2016). For example, a study by Einarsson et al., (2020) in elite athletes found that
176 golfers used 56% psychological skills during competition than other team sport. For instance,
177 Smith et al. (2021) found those athletes in trusting and supportive relationships with their
178 coach, shows an increased usage of PS such imagery and self-talk, which was significantly
179 related to better performance outcomes. In addition, how coaches deliver feedback and
180 motivate their athletes as well as create a positive team environment can affect the levels of
181 stress in the athlete and their ability to handle pressure, which affects psychosocial
182 functioning resiliency. These interactions could help demonstrate the critical nature of
183 coaching in maximizing physical and psychological performance across different types of
184 sports.

Coaches' role in developing athletes' performance strategies

Coaches play a significant role in athletes' performance, including developing their psychological approach to competing (Gould et al., 2001; Thewell et al., 2008). Athletes will seek advice, support, and feedback from their coaches when dealing with pressure and adversity in competition (Gould et al., 2002; Howland, 2007; Thelwell et al., 2018; Zakrajsek et al., 2019). According to sports psychologists, coaches can also assist their athletes in developing mental toughness and cope with challenging conditions by encouraging the use of performance strategies and providing opportunity to practice these strategies under different conditions and environments such as competition and practice (Bloom et al., 2014; Driskell et al., 2014). In support, Olympic champions in Gould et al.'s (2002) qualitative study described their coaches' motivational and focusing techniques as important influences of their psychological development. Driskell et al. (2014) also found that when coaches teach athletes coping techniques, the athletes cope more effectively with adversity during actual competition. Weinberg, & Comar (1994), claimed that some coaches reported between 50-90% of their athletes' performance success and/or failure due to lack of psychological strategies and techniques that cause poor performance outcomes. Previous research has revealed that coaches play an important part in shaping athletes' performance strategies during competition (Arthur et al., 2019; Edwards et al., 2012; Feddersen et al., 2020). But there is less evidence around the specific strategies that coaches might be encouraging their athletes to use during competition and how its coaching efficacy may influence athletes' outcomes. For example, Jedlic et al. (2007) reported that coaches encouraged imagery use more in competition than in training to perform specific performance strategies, build self-confidence

and stay focused. Coaches also varied their encouragement according to the athlete's competitive level, with higher level athletes (i.e., national and international) being encouraged to use performance strategies more than lower-level athletes (i.e., club and recreational). Although successful athletes acknowledge the development of PS to their coaches, it is plausible that a lack of knowledge and confidence also exist among coaches (Feddersen et al., 2020). However, if coaches cannot support the psychological training of their athletes properly, it may affect the athlete's perception and satisfaction toward their coach's behaviour. Indeed, Baker et al. (2013) claimed that coaching behaviours that promoted mental preparation and goal setting predicted higher coaching satisfaction. Therefore, for effective coaching, coaches should portray positive behaviour to their athletes, so that the athletes feel more encouraged and motivated.

The influence of the revised CE model on the study variables

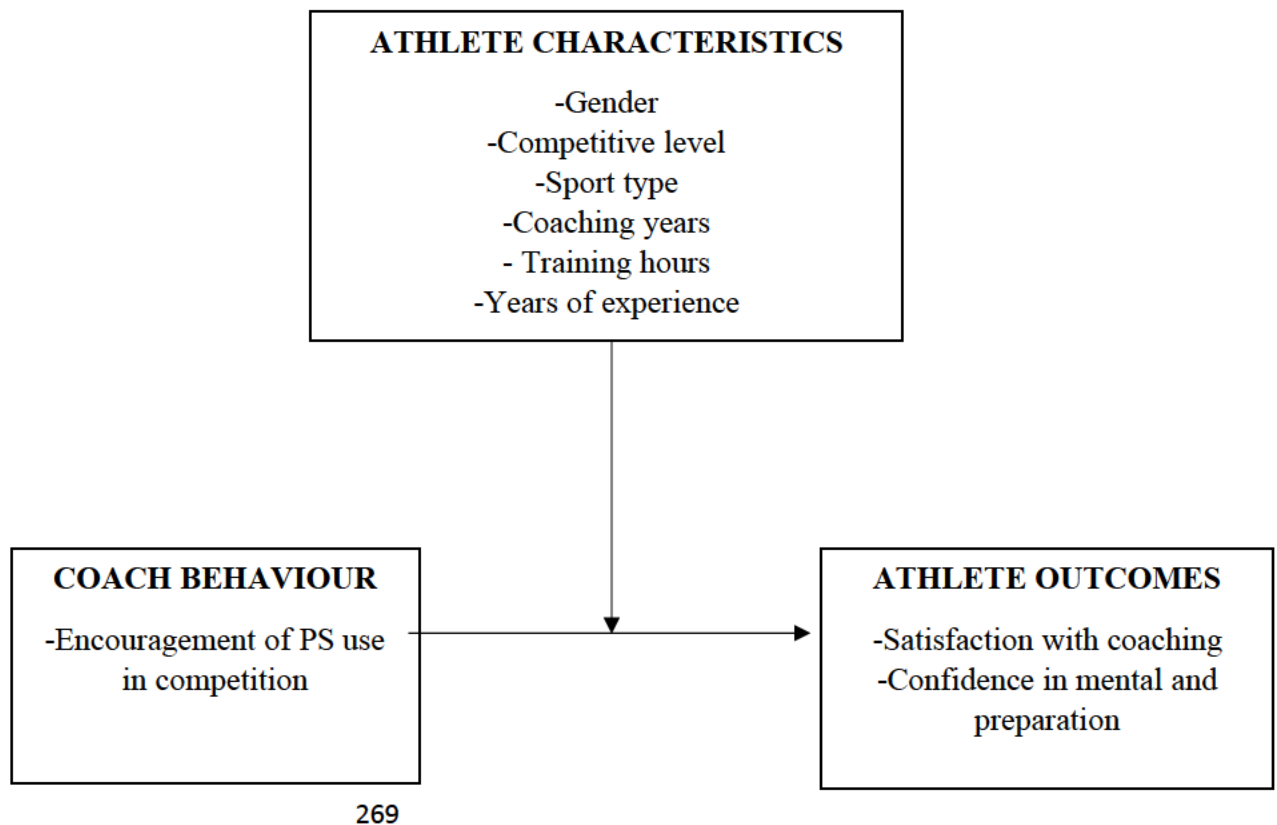
Coaching efficacy, as conceptualized by Feltz and colleagues (1999), refers to the extent of coaches' belief in their capacity to influence the development and performance outcomes of their athletes. It is a highly dimensional construct that has to do with technique, strategy and especially motivation and efficacy in the building of character. The four elements are reported as being impact by the coaches' experience and preparation, past success, perception of athlete skill level and social support (Boardley 2018; Kao & Tsai 2016; Keatlholetswe & Malete 2019; Villalon & Martin, 2002). Boardley (2018) recently proposed a revised version of coaching efficacy model by adding new **antecedents** of the coaching context and some other psychological factors as a basis for athlete perceptions after a review of coaching effectiveness literature by Horn (2002, 2008) model, which could lead

to an increase in both coaches and athletes CE. Earlier studies also indicated that psychological factors could be beneficial and significantly influence coaching behaviour. Boardley (2018) reported that self-talk, goal setting and arousal regulation are important for coach preparation strategies. Similar with Short et al. (2005) reported imagery positively predicted each of the CE dimensions by visualize the strategies of play and display high self confidence in challenging environment.

The current study was guided by the revised coaching efficacy model investigated the relationship between CE and various of psychological factor in athletes and coaches (refer figure 2.1). First, athletes' characteristics such as gender, competitive performance level, sport type, training hours and experience, may influence athletes' perceptions of how coaches encourage athletes to use PS. Next, coaches' encouragement to use performance strategies in competition was proposed as an element of coach behaviour, as this is part of the learning and development process of performance strategies use. Finally, psychological antecedents of confidence in mental and physical preparation and satisfaction with the coaching was proposed as athlete outcome that reflect the impact of coach behaviour on athletes' performance.

Figure 2.1:

The study variables are mapped to the revised coaching efficacy model.



Previous studies show that coaches play an important role in the development of athletes' psychological skills and that there is a relationship between coaches' behaviour, athletes' characteristics and outcomes (Fung 2002; Myers et al., 2011; Kavussanu et al., 2008). However, these relationships remain unclear and need to be examined based on the revised model of CE. The main objective of this empirical study to examines athletes' perception of coaches' encouragement of PS in competition. This objectives highlights three research questions (1) coaches would encourage performance strategies in competition, but which strategies would be more vs. less encouraged compared to athletes' own use, (2) coaches would encourage more PS in different types of sport, competitive level and gender

but to which categories would be more encouraged, (3) which PS were significantly positive predictors of athletes' satisfaction and confidence in mental and physical preparation. Thus, underpinned by this revised model, it was hypothesized that (H1) coaches encourage more PS such as imagery, emotional control, attentional control, and relaxation techniques in competition, (H2) coaches encourage male, elite and individual athletes more PS in competition compare to female, non-elite athletes and team sport, (H3) the encouragement of imagery, emotional control were the positive predictors of athletes coaching satisfaction and confidence in athletes' mental preparation. By addressing these objectives and research questions, this study makes a novel contribution to the field of sport psychology and coaching efficacy as the first to investigate coaches' encouragement of performance strategies in competition within the revised coaching efficacy model. The findings will be useful in educating coaches, psychologists and other stakeholder regarding the important of planning and delivering PS in coaching session before, during and after competition that can help athletes' success.

Method

Design

A cross-sectional study was conducted involving a large heterogeneous sample.

Participants

To be eligible for this study, participants needed to be 18 years and above, currently training and competing in a sport at any level (e.g., club through to elite), and involved in their sport for a minimum of 1 year. Exclusion criteria included any athletes with an injury or illness (e.g., unable to practice for last two weeks or more), non-sport participants (e.g., exerciser, dancer), recreational athletes without a coach or who do not compete, and athletes currently in their off-season or transition phase of the year.

A total of 413 athletes from sports club and university teams in England (224 males, 187 females; M age = 21.60 years, SD = 2.56). Within the sample, participants were taken part in variety of team sport (n = 257) and individual sport (n = 156). Team sports with the most participants were football (n = 101), field hockey (n = 42), dodgeball (n = 31), netball (n = 23), lacrosse (n = 16) and basketball (n = 15). The remaining 156 participants took part in individual sports. The most often demonstrated individual sports were golf (n = 34), swimming (n = 27), cross country running (n = 13), and badminton (n = 12). All participants had been taking part in their sport for an average of 8.97 years (SD = 4.63). Participants were either club (n = 235), competitive (i.e., competing at a regional or county level; n = 106), or elite (i.e., competing at national or international level; n = 72).

Measures

A multi-section questionnaire was administered in the study to collect participants' demographic information as well as their perception of coaches' encouragement of performance strategies in competition, their confidence in mental and physical preparation, and their satisfaction in the coaching received.

Demographic information

Participants provided demographic information through completion a set of questionnaires. Information included their age, gender, sport played, competitive level, years of playing experience, number of years working with their current coaches, hours of training and types of sports (individual and team).

Test of Performance Strategies-Coach Competition (TOPS-CC)

The TOPS-2 Competition scale (Hardy et al., 2010) was adapted for the present study to measure coaches' encouragement of athletes' use of performance strategies in competition and was therefore renamed TOPS-CC. The original TOPS-2 consists of 36 items to measure nine psychological skills of activation, automaticity, emotional control, goal setting, imagery, relaxation, self-talk, negative thinking, and distractibility ($n = 4$ items/sub-scale). Items are rated on a 5-point Likert scale ranging from 1 (*never*) to 5 (*always*). Previous literature reported internal consistency reliability for each subscale to be at an acceptable 0.88 (Hardy et al., 2010).

The TOPS-2 was adapted in the following ways to form the TOPS-CC. An initial stem was added to adapt to the TOPS-2: "In competition, my coach encourages me to...". Items ($n = 19$) underwent minor wording changes to complete the stem. For example,

the automaticity item "Able to trust my body to perform skills" was the phrase "Trust my body to perform skills". TOPS-2 items that were negatively worded were also rephrased to be positive statements ($n = 7$ items). For example, the emotional control item "Emotions get out of control under pressure" was rephrased as "Keep emotions in control when under pressure." To avoid confusion when interpreting the data and to reflect the positive framing of the items, the distractibility and negative thinking sub-scales were renamed attentional control and positive thinking, respectively in the TOPS-CC. The remaining sub-scales retained their original names. This TOPS-CC scale was pilot tested before data collection for the present study.

Confidence in Mental and Physical Preparation

Athletes' confidence in their mental and physical preparation was measured with an adapted version of the Sources of Self-Confidence Questionnaire (SSCQ; Vealey et al., 1998). The SSCQ measures nine sources of confidence information. For the present study, only the physical/mental preparation subscale was used ($n = 6$ items) to assess athletes' confidence in using performance strategies such as goal setting and arousal via self-talk, visualization, and imagery for successful performance to enhance feelings of confidence. To complete the SSCQ, participants were asked to think about a time when they felt noticeably confident when competing in their sport, and what types of things made them feel confident in those situations using the stem "In competition, how confident are you in your ability to". Responses are made on a 100-point scale, ranging in 10-unit intervals from 0 (No confidence) to 100

(Completely *confidence*). Previous literature reported internal consistency reliability for each SSCQ-M factor to be acceptable between .79 to .97 (Myers et al., 2004).

Coaching Satisfaction

Athletes' satisfaction with their coaching was assessed with the Leadership Subscale of Sport (LSS) by Chelladurai et al., (1988)'s consists of seven items. The instructions ask participants to assess their satisfaction on a 7–point Likert type scale ranging from 1 (*extremely dissatisfied*) to 7 (*extremely satisfied*). Riemer and Chelladurai (1998) reported internal consistency estimates (Cronbach's alpha) ranging from .78 to .95 (M = .88).

Procedures

After receiving institutional ethical approval (AS_07/10/14), most participants were recruited through lecture announcements and posters within School of Sport, Exercise and Rehabilitation Science (Sport ExR). Most participants taking part were undergraduates who obtained course credit. Permission was also gained from university head coaches and sports clubs to approach athletes before/after training sessions to take part in the study. Potential participants were given a letter of invitation and an information sheet detailing the purpose, potential benefits and risks, information regarding withdrawal, and the confidentiality of the information gained from the research. Those who still wanted take part should sign the consent form and providing their demographic information at the beginning of their first visit. After providing their consent, participants were given a multi-section questionnaire pack to complete in the following ways. Firstly, at their own time around their training sessions and secondly, in various locations (e.g., lecture theatre, sports venue). Participants also had the option to

complete the questionnaire online, which was hosted by Lime Survey (www.limesurvey.org), using the link provided in the information letter. Completion of the questionnaire pack took approximately 20 minutes.

Data Analyses

First, the data were checked for missing values and outliers following the recommendations of Tabachnick and Fidell (2019). Means, standard deviations and internal reliabilities of the dependent variables scores (TOPS-CC subscale; confidence in physical/mental preparation; coaching satisfaction) were computed using SPSS version 27. The Little MCAR (Missing Completely at Random) test was used to assess missing data. If the data were missing due to randomness ($p < .05$) multiple imputation was employed. To avoid this problem, multiple imputation involves creating several datasets with distinct imputations of each missing value and subsequently fitting the model enough times to generate results consistent with estimates that appropriately address uncertainty about how much data is missing. This approach is preferred because it maximizes the use of the data and yields inferences which satisfy statistical assumptions (Tabachnick & Fidell, 2019).

Secondly, multivariate outliers were found by Mahalanobis Distance was included in the processing of outliers and prioritizing the anomalies that had an impact on the analysis. If an outlier occurs, it will be removed for the reliability and validity of the data. For variables with positive skewness, logarithmic and square root operations normalised the distribution, to limit the extreme values within a 95th percentile to reduce their effect. This prevented outliers from skewing data, improving statistical validity and reliability. If modifications failed, outliers were carefully removed to prevent confounding the analysis.

Analysis of Performance Strategies

A repeated measures MANOVA was used to determine the most and least encouraged performance strategies. The independent variable was the type of performance strategies as measured by the TOPS-CC subscales, with repeated measures to avoid inflation of Type I error, adapting procedures from Nordin and Cumming (2008). The dependent variables were the scores on the TOPS-CC subscales. The Mauchly test for sphericity was conducted to check for equality of variances; if significant, the Greenhouse-Geisser correction was applied (Greenhouse and Geisser, 1959). Next, the Benjamini-Hochberg (BH) approach was used to control the false discovery rate in multiple hypothesis testing. This method works best in study fields with huge datasets, because a single test that permits false positives might accidentally provide a high number of significant p-values (Benjamini & Hochberg, 1995; Glickman et al., 2014). In this study, all results that were significant before applying the Benjamini-Hochberg (BH) correction also remained so afterwards value (0.005). While dealing with multiple comparisons often increases the chances of false positives, this indicates that findings are robust in nature and strengthens confidence in their validity. Partial eta squared value reported to indicate effect size (0.01 small, 0.06 medium, 0.14 large: Cohen, 1992).

Gender, Competitive Level, and Sport Type Differences

The differences in gender, competitive level, and sport type were analysed using repeated measures (MANOVA) and these variables are considered as independent variables which classified under athletes' characteristics based on the revised CE model. The dependent variables were the TOPS-CC subscale scores. Pillai's trace was reported due to its robustness

against violations of the covariance matrix assumption's homogeneity (Olson, 1976). For competitive level analyses, post hoc comparisons were again made using the BH correction with a false discovery rate of 0.05 to control Type I error without losing statistical power (Benjamini and Hochberg, 1995; Shi et al., 2012).

Predicting Coaching Satisfaction and Confidence

The Hierarchical multiple regressions (HMRs) were used to allowed for the prediction of that athletes' level of satisfaction with their coach as well as their level of confidence in their ability to mentally and physically prepare for competition. According to Hoyt et al. (2008), the incremental steps for athletes' characteristic such as gender were input first, followed by competitive level, then sport type, coaching years. Experience years, training hours and finally TOPS-CC subscales individually to control for any potential confounding factors. The dependent variables were coaching satisfaction and confidence in physical and mental preparation. This method allowed for the sequential entry of variables to control for potential confounding factors (Hoyt et al., 2008). Two models assessed whether the TOPS-CC contributed to variations in coaching satisfaction and confidence after accounting athletes' characteristics.

Results

Preliminary Analyses

The data were first analysed for any missing values. The Little's MCAR result shows a chi-square statistic of 69.77 with 139 degrees of freedom, which resulting a p-value of 1.00. Since the p-value was higher than the significance level of 0.05, its unable to reject the null hypothesis (Little, 1988). Since the pattern of missing data was entirely random, the mean was

substituted for these values to maintain validity and reliability of the dataset. Standard deviations, means, and Cronbach's alpha coefficients for the TOPS-CC subscales, coach satisfaction, and confidence in mental preparation are reported in Table 2.1.

Table 2.1
Means, Standard Deviations, and Alpha Coefficients for Study Variables

Variables	M	SD	α
TOPS-CC			
Emotional control	3.59	0.82	0.89
Goal setting	3.59	0.74	0.89
Activation	3.51	0.80	0.90
Positive thinking	3.47	0.75	0.88
Self-talk	3.38	0.69	0.89
Automaticity	3.21	0.94	0.89
Attentional control	3.08	0.98	0.88
Imagery	2.90	1.11	0.89
Relaxation	2.79	0.89	0.89
Coach satisfaction	5.53	1.04	0.95
Confidence in mental preparation	68.60	26.30	0.98

Main Analyses TOPS-CC

MANOVAs revealed a significant multivariate effect among all the TOPS subscales, Pillai's trace = .64, $F(8, 405) = 90.76$, $p < .001$, $\eta^2_p = .64$, with an observed power of 100%. Descriptive statistics showed that performance strategies that coaches encouraged to their athletes as emotional control ($M = 3.59$, $SD = .74$), goal setting ($M = 3.59$, $SD = .82$) and activation ($M = 3.51$, $SD = .80$) most frequently. These were followed by self-talk ($M = 3.38$, $SD = .69$), positive thinking ($M = 3.47$, $SD = .75$), automaticity ($M = 3.21$, $SD = .94$),

attention ($M = 3.08$, $SD = .98$). The least frequently encouraged strategies were imagery ($M = 2.90$, $SD = 1.11$) and relaxation ($M = 2.79$, $SD = .89$).

Gender

The results indicated that the assumption of homogeneity of variance-covariance matrices was violated (Box's $M = 104.8$, $F(55, 506) = 1.86$, $p = .002$). Therefore, following Olsen's (1976) recommendation, Pillai's trace criterion, which is considered robust to such violations, was used for reporting. With an observed power of 93%, the multivariate impact for gender was not found to be statistically significant (Pillai's Trace = .055, $F(10, 400) = 2.308$, $p = .012$, partial $\eta^2 = .055$). It seems to imply that there are no variations between the ways in which male and female athletes perceive the encouragement of performance strategies from coaches.

Sport Type

The assumption of homogeneity of the variance-covariance matrices was again violated (Box's $M = 185$, $F(120, 164) = 2.05$, $p < .05$). A significant multivariate effect was found for sport type (Pillai's Trace = .270, $F(10, 402) = 14.86$, $p < .005$, partial $\eta^2 = .270$), with observed power of 1.00. This result indicates a substantial effect of sport type on the combined dependent variables. Follow-up univariate ANOVAs revealed significant effects for several of the performance strategies. Specifically, significant differences were observed for automaticity, $F(1, 411) = 4.07$, $p < .05$, partial $\eta^2 = .010$; relaxation, $F(1, 411) = 8.50$, $p < .01$, partial $\eta^2 = .020$; attentional control, $F(1, 411) = 3.31$, $p = .07$, partial $\eta^2 = .008$; goal setting, $F(1, 411) = 5.32$, $p < .05$, partial $\eta^2 = .013$; imagery, $F(1, 411) = 4.24$, $p < .04$, partial $\eta^2 = .010$;

and positive thinking, $F(1, 411) = 7.86, p < .01$, partial $\eta^2 = .019$. However, no significant differences were found for emotional control, $F(1, 411) = 5.60, p = .018$, partial $\eta^2 = .014$, and self-talk, $F(1, 411) = 1.19, p = .28$, partial $\eta^2 = .003$. These results suggest that coach encouragement of performance strategies varies according to sport type, with individual sport athletes reporting more encouragement of PS (automaticity, relaxation, attentional control, goal setting, imagery, and positive thinking) than the team sport athletes. In contrast, sport type varied according to emotional control and self-talk outcomes.

Competitive level

The assumption of homogeneity of the variance-covariance matrices was again violated (Box's $M = 210, F(110, 145) = 1.82, p < .05$). A significant multivariate effect was found for competitive level (Pillai's Trace = .257, $F(20, 804) = 5.94, p < .05$, partial $\eta^2 = .129$) with an observed power of 100%. Using a BH correction to control Type I error in multiple comparisons ($p < .03$), significant univariate effects were found for attentional control ($p = .02$), automaticity ($p < .05$), emotional control ($p = .04$), goal setting ($p < .01$), imagery ($p < .01$), and positive thinking ($p < .05$). However, no significant effects were obtained with regard to relaxation ($p = .09$) and self-talk ($p = .23$). Tukey post hoc test shows that coaches encouraged more PS in elite during competition compared to regional and club athletes, and elite athletes have more confidence and satisfaction with their coaches than county and regional club athletes. No significant differences were found between self-talk and relaxation.

Pairwise comparisons

The analysis of marginal means revealed that activation was not significantly different from emotion, goal setting, self-talk, and positive thinking ($p > .05$). Additionally, attention did not differ significantly from automaticity ($p = .066$) and imagery ($p = .009$). Automaticity was also not significantly different from attention ($p = .066$), and emotion was not significantly different from activation ($p = 1.00$), and positive thinking ($p = .025$). Goal setting did not significantly differ from activation ($p = 1.00$), emotion ($p = 1.00$), and positive thinking ($p = .037$). Imagery was not significantly different from attention ($p = .009$) and relaxation ($p = .372$), and relaxation did not significantly differ from imagery ($p = .372$). Self-talk was not significantly different from activation ($p = .009$), and positive thinking ($p = .113$). Finally, positive thinking was not significantly different from activation, emotion, goal setting and self-talk.

Hierarchical Multiple Regression

The hierarchical multiple regression was run to predict performance strategies on athletes' confidence in mental and physical preparation, and their satisfaction in the coaching received in competition. The HRMs were carried out in two steps, and the independent variables were gender, sport type, competitive level, experience years, coaching years, and training hours. In Step 1, the demographic factors were entered as control variables, then non-

significant variables were then removed. Next, PS in competition subscales were then entered in Step 2 to examine the most significant predictors of coaching satisfaction. The results were reported in Tables 2.2 and 2.3 separately for each outcomes variable.

Table 2.2

Hierarchical Regression Result for Coach Satisfaction

Predictor	B	SE B	β	t	p
Model 1				21.73	< .001
(Constant)	7.80	8.80		2.34	.31
Gender	-0.05	0.00	0.02	-1.32	-.01
Experience years	-0.04	-0.02	0.01	-2.08	-.04*
Coach years	0.14	0.19	0.03	1.74	.02*
Training hour	0.04	0.07	0.02	.52	.03*
Sport type	-0.41	-0.19	0.11	1.26	.23
Competitive level	-0.54	-0.32	0.11	.32	.54
Model 2	-0.54	-0.35		1.49	.35
(Constant)				.69	.25
Gender	2.76	3.71	0.48	-.31	.43
Experience years	-0.01	0.02	0.02	.23	.02*
Coach years	-0.02	-0.00	0.01	1.13	.03*
Training hours	0.06	0.10	0.02	.54	.28
Sport type	0.01	0.04	0.01	-.65	-.01*
Competitive level	-0.22	-0.04	0.10	-.44	-.04*
Activation	-0.33	-0.16	0.09	.69	.01*
Attentional Control	0.26	0.40	0.07	.43	.48
Automaticity	-0.04	0.08	0.06	.39	.51
Emotional Control	0.10	0.22	0.06	.39	.01*
Goal setting	0.42	0.55	0.07	.17	.29
Imagery	0.04	0.15	0.06	1.16	.02*
Self-talk	0.12	0.23	0.06	2.01	.60
Positive Thinking	0.14	0.28	0.07	.63	.01*

Note. CI = confidence interval; LL = lower limit; UL = upper limit. *p < .05. **p < .001.

The results of the hierarchical regression analysis for coach satisfaction are presented in Table 2.2. Multicollinearity analyses show that all VIF values were below the threshold of 10, with values ranging from 1.10 to 3.30. Tolerance values ranged from 0.19 and 0.81, which was well above the lower limit of a threshold value with no significant multicollinearity among predictor variables for this model.

In Model 1 gender, years of experience, years of coaching, training hours, kind of sport, and competitive level were included as predictors. This model accounted for 18% of the variation in coach satisfaction ($R^2 = .18$, $p < .001$). Gender served as a notable negative predictor of satisfaction ($B = -0.05$, $SE\ B = 0.00$, $\beta = .02$, $p = .01$). The number of years of experience was a notable negative predictor ($B = -0.04$, $SE\ B = -0.02$, $\beta = .01$, $p = .04$) indicating that more experience correlated with low satisfaction. Conversely, coach years was a significant positive predictor, ($B = 0.14$, $SE\ B = 0.19$, $\beta = .03$, $p = .02$). Training hours showed a small but significant positive effect on satisfaction, ($B = 0.04$, $SE\ B = 0.07$, $\beta = .02$, $p = .03$). Sport type, ($B = -0.41$, $SE\ B = -0.19$, $\beta = 0.11$, $p = .23$), and competitive level, ($B = -0.54$, $SE\ B = -0.32$, $\beta = .11$, $p = .54$), were significant negative predictors, indicating lower satisfaction in more competitive environments and different types of sports.

In Model 2, additional variables including activation, attentional control, automaticity, emotional control, goal setting, imagery, self-talk, and positive thinking were added. This model significantly improved the explained variance ($\Delta R^2 = .39$), resulting in a total ($R^2 = .57$, $p < .001$). In this model, gender was no longer a significant predictor, ($B = 2.76$, $SE\ B = 3.71$, $\beta = 0.48$, $p = .43$), suggesting that other variables in the model accounted for the variance previously explained by gender. Experience years remained a significant negative predictor,

($B = -0.01$, $SE\ B = .02$, $\beta = .23$, $p = .02$), though the effect size was reduced. Coach years continued to be a significant positive predictor, ($B = -0.02$, $SE\ B = -0.00$, $\beta = 0.01$, $p = .03$) Training hours, however, was no longer significant, ($B = .06$, $SE\ B = 0.10$, $\beta = 0.02$, $p = .28$) Sport type and competitive level remained significant negative predictors, with coefficients slightly reduced, ($B = 0.01$, $SE\ B = 0.04$, $\beta = 0.01$, $p = -.01$) and ($B = -0.22$, $SE\ B = -0.04$, $\beta = 0.01$, $p = -.04$) respectively.

Among the new variables introduced in Model 2, activation was a significant positive predictor of satisfaction, ($B = -0.33$, $SE\ B = -0.16$, $\beta = 0.09$, $p = .01$) Emotional control was also a strong positive predictor, ($B = 0.01$, $SE\ B = 0.22$, $\beta = 0.06$, $p = .01$) indicating that better emotional control was associated with higher satisfaction. Imagery was a positive predictor, ($B = 0.04$, $SE\ B = 0.15$, $\beta = 0.06$, $p = .02$), and positive thinking was also significant, ($B = 0.14$, $SE\ B = 0.28$, $\beta = 0.07$, $p = .01$) Attentional control, automaticity, goal setting, and self-talk were not significant predictors in Model 2.

Table 2.3*Hierarchical Regression Result for Confidence in Physical and Mental Preparation*

Predictor	B	SE B	β	t	p
Model 1				21.73	< .001
(Constant)	7.80	8.80		2.34	.31
Experience years	-0.05	0.00	0.02	-1.32	-.01*
Training hours	-0.04	-0.02	0.01	-2.08	-.04*
Sport type	-0.42	-0.12	0.02	-.44	-.01*
Competitive level	-0.54	-0.32	0.11	.32	.02*
Model 2	-0.54	-0.35	0.12	1.49	.35
(Constant)				.69	.25
Experience years	-0.01	0.02	0.02	.23	-.02*
Training hours	0.06	0.10	0.02	.54	.28
Sport type	0.01	0.04	0.01	-.65	-.01*
Competitive level	-0.22	-0.04	0.10	-.44	-.04*
Activation	-0.33	-0.16	0.09	.69	.01*
Attentional Control	0.26	0.40	0.07	.43	.48
Automaticity	-0.04	0.08	0.06	.39	.51
Emotional Control	0.10	0.22	0.06	.39	.01*
Goal setting	0.42	0.55	0.07	.17	.29
Imagery	0.04	0.15	0.06	1.16	.02*
Self-talk	0.12	0.23	0.06	2.01	.60
Positive Thinking	0.14	0.28	0.07	.63	.01*

Note. *CI* = confidence interval; *LL* = lower limit; *UL* = upper limit. * $p < .05$. ** $p < .001$.

The results of the hierarchical regression analysis are presented in Table 2.3.

Multicollinearity analyses show that all VIF values were below the threshold of 10, with values ranging from 1.14 to 3.50. Tolerance values ranged from 0.23 and 0.83, which was well above the lower limit of a threshold value with no significant multicollinearity among predictor variables for this model.

In Model 1, experience years, training hours, sport type, and competitive level were included as predictors. This model explained 13% of the variance in the dependent

variable, ($R^2 = .13$), ($p < .001$). Experience years was a significant negative predictor, ($B = -0.05$, $SE\ B = .00$, $\beta = 0.02$, $p = - .01$). suggesting that more years of experience were associated with a decrease in the dependent variable. Training hours also showed a significant negative effect, ($B = -0.04$, $SE\ B = -0.02$, $\beta = .01$, $p = -.04$). Sport type was a strong negative predictor, ($B = -0.42$, $SE\ B = -0.12$, $\beta = .02$, $p = - .01$). indicating that certain types of sports were associated with a lower score on the dependent variable. Competitive level also had a significant negative impact, ($B = -0.54$, $SE\ B = -0.32$, $\beta = .01$, $p = .02$).

In Model 2, additional variables including activation, attentional control, automaticity, emotional control, goal setting, imagery, relaxation, self-talk, and positive thinking were added. This model explained an additional 5% of the variance, resulting in a total ($R^2 = .19$), ($p < .05$). Experience years remained a significant negative predictor, although the effect size was slightly reduced, ($B = -0.01$, $SE\ B = 0.02$, $\beta = .02$, $p = - .02$). . Training hours was no longer a significant predictor, ($B = 0.06$, $SE\ B = 0.10$, $\beta = .02$, $p = .28$). Sport type and competitive level remained significant negative predictors, ($B = 0.01$, $SE\ B = 0.04$, $\beta = .01$, $p = - .01$), and ($B = -0.02$, $SE\ B = -0.04$, $\beta = .01$, $p = - .04$), respectively. Among the new variables introduced in Model 2, activation was a significant positive predictor, ($B = -0.33$, $SE\ B = -0.16$, $\beta = .09$, $p = - .01$). , indicating that higher activation levels were associated with an increase in the dependent variable. Attentional control, automaticity, emotional control, goal setting, imagery, relaxation, self-talk, and positive thinking were not significant predictors.

Discussion

Informed by the revised coaching efficacy model (Boardley, 2018), the present study examined how coaches encourage athletes' performance strategies during competition from the perspective of the athletes. The study sought to understand the relationship between coaches' behaviour and athletes' characteristics and athletes' outcomes, with a focus on performance strategies encouraged in competition as measured by a modified version of the TOPS (i.e., TOPS-CC). It addressed three main questions: (1) which performance strategies are most and least frequently encouraged by coaches during competition; (2) how they vary according to athletes' gender, competitive level, and type of sport; and (3) which performance strategies encouraged within competition predict athletes' satisfaction with their coaching and their confidence in mental and physical preparation.

Performance strategies encouraged by coaches

The findings of the present study reveal that coaches encouraged more emotional control and goal setting during competition while automaticity and negative thinking were least utilized. In contrast, Hardy et al. (2010), found that self-talk and imagery were among the many performance strategies that are commonly used by athletes at different competitive levels. This difference appears to illustrate the importance of what PS coaches encourage vs. athletes' use during competition. Results of the current study indicated that coaches are more likely to suggest emotional control and goal setting during competition, while automaticity and negative thinking would be the least utilized strategies according to these results. This indicates that coaches use strategies such as keeping their emotions in check and having a focus on certain goals to stay composed under pressure. In contrast, the

strategy of automaticity (i.e., doing rather than thinking about) and negative thinking appear less beneficial, potentially as there is an expectation for on-court competitors not to be disengaged from their mental functions. These results supported Hardy et al. (2010) study that self-talk and emotional control are two of the most used performance strategies for athletes at all levels. This highlights a clear disconnect between the approaches to performance that coaches encourage, and those athletes use during competition.

Although coaches may focus on structured approaches such as goal setting to improve performance and outcome-based confidence in their athletes, most individual athletes for example adopt self- control methods, including practice with self-talk and imagery which have been shown to increase athletes' perception and perform well. This distinction further highlights the necessity of integrating coaching strategies with athletes preferred psychological strategies, attempting to engage a constructive interaction between coach-driven and athlete-driven methodologies to maximize performance outcomes. Additionally, Lane et al. (2011) agreed that athletes who can regulate their emotions will successfully advance toward their goal achievements, illustrating the importance of effective emotion regulation. Similarly, Frey et al. (2003) revealed that the athletes trained with emotional control and goal setting were better prepared to face competition situations, thus having better performance outcomes than recreational or elite-level ones without such psychological training. Understanding emotional control as a function of an overarching strategic emphasis by coaches may help athletes meet psychological challenges that are unique to the competition, including promoting composure and notions of resilience when facing adversity.

Another commonly used strategy of success in competition is goal setting as seen from the many reports by coaches on attempting to implement it themselves. According to Locke & Latham (2002), goal setting is one of the most powerful performance enhancement techniques because it has all four major properties that can direct attention, mobilize effort, promote persistence, and foster the development of new strategies. Harwood et al. (2004) claimed that goal setting can assist athletes to remain focused on their targets, as well as enhance their motivation, which is vital for performance. They also highlight the role of the coach to assist athletes in setting challenging yet realistic goals as goal setting is an effective method for preserving athlete concentration and enthusiasm associated with elite sports performance.

In contrast, the current study found that relaxation techniques were among the least encouraged by coaches. However, the previous studies consistently underline that relaxation is integral to the competition level. According to Camiré & Trudel (2014), swimmers who complete the 10-month mental skills training (MST) show an increment in their coping ability and performance outcomes through relaxation strategies. Fletcher & Hanton (2001) similarly, found that athletes using more relaxation, self-talk and imagery reported lower competitive anxiety scores than those employing fewer cognitive strategies. Similarly, Callaway (2008) confirmed that self-confidence and mastery imagery enabled athletes to manage their competitive anxiety levels more effectively whilst increasing performance-related confidence. Hence, based on the previous findings, it is possible that coaches in this study have a lesser knowledge of the potential benefits of using relaxation techniques to help athletes control their thoughts and emotions. The lack of this PS could be due to a lacking in coaching

education and knowledge. Thus, future research is warranted to explore the benefit of relaxation strategies in competition and how education in PS could change the coaching practices as preparation for the competition, also focusing on understanding of benefit-based orientation, examining its impact on individual characteristics and performance outcomes to develop better psychological intervention strategies which fit the needs of specific athletes.

Confidence in Mental and Physical Preparation

Results of the current study showed that coaches' encouragement of performance strategies, in particular activation, significantly predicted athletes' confidence in their mental and physical preparation. Activation is particularly important in competition because it can help raise athletes' level of play. Athletes can employ integrated PS, such as self-talk and imagery which results in improved performance outcomes to increase their activation levels. These results were supported by previous ones that found successful athletes exhibited higher self-confidence, greater task-oriented thoughts, and lower anxiety levels along with increased use of positive imagery and self-talk Gould et al. (1993) and Neil et al. (2006). These findings are consistent with the current that that indicate competitive level of athletes, years of coaching experience as well as sport type and age were predictors that accounted for a significant amount of variance in explaining athletes' confidence in physical and mental during competition.

Coaches encouraged activation to prepare athletes for the competition's mentally and physically. According to Hanton et al. (2004), athletes who can perform well under high arousal and interact with competitive stresses' challenge-response states cope better. In turn, this indicates that coaches should encourage activation strategies to enhance athletes' mental

resilience and readiness. In addition, research from Weinberg and Gould (2015) supports that MST involving activation of self-talk and imagery increases athletes' confidence and performance by decreasing anxiety while promoting positive mental states. The present study also illustrates the influence of other athlete characteristics (e.g., competitive level, years of coaching), sport types and experience length on confidence in mental/physical preparation. This corresponds with the Boardley (2018) revised coaching efficacy model, which suggests that athletes' characteristics might impact their perceptions of coaches' behaviour and therefore increase the level of confidence. Moreover, the positive correlation between athletes' confidence and years of coaching further implies that coaches who have been around their athletes for an extended period can help athletes prepare for their mental and physical. Coaches with more experience may better understand the psychological needs of their athletes and implement PS strategies to increase confidence. These findings are consistent with Cushion et al. (2003) and Kavussanu et al. (2008), who reported that coaches with high experience could support and provide a positive environment which is important for athletes' performance and level of confidence. The study supports that the various levels of confidence vary based on the type of sports. types of sports such as individual and team sports require different types of PS in competition; thus, the coaches need to adjust their strategies accordingly. For example, in individual sports such as gymnastics or swimming, self-control, attentional control, and emotional control may be greater than in team sports such as football and basketball which require more teamwork and collaborative strategies.

Coach Satisfaction

The hierarchical multiple regression analyses revealed that athletes' perceptions of performance strategies such as activation, emotional control, and positive thinking were significant predictors of coaching satisfaction. This finding supports those previous studies reported the advantage of PS in enhancing athletes' satisfaction with their coaches. According to Jowett & Cockerill (2003), they found athletes feel more satisfied with their coach which can help them to focus, and cope with anxiety and stress during competition. Similarly, Gould et al. (2002) found that athletes show a high level of satisfaction with their coaches when the coaches use PS to help and motivate them during competition.

The current study also found that individual athletes were more satisfied with their coach than athletes in a team sport. This finding suggests that when coaches encourage their athletes to use these performance strategies, individual athletes report being more satisfied with the coaching received. Individual athletes are closer to their coach and can directly discuss their goals and performance personally and get direct feedback. Boardley (2018) claimed that athletes' perception of the coach's behaviour may impact their satisfaction with their coaching. Similarly, Myers et al. (2005) found that motivation efficacy was significantly related to team satisfaction for mismatch gender between coach and athletes (women's athletes coach by men coach) in intercollegiate athletes. Moreover, this current finding also shows that relaxation strategies negatively predict coach satisfaction, suggesting that even though relaxation was found to reduce stress, it doesn't necessarily enhance athletes' satisfaction with their coach. In contrast, other PS such as emotional control, positive thinking, and goal setting appear to have a more favourable impact on athletes' confidence

and their perceptions of coaching effectiveness. However, in this current finding, coaches might have a misperception about the benefit of relaxation during competition. In turn, this may negatively impact athletes' perception of relaxation techniques meaning they choose not to use it when dealing with stress or anxiety-inducing situations. The relaxation technique sometimes may be misinterpreted by coaches and athletes, especially in a competitive environment. Previous research found that relaxation may be essential in certain situations and less beneficial when facing a high level of arousal and anxiety which are crucial in high-level competition (Warfield et al., 2023).

Coaches may discourage their athletes from the benefits of relaxation techniques when they fail to use them in the proper ways. These skills are very much needed to control the anxiety level before or during competition and help to recover from their performance. According to Bastos et al. (2018), athletes, particularly in high-pressure situations, must master relaxing techniques. For instance, athletes need to learn to acquire a calm condition in different scenarios. Relaxation is crucial in competitive settings. Athletes may be doomed to failure if their coaches fail to acknowledge the need for proper preparation before attempting to implement these strategies. Similarly, Weinberg and Gould (2018) argue that how psychological skills have implemented one size fits all including relaxation could hinder their benefits. This can lead to athletes neglecting these techniques fully especially if they perceive it as nonessential during practice and stressful situations. Consequently, they may be less interested in using relaxation techniques when facing a challenging situation. To encourage PS, use among athletes during competition, coaches must display positive behaviour and keep practising PS, especially relaxation techniques during all coaching sessions. It will make the

athletes familiarise with the skills and keep them encouraged to employ it in their daily routines and competition. During a comprehensive psychological skills training program, relaxation should be assertive by coaches to increase the overall satisfaction and performance of their athletes. Coaches can help their athletes cope with the stressors by building a supportive and positive environment that enables their athletes to make full use of relaxation techniques to increase performance (Fletcher & Hanton, 2001; Frey et al., 2003; Weinberg & Gould, 2015).

Practical Implications

The current research findings suggest that coaches' encouragement of athletes' performance strategies in the competition has important implications for some key aspects of athletes' perceptions, especially confidence level in mental and physical preparation and satisfaction with their coach. Performance strategies could benefit both athletes and coaches by choosing which PS to utilize, and how it may affect athletes' and coaches' decisions to perform it. These outcomes can guide coaches, sports psychologists and other stakeholders in planning their training sessions with the use of performance strategies.

Firstly, the findings highlight the crucial of athletes' characteristics (i.e., gender, competitive level, sport type, coaching and experience years associated with confidence in mental and physical preparation and athletes' satisfaction with their coach. These characteristics may affect athletes' view of their mental preparation when facing stressful and challenging situations and how they control their level of confidence. Furthermore, the importance of these characteristics could help coaches tailor their training program based on the specific needs and demands of their athletes.

Secondly, this finding also suggests that individual athletes are more satisfied when they receive personalized coaching from their coach that helps them set goals, discuss their performance, and get direct feedback from their coach (Jowett & Cockerill, 2003; Wylleman et al., 1995). At an individual level, coaches should aim to create specific coaching plans that could help athletes' mental resilience and performance. It will also encourage better athlete-coach relationships along with athletes' satisfaction in coaching. However, they must be more specific and challenging in their plan to cater for the different abilities desired by individuals in sports. This will enhance athletes' attention and motivation efficacy for competitive success.

Next, the inclusion of a holistic strategy such as relaxation techniques should also be considered by coaches alongside emotional control and goal setting. Despite the underutilization of relaxation techniques from the coaches, previous research supports the benefits of relaxation in controlling and reducing anxiety and boosting athletes' self-confidence (Camiré & Trudel, 2014; Fletcher & Hanton, 2001). Therefore, coaches' education and knowledge of sports psychology are important tools for athlete's success. In turn, this may help coaches and athletes to better understand how to use and perform relaxation with the right technique and promptly during practice and competition. With this, coaches can utilize the various performance strategies in competitions and can make athletes feel more confident and satisfied with their coaching. Thus, coaching certification bodies should also bridge this gap by including modules on psychological skills training with a comprehensive range of performance strategies.

Limitations and Future Research Directions

Although this study extends prior research on coaches' encouragement of performance strategies used in competitions some limitations should be considered. First, the study used a cross-sectional design, therefore a causal relationship between predicting outcomes examined cannot be established and should not be assumed. Therefore, future research may need to conduct longitudinal studies by examining changes over time (such as for more vs less important competitions) and whether coaches are consistent in their encouragement of these skills or adapt them to meet the demands of the competition or individual athlete.

Second, the results are based on athletes' perceptions of coaching behaviour (encouragement to use performance strategies) and involve self-reported measures; therefore, responses reflect their attitudes, thoughts, and beliefs. Qualitative methods would also be appropriate to better understand athletes' experiences, e.g., by interviewing athletes, their coaches, and other key stakeholders. Horn (2002) and Smoll & Smith (1989) believe coach's behaviour affect athletes' perceptions, influencing athletes' motivation, performance, and behaviour. Therefore, it may be worth extending this study from coaches' perspectives to explore what they think they are encouraging and whether this matches the athletes' perception. A noteworthy limitation is our sample population involved university athletes, and the findings may not generalize to other age groups or levels. Therefore, future research can extend the findings reported in this study by involving younger athletes (e.g., youth or adolescent) or athletes at a specific level or sports (e.g., elite vs non-elite, swimming, football, etc.).

Finally, coaches also play a key role in planning the best performance strategies for their athletes that directly influence athletes' decisions making and focus control throughout competition (Gould et al., 2002; Jowett & Lavallee, 2007). In addition, Frey et al. (2003) highlights that the utilization of PS might be enhanced through repetitive practice during training sessions with help from their coaches. This highlights the importance of consistency and encouragement from the coaches that boost athletes' mental resilience, goal setting and focus over time. Future work could extend this study on athletes' perception of coaches' encouragement of performance strategies in the practice setting by examining the differences between athletes' own use and encouragement of PS from coaches.

Conclusions

To our knowledge, the current study makes a novel contribution by first investigating coaches' encouragement of performance strategies in competition. The purpose of this research was to examine the relationships between coach behaviour and athletes' confidence in their mental and physical preparation and satisfaction with their coach during competition by testing the psychological dimensions within the framework of the revised coaching efficacy model to reflect the holistic approach of coaching efficacy and effectiveness. This study supports the revised coaching efficacy model by adding satisfaction with coaching and confidence in mental and physical preparation as athletes' outcomes. Specifically, the inclusion of these dimensions can acknowledge that coaching extends beyond technical and tactical skills and integrating these PS into a competitive context can increase trust and motivation between the coaches and athletes. These studies also offer new insight into coaching psychology. Furthermore, the revised CE model presents a comprehensive model by

integrating these psychological antecedents that align with contemporary coaching practices
and offer a pathway for future research to explore the role of coaching encouragement of PS
performance strategies in a different context (e.g., practice).

Chapter 3

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269 **Coaches' Encouragement of Athletes' Use of Performance Strategies**

270 **in Practice**

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Introduction

A practice session is an important platform in which to practice and employ mental skills and mental techniques (Taylor et al., 2008). Athletes spend up to 99% of their time in training rather than in competition (Frey et al., 2003). Athletes need to practice mental skills and techniques to gain proficiency to use them during the competition (Frey et al., 2003; Thelwell et al., 2008; Thomas et al., 1999; Einarsson et al., 2020; Gould et al., 2008). Several studies have demonstrated that mental skills and mental techniques become the most beneficial and impactful psychological skills (PS) during competition and practice (Cook et al., 2021; Cote et al., 2016; Frey et al., 2003; Thelwell et al., 2008).

It is often claimed that mental skills and mental techniques such as imagery, goal setting, self-talk and relaxation have widely been used among athletes during competition, but less in practice session. The findings consistent with Frey et al., (2003); McAuliffe et al., (2021); Ribeiro et al., (2022) found that elite athletes employed self-talk, imagery, goal setting, and relaxation the most during competition than practice but it differs based on phases of training (i.e., off seasons, early season, and late season) (Cumming and Stanley, 2009). Despite athletes having the beneficial effect of PS in competition, coaches also experience advantages when incorporating these skills into their coaching sessions. This claim was supported by Thelwell et al. (2008) that coaches who employed PS at start and at the end of practice sessions could increase athletes' confidence, motivation, and portray a good communication with athletes thru discussion and feedback.

Furthermore, another important PS is imagery techniques that have been used by coaches to visualize the skills and employ them during coaching sessions. Imagery practice

can help athletes focus and learn appropriate techniques and enhance athletes' confidence. Imagery also helps the athlete relax during competition when they experience pressure (Cumming and Williams, 2012). Similarly, Paquette & Sullivan (2012) provided some evidence that highly certified coaches in Canada agreed the need for integration of psychological skills within regular practice and coaches were able to present psychological skills as part of the athletes' daily training. However, the effect of relaxation during practice was limited compared to that during competition. Usually, during practice, relaxation was used to improve communication between athletes and coaches, and to help athletes that face poor training session (Frey et al., 2003).

This practice session also can enhance athletes' motivation, enabling coaches to conduct more effective training sessions. The utilisation of PS by coaches not only improves their own performance and effectiveness in coaching but also increase trust and believe among athletes. (Hampson and Jowett, 2012; Ye et al., 2024)

Quality of training

Although the advantages of using performance strategies to improve athletes' success on-field are proven and undeniable, one other key implication often overlooked is the training quality. Orlick and Partington (1988) have suggested that top Canadian Olympic athletes attribute their high performance to great amount of effort in preparation, utilise the PS goal setting and focus control. Similarly, study by Peluso et al. (2005) support this claim by reported that professional golfers who similarly use goal setting, imagery and attentional focus during training, can increase their putting shot. These athletes discovered that following this structure not only improved their technical skills, but it built a mental toughness and

competitive as well. In contrast, Connaughton et al, (2012) When athletes prepared with a negative mood and low concentration during training, they perform poorly in competition

As such, incorporating PS in daily training is important, thus e athletes who regularly integrate this skill into their physical training sessions are better utilise them in competitive contexts (Gould et al., 2002; Thelwell et al.,2010). Taken together, these findings suggest that high-quality training and regular PS practice are both vital for the development of peak athletic performance and coping with the demands of competition (Hodges et al., 2022)

Measuring performance strategies in practice

Tests of performance strategies have been extensively utilized as tools to evaluate a range of performance strategies during both competition and practice subscale of TOPS-2 consists of self-talk, goal setting, imagery, relaxation, automaticity, attentional control, emotional control, and activation (Hardy et al., 2010; Thomas et al., 1999). Analysis of the subscales from athletes' training sessions showed that emotional control and mental imagery were the most reliable predictors between medalists and non-medalists (MacNamara et al., 2010; Sullivan & Feltz, 2021). Although medalists claimed to have better emotional control than non-medalists, the non-medalists scored higher on mental imaging tasks. Because they weren't performing at the same level of automaticity as the more successful Olympians, it's possible that the less successful athletes employed a more mental imagery to rehearse their sports skills. The next section will discuss how the revised coaching efficacy model fits within this empirical study.

Integration of the revised coaching efficacy model within study variables

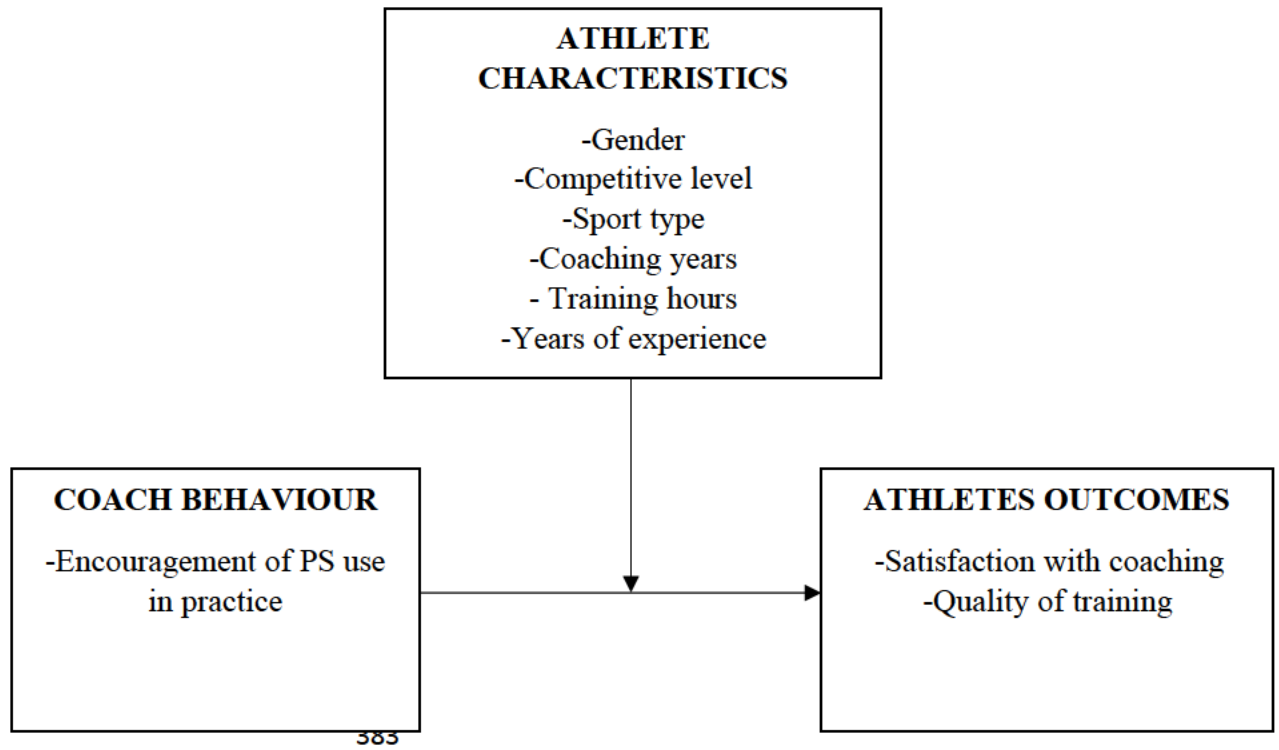
The revised coaching efficacy model highlights the important relationship between the study variables which are athlete characteristics, coach behaviour, and athlete outcomes that help athletes in their sport success. The dimensions of athletes' characteristics consist of gender, competitive level, sport types, training hours, and years of experience are crucial variables that may affect how athletes' perceptions towards their coach. These antecedents could help coaches with their encouragement of PS use during practice sessions. For example, highly competitive athletes may use more PS such as emotional control can help them cope better in challenging situations, and self-talk than non-competitive athletes. Similarly, coaches need to have specific strategies based on athletes' gender and sport type and the style of coaching must be tailored based on athletes' needs. However, the coach's behaviour in this study focuses on the coach's encouragement of PS use that are essential for athlete outcomes. Coaches that display effective communication and create a positive practice environment can boost athletes' satisfaction with their coaching. Coaches who exhibit their unique characteristics by tailoring their coaching strategies accordingly can make the athletes feel more motivated and confident. These specific strategies that coaches use during training also can improve the quality of training, thus creating more engaging and productive training sessions that can enhance athletes' performance and well-being.

The integration of these three dimensions shows the most important thing in understanding the individual differences and adapting coaching behaviour according to athletes' specific needs. Athletes' characteristics influence how coaches behave to help their athlete stay engaged and motivated throughout the training session, while the coach's

behaviour in terms of coaches' encouragement of PS use in practice directly impacts athletes' outcomes such as satisfaction and training quality.

Figure 3.1:

The study variables are mapped to the revised coaching efficacy model.



After reviewing the previous literature about the important of PS use in practice, there are still unclear about the impact of coaching encouragement of PS use during practice and how it influences the athletes' outcomes guided by the revised coaching efficacy model. The empirical study highlight three research questions: (1)) coaches would encourage performance strategies in practice, but which strategies would be more vs. less encouraged compared to athletes' own use, (2) coaches would encourage more PS in different types of sport, competitive level and gender but to which categories would be more encouraged, (3)

which PS were significantly positive predictors of athletes' satisfaction and quality of training. Thus, underpinned by this revised model, three hypotheses were developed, (H1) coaches encourage more PS such as goal setting, and relaxation techniques in practice compared to athletes' own use. (H2) coaches encourage male, elite and individual athletes more PS in practice compared to female, non-elite athletes and team sport, (H3) the encouragement of goal setting, self-talk, and relaxation were the positive predictors of athletes coaching satisfaction and quality of training. Therefore, addressing these purposes provides an innovative contribution of this study to the fields of sport psychology and coaching efficacy. This study is the first to test the revised coaching efficacy model to examine coaches' encouragement of performance strategies in practice setting. These findings will help educate coaches, psychologists and other stakeholders on the important of planning and implementation of PS in coaching session before, during and after competition that may assist athletes in success.

Method

Design

A cross-sectional study was carried out involving a large heterogeneous sample.

Participants

To be eligible for this study, participants needed to be athletes aged 18 years and above, and currently training and competing in a sport at any level (e.g., club through to elite), and had to be involved in their sport for a minimum of one year. Exclusion criteria included those athletes with an injury or illness (e.g., unable to practice for the last two weeks or more), non-sport participants (e.g., exerciser, dancer, cheerleader), recreational athletes without a

coach or who do not compete, and athletes currently in their off-season or transition phase of the year.

A total of 291 athletes from sports clubs and university teams in England (199 males, 92 females; M age = 20.40 years, SD = 2.05) took part in the study. Participants were either team (n = 248) or individual (n = 43) sport athletes. The most represented team sport was football (n = 62) followed by basketball (n = 44), field hockey (n = 31), rugby (n = 29), American football (n = 26) and handball (n = 21). The most frequently represented individual sport was fencing (n = 14), followed by golf (n = 8), athletics (n = 8), and rowing (n = 6). All participants had been taking part in their sport for an average of 8.03 years (SD = 4.73) and were classed as either club (n = 208), competitive (i.e., competing at a regional or county level; n = 40), or elite (i.e., competing at national or international level; n = 43). Athletes' years of experience in their current sport ranged from one to 18 years (M = 8.0 years, SD = 4.73), the number of years they worked with their current coach which ranged from 8 months to 14 years (M = 2.1 years, SD = 2.28), and their current duration of training which ranged from two hours to 27.5 hours (M = 7.3 years, SD = 4.78).

Measures

Demographic Information

Participants provided information on their age, gender, type of sport played, level of performance and years of playing experience, number of years working with their current coaches, number of hours of training and sport type (individual and team).

Test of Performance Strategies: Practice (TOPS-2P) and Coach Practice (TOPS-CP)

Similar to Chapter 2, the practice scale of the TOPS-2 questionnaire (Hardy et al., 2010) was adapted for the study's purposes to measure both athletes' own use (TOPS-2P) and perceived encouragement from coaches to use performance strategies in practice. The latter was named TOPS-CP to distinguish it from the TOPS-2P. The practice scale consists of 32 items to measure: activation, automaticity, emotional control, goal setting, imagery, relaxation, self-talk and attentional control. In the present study, participants completed the items twice and each item was rated on a 5-point Likert scale ranging from 1 (*never*) to 5 (*always*). To adapt the TOPS-2 for the present study, a stem was first added to distinguish between athletes' use ("In practice, I will...") and coaches' encouragement ("My coach encourages me to..."). Certain items were revised to work as a tail. For example, the attentional control item 32 "Attention wanders while training" was rewritten as "Keep my attention from wandering while training." Item 10 was negatively worded and rephrased to create positive statements. For example, the emotional control item "Performance suffers when something upsets me" was rephrased as "Not let my performance suffer when something upset me." To avoid confusion when interpreting the data and to reflect the positive framing of the items, the distractibility sub-scale was renamed attentional control in the TOPS-CP. The remaining sub-scales kept their original names. Earlier literature reported internal consistency reliability for each subscale to be in an acceptable range between 0.72 to 0.85 (Hardy et al., 2010). In Chapter 2 of this thesis, reported internal reliability of the adapted competition scale (TOPS-CP) ranging between .80 to .90.

Coaching Satisfaction

Athletes' satisfaction with their coaching was assessed with Chelladurai et al.'s (1988) Leadership Subscale of Sport (LSS) consisting of seven items. The instructions ask participants to assess their satisfaction on a 7-point Likert type scale ranging from 1 (*extremely dissatisfied*) to 7 (*extremely satisfied*). Riemer and Chelladurai (1998) reported internal consistency estimates (Cronbach's alpha) ranging from .78 to .95 ($M = .88$).

Quality of Training

Athletes' quality of training was measured with the Quality of Training Inventory (QTI) by Woodman et al. (2010). The QTI consists of 13 items to measure three primary training behaviours, including distractibility (e.g., "When people are chatting in training, I tend to stop training and join in"), coping with adversity (e.g., "I am good at dealing with problems during training"), and quality of preparation (e.g., "I mentally rehearse my competition plan a lot in training"). Items are rated on a 9-point Likert scale ranging from 1 (*strongly disagree*) to 9 (*strongly agree*). Previous literature reported internal consistency reliability for each subscale to be in an acceptable range between 0.73 to 0.85 (Woodman et al., 2010). This QTI scale was pilot tested with athletes prior to data collection for the present study.

Procedures

After receiving institutional ethical approval (AS_07/10/14), most participants were recruited through lecture announcements and recruitment posters within School of Sport, Exercise and Rehabilitation Science (Sport ExR), as the majority taking part were

undergraduate students who received course credit. Permission was also gained from university head coaches and sports clubs to approach athletes before/after training sessions to take part in the study. Potential participants were given a letter of invitation and an information sheet detailing the purpose, likely benefits/risks, assurance about withdrawal, and the confidentiality of the information gained from the research. Participants signed the consent form on their first visit and provided demographic information. After providing their consent, participants were given a multi-section questionnaire pack to complete at a convenient time around their training sessions and which could be completed in various locations (e.g., lecture theatre, sports venue). Participants also had the option to complete the questionnaire online, which was hosted by Lime Survey (www.limesurvey.org), using the link provided in the information letter. Completion of the questionnaire pack took approximately 20 minutes.

Data Analyses

First, the data were checked for missing values and outliers in accordance with the guidelines by Tabachnick and Fidell (2019). Descriptive statistics, including means and standard deviations, and the dependent variables' internal reliabilities (i.e., TOPS-2P and TOPS-CP subscales, coaching satisfaction and quality of training subscales) were calculated using SPSS (Version 27). To handle missing data, the Little MCAR (Missing Completely at Random) test was employed to determine if the data were missing at random. If the data were found to be missing at random, multiple imputation was used to handle the missing values. Multiple imputation involves creating multiple datasets with different estimates of the missing values and then combining the results to produce estimates that account for the uncertainty

due to missing data. This approach is recommended because it maximizes the use of available data and provides valid statistical inferences (Tabachnick & Fidell, 2019). Next, multivariate outliers were identified using a Mahalanobis Distance. Outliers were scrutinized and addressed based on their impact on the analysis. If an outlier significantly influenced the results, it was either transformed or removed from the dataset to ensure robust and reliable outcomes.

Analysis of Performance Strategies

A repeated measures ANOVA was utilized to determine the most and least encouraged performance strategies among the participants. The type of performance strategy served as the independent variable, which was measured using the subscales of the Test of Performance Strategies for Practice (TOPS-CP). Research by Nordin and Cumming (2008) indicated that repeated measurements reduced the likelihood of Type I error inflation. The dependent variables were the scores on the TOPS-CP subscale. The Greenhouse-Geisser adjustment was employed by Mauchly's test to modify degrees of freedom in cases where the assumption of sphericity was not met (Greenhouse & Geisser, 1959). The results were more convincing since this method allowed for robust and precise comparisons of performance methods.

Next, the Benjamini-Hochberg (BH) approach was used to control the false discovery rate in multiple hypothesis testing. This method works best in study fields with huge datasets, because a single test that permits false positives might accidentally provide a high number of significant p-values (Benjamini & Hochberg, 1995; Glickman et al., 2014). In this study, all results that were significant before applying

the Benjamini-Hochberg (BH) correction also remained so afterwards value (0.005).

While dealing with multiple comparisons often increases the chances of false positives, this indicates that findings are robust in nature and strengthens confidence in their validity. Partial eta squared value reported to indicate effect size (0.01 small, 0.06 medium, 0.14 large: Cohen, 1992).

Gender, Competitive Level, and Sport Type Differences

The differences in gender, competitive level, and sport type were analysed using repeated measures (MANOVAs) and these variables are considered independent variables which classified under athletes' characteristics based on the revised CE model. The dependent variables were the TOPS-CP subscale scores. Pillai's trace was reported due to its robustness against violations of the covariance matrix assumption's homogeneity (Olson, 1976). For practice level analyses, post hoc comparisons were again made using the BH correction with a false discovery rate of 0.05 to control Type I error without losing statistical power (Benjamini and Hochberg, 1995; Shi et al., 2012).

Predicting Coaching Satisfaction and Quality of Training

The Hierarchical multiple regressions (HMRs) were used to allow for the prediction of athletes' level of satisfaction with their coach as well as their quality of training. According to Hoyt et al. (2008), the incremental steps for athletes' characteristics such as gender were input first, followed by competitive level, then sport type, coaching years, experience years, training hours and finally TOPS-CP subscales individually to control for any potential confounding factors. The dependent

variables were coaching satisfaction and quality of training. This method allowed for the sequential entry of variables to control for potential confounding factors (Hoyt et al., 2008). Two models assessed whether the TOPS-CP contributed to variations in coaching satisfaction and confidence after accounting for athletes' characteristics.

Results

Preliminary Analyses

The data were first examined for any missing values. The data were first analysed for any missing values. The results of Little's MCAR test yielded a chi-square statistic of 56.61 with 539 degrees of freedom, resulting in a p-value of 0.09. Since the p-value was greater than the significance level of 0.05, we failed to reject the null hypothesis, indicating that the missing data in our dataset can be considered MCAR (Little, 1988). Since the pattern of missing data was entirely random, the mean was substituted for these values to maintain dataset integrity (Schafer & Graham, 2002). All study variables are reported in Table 3.1. The internal consistency reliability for each subscale ranged between .79 to .93.

Table 3.1

Means, Standard Deviations and Alpha Coefficients for Study Variables

Variables	TOPS-CP Athletes Own Use			TOPS-CP Coaches Encouragement		
	<i>M</i>	<i>SD</i>	α	<i>M</i>	<i>SD</i>	α
Automaticity	3.65	0.62	.79	3.43	.82	.87
Activation	3.64	1.03	.78	3.62	.80	.85
Attentional Control	3.47	0.75	.77	3.66	.92	.86
Emotional Control	3.42	0.66	.80	3.48	.77	.86
Self-talk	3.41	0.83	.77	3.13	.80	.85
Imagery	3.36	0.84	.78	2.95	.87	.85
Goal Setting	3.30	0.62	.78	3.40	.67	.86
Relaxation	2.36	0.95	.80	2.32	.97	.89
Coach satisfaction	5.57	1.10	0.93			
Distractibility	5.05	0.65	0.84			
Coping with adversity	5.23	0.75	0.79			
Quality of preparation	5.41	0.80	0.80			

Note: M = Mean; SD = Standard Deviation; α = Cronbach's coefficient alpha

1 Main Analyses

2 *TOPS-CP (Athletes' own use)*

3 An analysis of MANOVAs revealed that there was a significant multivariate
4 effect between the top four subscales (automaticity, activation, emotional control and
5 attentional control) for athletes' own use, Pillai's trace = .98, $F(8, 238) = 2005$, $p < .001$,
6 $\eta^2_p = .98$, with an observed power of 100%. It revealed that athletes reported using
7 automaticity ($M = 3.65$, $SD = .62$), activation ($M = 3.64$, $SD = 1.03$) and attentional
8 control ($M = 3.50$, $SD = .75$) the most, followed by emotional control ($M = 3.42$, $SD =$
9 $.66$), self-talk ($M = 3.41$, $SD = .83$), imagery ($M = 3.36$, $SD = .84$), and the lowest were
10 goal setting ($M = 3.30$, $SD = .62$) and relaxation ($M = 2.36$, $SD = .95$).

11 *Gender*

12 The analysis revealed that the assumption of homogeneity of the variance-
13 covariance matrices was violated, Box's $M = 126$, $F(36, 115348) = 3.40$, $p < .05$.
14 A significant multivariate effect for gender was found, Pillai's Trace = .060, $F(8,$
15 $282) = 2.16$, $p < .05$, partial $\eta^2 = .060$, with an observed power of .85. Significant
16 univariate effects indicated that male athletes reported higher usage of
17 automaticity, $F(1, 289) = 4.65$, $p < .05$, partial $\eta^2 = .016$; imagery, $F(1, 289) =$
18 7.32 , $p < .01$, partial $\eta^2 = .025$; activation, $F(1, 289) = 4.32$, $p < .05$, partial $\eta^2 =$
19 $.015$; attentional control, $F(1, 289) = 4.11$, $p < .05$, partial $\eta^2 = .014$; and
20 relaxation, $F(1, 289) = 4.27$, $p < .05$, partial $\eta^2 = .015$, compared to female
21 athletes. No significant differences were found between male and female athletes
22 for self-talk, $F(1, 289) = 2.63$, $p = .106$, partial $\eta^2 = .009$; emotional control, $F(1,$
23 $289) = 0.66$, $p = .42$, partial $\eta^2 = .002$; and goal setting, $F(1, 289) = 1.52$, $p =$
24 $.218$, partial $\eta^2 = .005$.

Competitive level

The results revealed that the assumption of homogeneity of the variance-covariance matrices was violated, Box's $M = 243$, $F(108, 34634) = 2.07$, $p < .05$. A multivariate effect was not significant for competitive level, Pillai's Trace = .084, $F(24, 846) = 1.02$, $p > .05$, partial $\eta^2 = .03$, with an observed power of .83. Significant univariate effects were found for automaticity, $F(3, 289) = 3.15$, $p < .05$, partial $\eta^2 = .032$, and imagery, $F(3, 289) = 3.21$, $p < .05$, partial $\eta^2 = .033$. A Tukey post hoc test revealed that highly competitive level athletes used more of these strategies in practice compared to country, regional, and club athletes. No significant differences were found for self-talk, $F(3, 289) = 0.63$, $p = .59$, partial $\eta^2 = .007$; emotional control, $F(3, 289) = 0.28$, $p = .86$, partial $\eta^2 = .003$; relaxation, $F(3, 289) = 0.22$, $p = .90$, partial $\eta^2 = .002$; activation, $F(3, 289) = 0.77$, $p = .51$, partial $\eta^2 = .008$; attentional control, $F(3, 289) = 0.39$, $p = .76$, partial $\eta^2 = .004$; and goal setting, $F(3, 289) = 1.45$, $p = .12$, partial $\eta^2 = .015$.

Pairwise comparisons

The analysis of marginal means for the TOPS practice subscale revealed the following pairwise comparisons. Self-talk was not significantly different from emotional control ($p = .59$), relaxation ($p = .90$), and activation ($p = .51$). Emotional control was not significantly different from self-talk ($p = .34$), and relaxation ($p = .76$). Attentional control was not significantly different from goal setting ($p = .34$), and imagery ($p = .42$). Goal setting was not significantly different from emotional control ($p = .54$), and relaxation ($p = .86$). Self-talk was not

significantly different from emotional ($p = .81$), and attentional control ($p = .61$),

Sport Type

A significant multivariate effect was found for type of sport, Pillai's Trace = .088, $F(8, 282) = 3.41$, $p < .05$, partial $\eta^2 = .088$, with an observed power of .98. The multivariate effect indicates that individual athletes used more performance strategies than team sport athletes. A significant univariate effect was found for relaxation, $F(1, 289) = 4.25$, $p < .05$, partial $\eta^2 = .015$, but no significant differences were found for self-talk, $F(1, 289) = 0.54$, $p = .59$, partial $\eta^2 = .002$; emotional control, $F(1, 289) = 3.05$, $p = .08$, partial $\eta^2 = .011$; automaticity, $F(1, 289) = 0.34$, $p = .56$, partial $\eta^2 = .001$; imagery, $F(1, 289) = 2.11$, $p = .15$, partial $\eta^2 = .007$; activation, $F(1, 289) = 0.15$, $p = .70$, partial $\eta^2 = .001$; attentional control, $F(1, 289) = 0.00$, $p = .95$, partial $\eta^2 = .000$; and goal setting, $F(1, 289) = 0.00$, $p = .98$, partial $\eta^2 = .000$. **TOPS-CP (Coaches'**

Encouragement)

An analysis of MANOVA revealed a significant multivariate effect among all the TOPS-CP subscales for coaches' encouragement, Pillai's Trace = .97, $F(8, 238) = 117.50$, $p < .001$, partial $\eta^2 = .97$, with an observed power of 1.00. The results indicated that athletes reported using attentional control ($M = 3.66$, $SD = 0.92$), activation ($M = 3.62$, $SD = 0.80$), and emotional control ($M = 3.48$, $SD = 0.77$) the most, followed by automaticity ($M = 3.43$, $SD = 0.82$), goal setting ($M = 3.40$, $SD = 0.67$), and self-talk ($M = 3.13$, $SD = 0.80$). The lowest reported strategies were imagery ($M = 2.94$, $SD = 0.87$) and relaxation ($M = 2.32$, $SD = 0.97$).

Gender

The result revealed that the assumption of homogeneity of the variance-covariance matrices was violated (Box M = 78.50, $F(36, 115348) = 2.10, p < .05$). A multivariate effect was not significant for gender (Pillai Trace = .030, $F(8, 282) = .94, p < .05$, partial $\eta^2 = .030$) with an observed power of 44%. Tests between subjects reported that no significant difference were found at the univariate level.

Competitive level

The result revealed that the assumption of homogeneity of the variance-covariance matrices was violated (Box M = 224, $F(108, 34634) = 1.91, p < .05$). A significant multivariate effect was found for competitive level (Pillai Trace = .139, $F(24, 846) = 1.71, p < .05$, partial $\eta^2 = .050$ with an observed power of 99%. Using a Benjamini-Hochberg correction to control type 1 error when using multiple comparisons ($p < .03$), the significant univariate effect was found for emotional control ($p < .05$) and relaxation ($p < .05$). A Tukey post hoc test revealed that elite athletes were encouraged significantly by their coaches to use performance strategies in practice compared to the country, regional and club athletes. No significant differences were found between attentional control, goal setting, imagery, activation, automaticity, and self-talk.

Pairwise comparisons

The analysis of marginal means for the TOPS practice subscale revealed the following pairwise comparisons. Emotional control was not significantly different from goal setting ($p = .213$), self-talk ($p = .145$), and

positive thinking ($p = .319$). Goal setting did not differ significantly from self-talk ($p = .056$) and positive thinking ($p = .217$). Self-talk was also not significantly different from emotional control ($p = .145$) and goal setting ($p = .056$). Imagery did not differ significantly from relaxation ($p = .312$) and automaticity ($p = .078$). Relaxation was not significantly different from imagery ($p = .312$) and attentional control ($p = .086$). Attentional control did not differ significantly from relaxation ($p = .086$) and automaticity ($p = .092$). Automaticity did not differ significantly from imagery ($p = .078$) and attentional control ($p = .092$). Positive thinking was not significantly different from emotional control ($p = .319$), goal setting ($p = .217$), and self-talk ($p = .089$).

Sport Type

A significant multivariate effect was found for type of sport, Pillai's Trace = .070, $F(8, 282) = 2.53$, $p < .05$, partial $\eta^2 = .070$, with an observed power of .91. The multivariate effect indicates that individual athletes used more performance strategies than team sport athletes. Tests of between-subjects effects revealed a significant univariate effect for relaxation, $F(1, 289) = 6.89$, $p < .01$, partial $\eta^2 = .023$. No significant differences were found for emotional control, $F(1, 289) = 0.75$, $p = .39$, partial $\eta^2 = .003$; attentional control, $F(1, 289) = 1.94$, $p = .17$, partial $\eta^2 = .007$; automaticity, $F(1, 289) = 0.88$, $p = .35$, partial $\eta^2 = .003$; and activation, $F(1, 289) = 0.71$, $p = .40$, partial $\eta^2 = .002$.

Hierarchical Multiple Regression

The hierarchical multiple regression was run to predict performance strategies on their satisfaction in the coaching received in practice and the training quality that

perceived by coaches. The HRMs were carried out in two steps, and the independent variables were gender, sport type, competitive level, experience years, coaching years, and training hours. In Step 1, the demographic factors were entered as control variables, then non-significant variables were then removed. Next, PS in practice subscales were then entered in Step 2 to examine the most significant predictors of coaching satisfaction and quality of training. The results were reported in Tables 3.2 -.3.5 separately for each outcomes variable.

Table 3.2

Hierarchical regression between demographic factors, TOPS-CP (athletes' use) to predict coaching satisfaction.

Predictor	B	SE B	β	t	p
Model 1				28.66	< .001
(Constant)	6.60**	8.20	.80	2.65	.43
Years of experience	-0.01	0.02	-.01	-1.58	.13
Coaching years	-0.00	0.06	.03	2.01	.23
Hours of training	0.03*	0.06	.01	1.76	.02*
Gender	-0.03	0.03	-.03	-.76	.09
Competitive level	0.04	0.23	.10	1.23	.31
Sport type	-0.25	0.14	-.20	-.46	.52
Model 2				1.34	.25
(Constant)	5.08**	7.00	.95	.65	.07
Years of experience	-0.01	0.02	-.02	-.342	.65
Coaching years	0.00	0.07	.03	.23	.02*
Hours of training	0.03	0.06	.02	1.26	.43
Gender	-0.03	0.03	.03	.86	.26
Competitive level	-0.00	0.20	-.10	-.56	.17
Sport type	-0.27	0.13	-.20	-.44	.85
Self-talk	0.04	0.24	.10	.65	.65
Emotional Control	0.15	0.37	.11	.77	.46
Automaticity	0.17	0.42	.13	.51	.55
Imagery	-0.04	0.14	-.10	.32	.90
Relaxation	-0.05	0.11	-.08	.11	.23
Activation	0.03	0.18	.08	1.06	.30
Attentional Control	-0.13	0.10	-.11	-1.23	.55
Goal Setting	0.23	0.53	.15	.61	.01*

Note. CI = confidence interval; LL = lower limit; UL = upper limit. *p < .05. **p < .001.

180 The result of the hierarchical regression analysis for TOPS-CP athletes' own use
181 of performance strategies and demographic factors to predict coaching satisfaction was
182 presented in Table 3.2. Multicollinearity analyses show that all VIF values were below
183 the threshold of 10, with values ranging from 1.25 to 3.75. Tolerance values ranged from
184 0.22 and 0.78, which was well above the lower limit of a threshold value with no
185 significant multicollinearity among predictor variables for this model. In the first step
186 (Model 1), demographic factors, including years of experience, coaching years, hours of
187 training, gender, competitive level, and sport type, were entered into the model. This
188 initial model accounted for 3% of the variance in coaching satisfaction, $R^2 = .03$. Among
189 the demographic variables, only hours of training were found to be a significant predictor
190 of coaching satisfaction ($B = 0.03$, $SE = 0.06$, $\beta = .01$, $p = .02$), indicating that more
191 hours of training per week were associated with higher levels of coaching satisfaction.
192 Other demographic factors, such as years of experience ($B = -0.01$, $SE = .02$, $\beta = -.01$, p
193 $= .13$), coaching years ($B = -0.00$, $SE = 0.06$, $\beta = .03$, $p = .23$), gender ($B = -0.03$, $SE =$
194 0.03 , $\beta = -0.03$, $p = .10$), competitive level ($B = 0.04$, $SE = 0.23$, $\beta = 103$, $p = .31$), and
195 sport type ($B = -0.25$, $SE = 0.14$, $\beta = -.20$, $p = .52$), were not significant predictors.

196 In the second step (Model 2), the TOPS-CP subscales (self-talk, emotional
197 control, automaticity, imagery, relaxation, activation, attentional control, and goal
198 setting) were added to the regression model. The inclusion of these psychological
199 strategies increased the explained variance to 8%, $R^2 = .08$, $\Delta R^2 = .05$. Within this
200 expanded model, hours of training remained a significant predictor ($B = 0.00$, $SE = 0.07$,
201 $\beta = 0.03$, $p = .02$), and goal setting emerged as a significant predictor of coaching
202 satisfaction ($B = 0.23$, $SE = 0.53$, $\beta = 0.15$, $p = .01$). However, other subscales such as
203 self-talk ($B = -0.27$, $SE = 0.130$, $\beta = -.20$, $p = .85$), emotional control ($B = 0.15$, $SE =$

0.37, $\beta = 0.11$, $p = .46$), automaticity ($B = 0.17$, $SE = 0.42$, $\beta = 0.13$, $p = .55$), imagery (B
= -0.04, $SE = 0.14$, $\beta = -0.10$, $p = .90$), relaxation ($B = -0.05$, $SE = 0.11$, $\beta = -0.08$, $p >$
.23), activation ($B = 0.03$, $SE = 0.18$, $\beta = 0.08$, $p = .30$), and attentional control ($B = -0.13$,
 $SE = 0.10$, $\beta = -.11$, $p = .55$) were not significant predictors.

Table 3.3

Hierarchical regression between demographic factors, TOPS-CP (coach encouragement) to predict coaching satisfaction

Predictor	B	SE B	β	t	p
Model 1				28.66	< .001
(Constant)	6.60			2.65	.43
Years of experience	-0.01	.80	-.06	-1.58	.13
Coaching years	-0.00	.01	.06	2.01	.23
Hours of training	0.07	.03	.05	1.76	.01*
Gender	-0.03	.01	-.06	-.76	.09
Competitive level	0.04	.03	.03	1.23	.31
Sport type	-0.25	.10	-.08	-.46	.52
Model 2				1.34	.25
(Constant)	5.08	.95		.65	.07
Years of experience	-0.01	.02	-.06	-.342	.65
Coaching years	0.00	.03	-.07	.23	.17
Hours of training	0.03	.02	.07	1.26	.02*
Gender	-0.03	.03	-.08	.86	.26
Competitive level	-0.00	.10	-.08	-.56	.17
Sport type	-0.27	.20	-.09	-.44	.85
Self-talk	0.04	.10	0.03	.65	.65
Emotional Control	0.15	.11	.09	.77	.46
Automaticity	0.17	.13	.07	.51	.55
Imagery	-0.04	.10	-.06	.32	.90
Relaxation	-0.05	.08	-.07	.11	.23
Activation	0.03	.08	.03	1.06	.30
Attentional Control	-0.13	.11	-.09	-1.23	.55
Goal Setting	0.23	.13	.15	.61	.01*

Note. *CI* = confidence interval; *LL* = lower limit; *UL* = upper limit. * $p < .05$. ** $p < .001$.

Table 3.3 shows the result of TOPS-CP subscales for coaches' encouragement of performance strategies use and demographic factors to predict coaching satisfaction.

Multicollinearity analyses show that all VIF values were below the threshold of 10, with values ranging from 1.05 to 4.20. Tolerance values ranged from 0.25 and 0.85, which was well above the lower limit of a threshold value with no significant multicollinearity among predictor variables for this model. In Model 1, the demographic factors included years of experience, coaching years, hours of training, gender, competitive level, and sport type. This model accounted for 3% of the variance in coaching satisfaction, $R^2 = .03$. Among the predictors, hours of training emerged as a significant predictor of coaching satisfaction ($B = 0.07$, $SE = 0.05$, $\beta = 0.05$, $p = .01$). Other demographic variables, including years of experience ($B = -0.01$, $SE = 0.08$, $\beta = -.06$, $p = .13$), coaching years ($B = -0.00$, $SE B = 0.01$, $\beta = .06$, $p = .23$), gender ($B = -0.03$, $SE B = 0.01$, $\beta = -0.06$, $p = .09$), competitive level ($B = 0.04$, $SE B = 0.03$, $\beta = 0.03$, $p = .31$), and sport type ($B = -0.25$, $SE B = 0.10$, $\beta = -0.08$, $p > .52$) were not significant predictors of coaching satisfaction.

In Model 2, the inclusion of the TOPS-CP subscales (self-talk, emotional control, automaticity, imagery, relaxation, activation, attentional control, and goal setting) increased the explained variance to 8%, $R^2 = .08$, $\Delta R^2 = .05$. Hours of training remained a significant predictor, ($B = 0.03$, $SE B = 0.02$, $\beta = 0.07$, $p = .02$). Additionally, goal setting was identified as a significant predictor of coaching satisfaction, ($B = 0.23$, $SE B = 0.13$, $\beta = 0.15$, $p = .01$). Other subscales, including self-talk ($B = 0.04$, $SE B = 0.10$, $\beta = 0.03$, $p = .65$), emotional control ($B = 0.15$, $SE B = 0.11$, $\beta = 0.09$, $p = .46$), automaticity ($B = 0.17$, $SE B = 0.13$, $\beta = 0.07$, $p = .55$), imagery ($B = -0.04$, $SE B = 0.10$, $\beta = -.06$, $p = .90$), relaxation ($B = -0.05$, $SE B = 0.08$, $\beta = -0.07$, $p = .23$), activation ($B = 0.03$, $SE B = 0.08$, $\beta = 0.03$, $p = .30$), and attentional control ($B = -0.13$, $SE B = 0.11$, $\beta = -0.09$, $p = .55$) did not significantly predict coaching satisfaction.

Table 3.4

Hierarchical regression between demographic factors, TOPS-CP (athletes' use) to predict quality of training.

Predictor	B	SE B	β	t	p
Model 1				30.25	< .001
(Constant)	5.7	.57	.08	2.65	.32
Years of experience	.01	.01	.01	-1.56	.10
Coaching years	.00	.02	.05	2.15	.32
Hours of training	.01	.01	.05	1.42	.07
Age	-.02	.02	.12	1.60	.09
Competitive level	.13	.07	-.16	-1.20	-.31
Sport type	-.37	.14	-.20	-.46	-.04*
Model 2				1.56	.17
(Constant)	3.3	.57		.60	.08
Years of experience	.01	.01	.04	-.20	.65
Coaching years	-.00	.02	-.00	.23	.17
Hours of training	-.01	.01	-.09	1.26	.02
Age	-.01	.02	-.02	1.07	.18
Competitive level	.10	.06	.09	-.56	.17
Sport type	-.33	.12	-.15	-.40	-.02*
Self-talk	.18	.06	.18	.65	.04*
Emotional Control	-.02	.07	-.02	.77	.46
Automaticity	.03	.08	.02	.51	.55
Imagery	.30	.06	.28	.32	.00**
Relaxation	.02	.05	.02	.11	.23
Activation	.10	.05	.12	1.06	.03*
Attentional Control	.06	.07	.06	-1.23	.55
Goal Setting	.12	.08	.10	.61	.25

Note. *CI* = confidence interval; *LL* = lower limit; *UL* = upper limit. * $p < .05$.

** $p < .001$.

Table 3.4 shows the results of the TOPS-CP subscales for athletes' own use of performance strategies and demographic factors to predict the quality of training. Multicollinearity analyses show that all VIF values were below the threshold of 10, with values ranging from 1.15 to 3.95. Tolerance values ranged from 0.30 and 0.75, which was

well above the lower limit of a threshold value with no significant multicollinearity among predictor variables for this model. The analysis was performed in two steps: Model 1 included demographic factors, and Model 2 added the TOPS-CP subscales. Model 1 included the demographic factors of years of experience, coaching years, hours of training, age, competitive level, and sport type. This model accounted for 7% of the variance in the quality of training, $R^2 = .07$, $F(6, 282) = 3.53$, $p < .05$. Among the predictors, sport type was the only significant negative predictor, ($B = -0.37$, $SE B = 0.14$, $\beta = -0.20$, $p = .04$), indicating that certain sport types are associated with lower quality of training. Other demographic factors, including years of experience ($B = 0.01$, $SE B = 0.01$, $\beta = 0.01$, $p = .10$), coaching years ($B = 0.00$, $SE B = 0.02$, $\beta = .05$, $p = .32$), hours of training ($B = 0.01$, $SE B = 0.01$, $\beta = 0.05$, $p = .07$), age ($B = -0.02$, $SE B = 0.02$, $\beta = 0.12$, $p = .09$), and competitive level ($B = 0.13$, $SE B = 0.07$, $\beta = -.16$, $p = -.31$), were not significant predictors.

In Model 2 added the TOPS-CP subscales (self-talk, emotional control, automaticity, imagery, relaxation, activation, attentional control, and goal setting) to the regression model, significantly increasing the explained variance to 35%, $R^2 = .35$, $\Delta R^2 = .29$, $F(14, 274) = 10.59$, $p < .001$. Within this expanded model, sport type remained a significant negative predictor, ($B = -0.33$, $SE B = 0.12$, $\beta = -0.15$, $p = .02$). Significant positive predictors included self-talk, ($B = 0.18$, $SE B = 0.06$, $\beta = 0.18$, $p = .04$); imagery, ($B = 0.30$, $SE B = 0.06$, $\beta = 0.28$, $p = .001$); and activation, $B = 0.10$, $SE B = 0.05$, $\beta = 0.02$, $p = .03$). Other subscales, such as emotional control ($B = -0.02$, $SE B = 0.07$, $\beta = -0.02$, $p = .46$), automaticity ($B = 0.03$, $SE B = 0.08$, $\beta = 0.02$, $p = .55$), relaxation ($B = 0.02$, $SE B = 0.05$, $\beta = 0.02$, $p = .23$), attentional control ($B = 0.06$, $SE B = 0.07$, $\beta = 0.06$,

$p = .55$), and goal setting ($B = 0.12$, $SE B = 0.08$, $\beta = 0.10$, $p = .25$), were not significant predictors.

Table 3.5

Hierarchical regression between demographic factors, TOPS-CP (coaches' encouragement) to predict quality of training

Predictor	B	SE B	β	t	p
Model 1				30.25	< .001
(Constant)	5.7**	.57		2.65	.32
Years of experience	.01	.01	.08	-1.56	.10
Coaching years	.00	.02	.01	2.15	.32
Hours of training	.00	.01	.05	1.42	.07
Age	-.02	.02	-.05	1.60	.09
Competitive level	.13	.07	.12	-1.20	.28
Sport type	-.37	.14	-.16	-.46	.03*
Model 2				1.56	.17
(Constant)		.57		.60	.08
Years of experience	4.4**	.01	.06	-.20	.65
Coaching years	-.00	.02	-.01	.23	.17
Hours of training	-.00	.01	-.01	1.26	.02
Age	-.01	.02	-.02	1.07	.18
Competitive level	.12	.06	.11	-.56	.17
Sport type	-.39	.12	-.17	-.40	-.02*
Self-talk	.09	.06	.09	.65	.20
Emotional Control	.05	.07	.05	.77	.46
Automaticity	-.12	.08	-.12	.51	.55
Imagery	.12	.06	.14	.32	.04*
Relaxation	-.03	.05	-.04	.11	.23
Activation	.17	.05	.17	1.06	.03*
Attentional Control	.02	.07	.02	-1.23	.40
Goal Setting	.10	.08	.08	.61	.25

Note. *CI* = confidence interval; *LL* = lower limit; *UL* = upper limit. * $p < .05$; ** $p < .001$.

Table 3.5 shows the result of TOPS-CP subscales for coaches' encouragement of performance strategies use, and demographic factors to predict quality of training. Multicollinearity analyses show that all VIF values were below the threshold of 10, with

values ranging from 1.20 to 4.10. Tolerance values ranged from 0.28 and 0.80, which was well above the lower limit of a threshold value with no significant multicollinearity among predictor variables for this model. In Model 1 included demographic variables, and Model 2 added the TOPS-CP subscales. In Model 1 included the demographic factors of years of experience, coaching years, hours of training, age, competitive level, and sport type. This initial model accounted for 7% of the variance in the quality of training, $R^2 = .07$, $F(6, 282) = 3.53$, $p < .05$. Among the predictors, sport type emerged as a significant factor, ($B = -0.37$, $SE\ B = 0.14$, $\beta = -0.16$, $p = .03$), indicating that certain sport types are associated with lower quality of training. Other demographic factors, including years of experience ($B = 0.01$, $SE\ B = 0.01$, $\beta = 0.08$, $p = .10$), coaching years ($B = 0.00$, $SE\ B = 0.02$, $\beta = 0.01$, $p = .32$), hours of training ($B = 0.00$, $SE\ B = 0.01$, $\beta = 0.05$, $p = .07$), age ($B = -0.02$, $SE\ B = 0.02$, $\beta = -0.05$, $p = .09$), and competitive level ($B = 0.13$, $SE\ B = 0.07$, $\beta = 0.12$, $p > .28$), were not significant predictors.

In Model 2 included the addition of the TOPS-CP subscales (self-talk, emotional control, automaticity, imagery, relaxation, activation, attentional control, and goal setting), which significantly increased the explained variance to 20%, $R^2 = .20$, $\Delta R^2 = .13$, $F(14, 274) = 5.83$, $p < .001$. In this model, sport type remained a significant negative predictor, ($B = -0.39$, $SE\ B = 0.12$, $\beta = -0.17$, $p = .02$). Significant positive predictors of the quality of training included activation, ($B = 0.17$, $SE\ B = 0.05$, $\beta = 0.17$, $p = .03$), and imagery, ($B = 0.12$, $SE\ B = 0.06$, $\beta = 0.14$, $p = .04$). Other TOPS-CP subscales, such as self-talk ($B = 0.09$, $SE\ B = 0.06$, $\beta = 0.09$, $p > .20$), emotional control ($B = 0.05$, $SE\ B = 0.07$, $\beta = 0.05$, $p = .46$), automaticity ($B = -0.12$, $SE\ B = 0.08$, $\beta = -0.12$, $p = .55$), relaxation ($B = -0.03$, $SE\ B = 0.05$, $\beta = -0.04$, $p = .23$), attentional control ($B = 0.02$, SE

B = 0.07, β = 0.02, p = .40), and goal setting (B = 0.10, SE B = 0.08, β = 0.08, p = .25), were not significant predictor.

Discussion

This present study was designed to investigate coaches' encouragement of performance strategies in practice and its influence on coaching satisfaction and quality of training, guided by the revised Coaching Efficacy Model (Boardley, 2018). The current study aims to examine coaches' encouragement of performance strategies used in practice settings by athletes and their relationship with coaching satisfaction and quality of training. Progressing from Chapter 2, this study adds to the knowledge of athletes' use of performance strategies by measuring athletes' own use of performance strategies simultaneously with coaches' encouragement. This enabled a direct comparison of performance strategies used by athletes themselves and encouragement by coaches in practice.

Athletes' Own Use and Coaches' Encouragement of Performance Strategies

Results show a similar pattern of performance strategies in athletes' own use and when coaches encouraged them to use it in practice. Performance strategies of automaticity, activation, attentional control, and emotional control were used the most, while relaxation was used the least. This finding was similar to Crust and Azadi (2010), Einarsson et al. (2020), and Hardy et al. (2010) who also reported similar performance strategies used by athletes in practice. Even though coaches and athletes seem to agree that performance strategies may substantially affect performance in competition (Taylor et al., 2008), practice settings also play a crucial role in the psychological preparation of athletes to fully utilize their performance skills during competition. Automaticity and activation can benefit athletes during practice to focus, organize their thoughts and

prepare for a response to an expected circumstance or stimulus and employ it in competition. However, Taylor et al. (2008) reported the same performance strategies of self-talk, and emotional control were the most used among US Olympians in both practice and competition. In comparison with the competition context in Chapter 2, coaches encouraged emotional control, goal setting, activation and positive thinking the most. In competition, athletes and coaches must set specific goals that they need to achieve and think positively, especially when faced with adversity. To avoid inflation of Type 1 errors by running multiple analyses, the top four most used performance strategies were used for the next analyses.

Differences in Gender, Competitive Level, and Type of Sport

The individual difference variables were important because they are part of the athlete characteristics elements in the revised model of coaching efficacy. Typically, these variables are considered as determinants of behaviour. Thus, knowing whether performance strategy use, or encouragement varies by these variables can tailor recommendations and interventions.

Athletes' characteristics were important in the model due to their effect on athlete perception in the revised coaching efficacy model, they are viewed as antecedents that influence athletes' outcomes. These characteristics may differ between athletes' own uses and encouragement from their coach and that may play a role in the outcomes of the athletes. This study found no significant differences were found for both athletes' own use and coaches' encouragement of performance strategies. Similar findings were found in Katsikas et al. (2009), Taylor et al. (2008) and Chapter 2, which showed no significant differences were found in competition. This suggest that males and female athletes use performance strategies in practice equally in both situations.

In addition, elite and club level athletes consistently show automaticity and emotional control were the highest score when comparing athletes' own use and coaches' encouragement in both contexts. This finding is in line with Einarrson et al. (2020), Gould et al. (2002), Kristjánsdóttir et al. (2018) and Taylor et al. (2008) who agreed that elite athletes use more performance strategies in practice than non-elite athletes. This is because they are the most trained in the study sample and have sufficient resources including the services of a sport psychologist. Furthermore, the more athletes use performance strategies in practice, the more successful they perceived themselves to be, not only in practice but also in competition (Frey et al., 2003). However, sport type shows no significant differences due to an imbalance of the sample size across individual and team sport athletes, which is a limitation of the effect of sample size. Future research should aim to look at this variable with a more balanced sample throughout the variables.

Athletes' Outcomes

The hierarchical multiple regression shows that coaches' encouragement of emotional control, goal setting, and imagery were the positive predictors for quality of training because these PS can directly help athletes in managing challenging situations and pressure, by establishing specific goals, and mentally rehearsing success. Moreover, emotional control is also beneficial for athletes to keep a steady mindset throughout high-intensity training, thus helping athletes improve their resilience to deliver consistent performance. Goal setting also has a positive impact on athletes' training by helping athletes set their short- and long-term goals so that they can focus and keep their attention on actions that lead to achieving the goal. However, imagery use among athletes themselves, and coaches' encouragement could facilitate athletes by increasing readiness and confidence through rehearsing their mental practice which could improve their

434 training quality.

435 In contrast, for athletes' use, PS of activation and imagery were found to be the
436 positive predictors of training quality, proving their crucial role in enhancing athletes'
437 performance. Activation can improve athletes' attentional focus and reach an optimal
438 state during training sessions. This finding was supported by Volgemute (2024) found
439 that athletes significantly increase their concentration during training when they apply
440 activation strategies.

441 **The comparison of the findings with (Study 1) Chapter 2**

442 The comparison of key findings between Study 1 (Chapter 2) and Study 2
443 (Chapter 3) offers new insights in both setting. In Study 1: Coaches encourage more
444 emotional control, goal setting, and activation in competition. Athletes in Study 2 were
445 more self-directed regarding automaticity, activation and attentional control which related
446 to a focus on mental consistency and self-regulation. Both studies found relaxation and
447 imagery as less encouraged by coach. There were differences across gender, competitive
448 level, and sport type. In Study 1 revealed no significant gender effects for ' PS use in
449 competition while in Study 2, the results show male athletes reported higher use
450 automaticity and attentional control in athletes' own use. Furthermore, in Study 1
451 Individual athletes indicated a high use of PS in competition, similar with athletes' own
452 use in practice. Comparison for positive predictors shows that in Study 1 emotional
453 control, goal setting, and Study 2 activation, and imagery in coaching satisfaction and
454 training quality Overall both findings offer integrated approach of PS that encourage by
455 coach and use by athletes in enhancing coaching satisfaction, confidence, and training
456 quality.

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Result in Relation to the Revised Coaching Efficacy Model

The result of this study consistent with the revised coaching efficacy model Boardley (2018) which exhibit that coach's encouragement of performance strategies has a substantial effect on athletes' outcome (satisfaction with coaching and effectiveness of training). Based in this model, athletes perceive their coach's behaviour based on their perception that in turn, affect their training outcomes. The positive relationship also shows that athletes used activation and imagery effect how athletes behave in practice session. Thus, this relationship also aligns with the coaching role in delivering effectiveness training program. However, the influence of gender, competitive level, and sport type show this model can be applied successfully across different level of athletes' characteristic. These finding highlights that this revised model is applicable to be tested in different contexts. In contrast, the negative relationship between relaxation and coaching satisfaction suggest that this revised model could address any misconceptions of PS uses that give negative impact on athletes' outcomes.

Practical Implications

The current research findings suggest that athletes' perception of coaches' encouragement used in practice has important implications on athletes' success. Not only in competition, but coaches should also encourage their athletes to use more performance strategies during practice to enhance their performance in competition. Coaches and athletes need to recognise the benefits of performance strategies in determining whether they find the skills beneficial, which skills they choose to use and why they influenced their decision to begin using performance strategies during the practice to utilise them in competition. Coaches' knowledge and education toward sports psychology is also important as a tool for athlete's success. With the education and expertise in sports

psychology and employment of various performance strategies, athletes feel more confident and satisfied with their coaching. Nevertheless, coaches play a significant role in encouraging athletes to use performance strategies in practice sessions and coaches need to be aware of this role. This study's findings could help athletes, coaches and sports psychologists design more effective training plans, incorporating performance strategies that need to be enhanced, especially in practice.

Limitations and Future Research Directions

Although this study extends the literature discussed in Chapter 2, there are also additional limitations to note that could be considered for future research. First, this study again used a cross-sectional design that does not allow for cause and effect of the studied variables to be concluded and only investigates a single time point. Thus, future research could employ a longitudinal study to investigate the changes that may occur over time, such as over the course of the season. Secondly, only athletes' perceptions of their coach were obtained. Although athletes may perceive their coaches to encourage them to use certain performance strategies during practice, it would be important to also investigate this from the coaches' perspective. Thelwell et al. (2013) agreed that coaches believe that performance strategies can motivate and improve athletes' performance in competition by transferring the skills during practice into competition. Frey et al. (2003) claimed that an increase in performance strategies application during practice was positively associated with overall success throughout practice and competition. Future research should therefore involve coaches' perception from their perspective as a comparison to athletes' perception of performance strategies that encouraged use in the competition and practice context.

Finally, future research also could extend the relationships investigated to include different variables for both coaches and athletes. For example, the coaches' confidence in their ability to coach athletes to use different performance strategies as well as their own emotions during practice and competition may affect how they behave in both situations. Furthermore, the nature of the coach-athlete relationship such as the trust held between coaches and athletes may also impact on what performance strategies are encouraged in different settings (Cushion et al., 2003; Jowett & Cockerill, 2003). It is also worth considering the comparison between athletes' and coaches' perceptions and examining how the encouragement of performance strategies in practice and competition influences various athlete outcomes, such as anxiety and motivation. Examining the athletes' and coaches' perspectives of performance strategies by comparing practice and competition settings can provide a deeper understanding of the mechanisms through which these strategies influence different athlete outcomes.

Conclusions

The aim of the current study was to investigate coaches' encouragement of performance strategies used by athletes in practice. To achieve this aim, the current study has shown that athletes' perceptions of the performance strategy used were similar in terms of the athletes' own use and coaches' encouragement of the performance strategies used in practice. However, no differences were found in relation to gender and sport type, but elite athletes used more performance strategies during practice than others. Importantly, this study examined the relationships between athletes' own use and coaches' encouragement of different performance strategies in practice. Thus, this study also fills gaps by adding new literature on coach encouragement and fills a theoretical gap by using the revised model of coaching efficacy to test athletes' perceptions of coach

behavior and how it affects athlete outcomes related to performance strategies. This study also found that there was a significant relationship between athletes' perception of coach behavior, athletes' characteristics and athletes' outcomes in practice which should give some highlights for future research to extend this literature in different settings. Future research is needed to examine athlete and coach perceptions and compare how the encouragement of PS in practice and competition may influence different athlete outcomes (e.g., response to the competitive anxiety, athletes' motivation).

Chapter 4

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562 **Athletes' Perceptions of Performance Strategies used in**
563 **Practice and Competition**

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Introduction

Performance strategies or psychological skills have widely been explored and found to have a substantial impact on the performance of athletes during training and competition. (Crust & Azadi, 2010; Frey et al., 2003; Katsikas et al., 2019; Macnamara & Collins 2013). The basis of PS includes self-talk, goal setting, imagery and relaxation (Cumming & Nordin, 2008; Neil et al., 2006; Woodcock et al., 2012). Several studies have shown that successful athletes self-report using more imagery and self-talk than less successful athletes (Harwood et al., 2014; Neil et al., 2006; Woodcock et al., 2010).

Fortunately, a growing body of literature has begun to focus on the coach's role in developing athletes' performance strategies. For example, this work found that coaches play a significant role in the psychological processes of their athletes. This body of research suggests that athletes feel confident and motivated when coaches use psychological skills in their training and competition. Coaches also can influence their athletes to cope better with stressful situations. For example, Zourbanos et al. (2010) explored coaching behaviour and self-talk on athletes and found that positive coaching behaviour had a significant impact on athletes' self-talk and suggested that coaches may have an impact on athletes' thoughts. Baker et al. (2000) explained that the behaviour of the coach before the competition can have an influence on the use of PS by reducing athlete anxiety.

Coach Behaviour Influence in Managing Anxiety

There is extensive literature that supports that coaching effectiveness has a significant impact on athletes' performance (Kassim & Boardley, 2018; Kavussanu et al., 2008). Effective coaching is typically interpreted as coaching behaviours that result in positive outcomes for athletes. For example, athletes become more confident, enjoy their sport more and have higher self-confidence. However, the coaching effectiveness model (Horn, 2002) also assumes that athletes' perceptions of the coach have an impact on athletes' beliefs and attitudes, which in turn influence athletes' performance and motivation.

Moreover, coaching effectiveness is also associated with coaching efficacy that could influence athletes' learning and performance. The athletes' perceptions of their coaching effectiveness were associated with four coaching efficacy domains that influence athletes' outcomes. Coaching effectiveness is associated with coaching efficacy (Feltz et al., 1999). Coaching efficacy has been defined as coaches' confidence in their ability to affect their players' development and performance (Feltz et al., 1999). The coaching efficacy model consists of four dimensions: game strategy efficacy, motivation efficacy, techniques efficacy, and character-building efficacy (Feltz et al., 1999) that can influence athlete outcomes. For example, Boardley et al.'s (2008) study on four coaching efficacy domains (game strategy, motivation efficacy, technique efficacy, character building efficacy) among rugby union players found that motivation efficacy has an impact on motivating the athletes, helping them maintain their confidence and building their self-esteem and team cohesion, however, rugby athletes reported being more confident in executing rugby skills, such as tackling, making accurate passing and catching the ball when they perceived they had been taught technique efficacy by their

coach. Boardley (2018) has introduced the revised model of coaching efficacy that explored new antecedents and elements such as coach behaviour, athletes' characteristics, athletes' perception of coaching efficacy and athletes' outcomes that are associated with psychological variables and result in several desirable outcomes for both coaches and athletes.

Coaches not only have an impact on particular strategies that can be implemented for performance, but they also play an integral role in the way in which athletes view the anxiety and how they deal with it when competing. According to Fletcher et al. (2009) athletes who view of anxiety as facilitative are much more likely to have received good psychological support from coaches and are able to believe that anxiety will prepare and enhance performance. By emphasizing self-regulatory skills like attentional control and emotional regulation, coaches provide athletes with the means to cope with anxiety in a helpful way that can enhance performance outcomes. Such an approach is consistent with the findings of Hanton et al. (2005) and Thelwell et al. (2010) demonstrate that only athletes with a challenge rather than a threat perception of anxiety effect more positive performance outcomes. Furthermore, previous studies have reported the context-specific nature of PS use whereby athletes utilize different strategies in practice and competition. Athletes were more likely to use goal setting and relaxation during practice, and self-talk and attentional control in competition (Macmanara & Collins, 2015). Recognizing that PS may vary in context, it allows coaches to better customize their feedback and support to help athletes make the best use of their PS in both contexts.

Furthermore, it is becoming clearer that the characteristics of athletes are likely to impact the effectiveness of PS, and the coaching behaviours that lead to the effective use of PS, may vary across gender, sport type and level of competition. Also, Vargas-Tonsing

(2009) have emphasised that by tailoring PS to their athletes, coaches are most likely to optimise the generation of effective PS, which should, in turn, lead to better performance outcomes. Coaches who recognize the individuality of these differences can provide a more supportive and adaptive training atmosphere, in turn improving how athletes cope with stress and anxiety in competition. In short, performance strategies including self-talk, goal setting, imagery and relaxation strategies are critical to optimizing your athletic performance in pressure situation. These PS should be repetitively train and mastered to utilise it in competition. By recognizing that the nature of PS needs to be situational-specific, coaches can tailor their practices toward individual needs by personalizing approaches to PS use to manage the anxiety. Next section will briefly about how competitive anxiety may influence athletes' performance.

Competitive Anxiety

Athletes' consistently facing stress and pressure especially in competition, this situation are crucial to emphasizes that utilisation of PS besides physical performance (Dohme et al., 2019; Fletcher & Hanton, 2001; Hagan et al., 2017). Performance strategies including goal setting, self-talk, and imagery have been shown to be beneficial techniques to assist in the regulation of competitive anxiety, enabling athletes to maintain their concentration, control their emotion, and still focus on pressure situations (Hagan et al., 2017; Neil et al., 2006). Previous suggests that athletes who practice a variety of PS display greater anxiety control, enhanced emotional stability and improved ability to solve problems under stress (Hagan et al., 2017). Similarly, PS not only enhance immediate coping strategies but also lead to higher consistency in performance (Nicholls

et al., 2016; Craft et al., 2003). Next section below will briefly discuss how athletes interpret competitive anxiety as facilitative or debilitating.

Cognitive Competitive Anxiety

Cognitive anxiety, or the mental aspect of competitive anxiety, consists of worry, self-doubt and fear of failure, which can severely detract from performance outcomes (Hanton et al, 2000; Martens et al, 1990). Multidimensional Anxiety Theory (MAT) (Woods, 2019) suggests cognitive anxiety is a good indicator of performance deficits in athletes, provided they interpret their anxiety as showing them that they will lose. Likewise, Hardy (1996) Catastrophe Theory suggests that extreme levels of cognitive anxiety, in conjunction with heightened physiological arousal, cause a collapse in performance. According to the Control Model of Anxiety (Jones, 1995), the degree to which athletes experience a sense of control over their anxiety is important in determining whether anxiety is either facilitative or debilitating; those athletes who view their anxiety in a more controlled way are also more likely to facilitate the use of anxiety as a source of motivation. Previous research has supported that as athletes who held a high level of psychological skills, were more likely to interpret cognitive anxiety as a challenge that could be overcome rather than a threat, which positively influenced performance (Cheng et al., 2022). Positive self-talk, visualization, and mindfulness are some techniques that help athletes to positively reframe anxiety thus, increasing confidence and focus and also preventing anxiety undermining performance (Hanton et al., 2020; Mellalieu et al., 2021).

693 Coach-athlete relationship is important for helping and guide athlete interpret of
694 cognitive anxiety. Coaches providing constructive feedback and positive reaffirmation
695 towards feelings of anxiety, thus creating the positive environment where athletes
696 demonstrate a sense of psychological control with their emotions, thus allowing for the
697 possibility of anxiety to be perceived as facilitative rather than debilitating (Jones et al.,
698 2020). Studies show that, when coaches facilitate and encourage the PS, young athletes
699 are more likely to have healthy adaptive skills to manage anxiety and stay focused and
700 resilient in the event. On the other hand, negative interactions, such as high levels of
701 criticism, may lead athletes to adopt a debilitating perception of anxiety, lowering their
702 confidence level and performance (Woodman & Hardy, 2001).

703 **Somatic Competitive Anxiety**

704 Somatic competitive refers to the physical symptoms that experience from the
705 anxiety situations such as increased heart rate, muscular anxiety, perspiring, and different
706 bodily symptoms. Somatic anxiety is slightly different from cognitive anxiety. For
707 example, the physiological symptom such as increasing heart rate when reach the highest
708 point of the event, but after the event finish the heart rate will drop continuously. as the
709 athlete begins to become involved in the performance process (Martens et al., 1990).
710 Increasing energy, after a certain point, is not a positive effect, but at moderate levels,
711 somatic anxiety is beneficial, providing focus and readiness for an athlete to achieve a
712 higher state of awareness and concentration. However, high levels of somatic anxiety
713 become debilitating, leading to muscle tightness, impaired motor coordination, and an
714 inability to concentrate (Hardy, 1996). Athletes who perceive their physiological arousal
715 as readiness and excitement are more likely to utilise this response in a way that

facilitates performance, while detrimental effects on performance may occur in athletes who interpret this same arousal as a signal of fear.

However, there are several ways how to manage somatic anxiety. The techniques that are used to control somatic anxiety such as (progressive muscle relaxation (PMR), deep breathing exercises, biofeedback) that can control physiological arousal which in turn lowers the level of anxiety (Weinberg & Gould, 2019). PMR, act as an exercise that targets muscle groups and effectively eliminates the tension before competition. Using biofeedback techniques, athletes can view these physiological responses in real-time and learn how to control stress reactions more effectively. It is demonstrated that incorporating these into the practice program allows athletes to use these methods during high-pressure situations. Previous research also supported that athletes who practicing deep breathing exercise can help athletes maintain lower levels of somatic anxiety prior to competition (Hanton et al., 2020).

How the CE model related to competitive anxiety

Coaches are one of the other key factors that influence whether an athlete views anxiety as facilitative or debilitating as well. Research indicates that building physical and mental skills under an autonomy-supportive approach can help foster a motivational climate for athletes to manage their anxiety level during competition (Hanton et al., 2005; Mageau & Vallerand, 2003). High pressure, controlling coaching behaviours (e.g., over criticism, outcome focus) can further induce a tendency to appraise anxiety as the negative pressure (debilitative) and lowering the athletes' confidence (Bartholomew et al., 2010). This highlights the role of coaching to help their athletes manage anxiety level by implementing PS skills during practice. The Revised Coaching Efficacy Model (Boardley, 2018) expands the original models through incorporating further elements

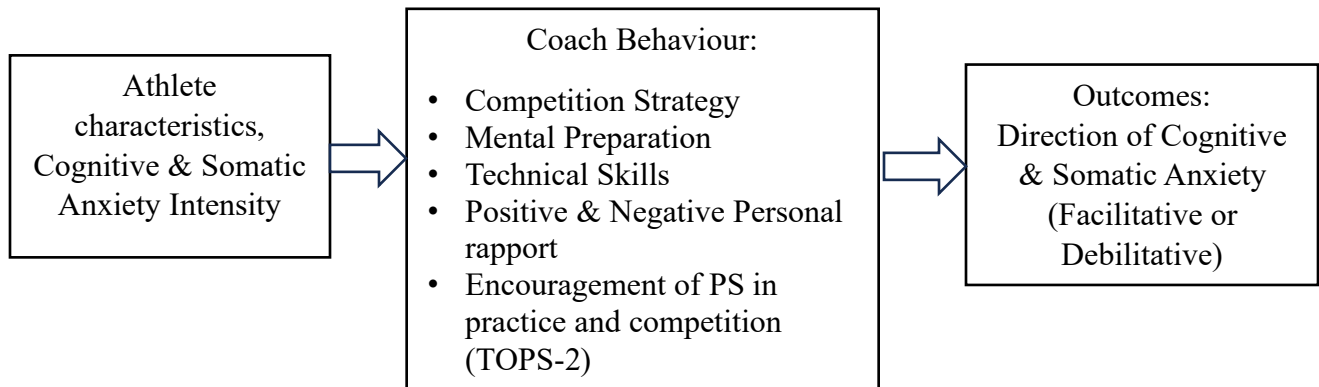
such as the coach–athlete relationship, the competition context, and the influence of extrinsic pressures. This model demonstrates the balance between the technical and psychological slices of the athlete development. Coaches who have high efficacy in coaching can help athletes control their anxiety to be seen as facilitative rather than debilitating. Previous study found that psychological support given by coaches leads to adaptive outcome and more positive anxiety interpretation by athletes (Kavussanu et al., 2008). This revised model incorporates to enhance our understanding about the role of coaching in managing athletes interpret anxiety and improve athletes' performance. While the original model focused on a coach's internal belief in their ability to teach skills and strategies, the revised model emphasizes the broader psychological and emotional dimensions of coaching. This shift reflects the increasing recognition of the complex relationship between coaching behaviours and athletes' anxiety experiences.

In this empirical study, the revised Coaching Efficacy Model by Boardley (2018) will serve as the guiding framework. The model's comprehensive focus on athletes' perception on coaching behaviours in practice and competition that may influence on how athletes perceived their competitive anxiety as an athletes' outcomes., will provide a foundation for exploring how coaching efficacy influences athletes' performance strategies and anxiety management. Specifically, this study will examine how the control variables such as athletes characterise, cognitive and somatic anxiety intensity influence coaching behaviour (Competition Strategy. mental preparation, technical skills, positive & negative personal rapport, and encouragement of PS in practice and competition (TOPS 2) and affect athletes' outcomes (direction of cognitive and somatic anxiety). (See figure 4.1). This framework will help explain how coaches' efficacy in fostering PS and

creating a supportive environment can influence athletes' interpretation of their anxiety, either as facilitative or debilitating.

Figure 4.1:

The study variables mapped to the revised coaching efficacy model.



Furthermore, the original and the revised versions of the coaching efficacy model lend their findings with regards coaching and cognitive anxiety. Psychological skills training (PST) provided by coaches who are high of efficacy in their coaching can help their athlete to cope better in challenging situation. Therefore, underpinned by the revised of the coaching efficacy model, this study aims to investigate how athletes characteristics (e.g., gender, competitive level, coaching years, training hours, experience years) and cognitive and somatic anxiety intensity, have impact on coaching behaviors (e.g., mental preparation, goal setting, competition strategies, personal rapport), and performance strategies used in both practice and competition (e.g., attentional control, automaticity, emotional control, activation) influence athletes' perceptions of cognitive and somatic anxiety direction (whether facilitative or debilitating to performance) providing a deeper understanding of how coaching influences athletes' psychological responses in competitive environments.

This empirical study also highlighted three main research questions: (1) How do athletes characteristics factors, such as gender, competitive level, and sport type influence athletes' perceptions of cognitive and somatic anxiety as facilitative or debilitating? (2) To what extent does coaching behaviour (e.g., mental preparation, competition strategies, technical skills, and personal rapport) influence the direction of athletes' cognitive and somatic anxiety? (3) How do performance strategies used in practice and competition influence athletes' perceptions of cognitive and somatic anxiety, specifically in terms of facilitating or debilitating performance? This empirical study also developed four hypotheses : (H1) Demographic factors, including gender and competitive level, will significantly predict the direction of both cognitive and somatic anxiety, with male and more experienced athletes more likely to perceive these anxieties as debilitating, (H2) Coaching behaviour such as mental preparation, competition strategies, and technical skills will predict athletes' perceptions of somatic anxiety direction, with greater influence on somatic than cognitive anxiety, (H3) Practice-based performance strategies (e.g., automaticity practice, attentional control) will be associated with more facilitative perceptions of both cognitive and somatic anxiety, (H4) Performance strategies used during competition, particularly emotional control and automaticity, will be associated with more debilitating perceptions of cognitive and somatic anxiety under competitive pressure. To facilitate analysis and comparability, four key strategic predictors (activation, automaticity, attentional control and emotional control) are chosen for analysis from the TOPS-CC (competition) and TOPS-CP (practice). These strategies have been selected for to enable direct comparison with Chapter 3 analysis.

Method

Research Design

A cross-sectional design was employed.

Participants

To be included in the study, athletes were required to have actively participated in both competition and practice and have worked with their current coach for at least one year. Athletes who had injuries that had prevented them from practicing and competing for longer than two weeks were excluded from the study. The athletes could represent any competitive level or sport type and participate regardless of their phase of season and number of years of experience.

The participants were 344 athletes whose ages ranged from 18 to 30 years ($M = 22.41$, $SD = 2.84$), with 56% of the sample being male ($n = 191$) and the remaining 44% being female ($n = 153$). They represented 30 sports recruited from clubs and university teams across England. The frequency and percentage of athletes' sport types from highest to lowest were as follows: soccer ($n = 48$, 14%), swimming ($n = 34$, 10%), American football ($n = 28$, 8%), tennis ($n = 27$, 8%), field hockey ($n = 22$, 6%), netball ($n = 21$, 6%), rugby ($n = 19$, 6%), BMX racing ($n = 17$, 5%), volleyball ($n = 15$, 4%), gymnastics ($n = 13$, 4%), athletics ($n = 12$, 4%), polo ($n = 11$, 3%), badminton ($n = 11$, 3%), handball ($n = 10$, 4%), athletics ($n = 12$, 4%), hurling ($n = 9$, 3%), baseball/softball ($n = 7$, 2%), cross country running ($n = 7$, 2%), equestrian ($n = 1$, 0.6%), karate ($n = 2$, 0.6%), taekwondo ($n = 2$, 0.6%), lacrosse ($n = 2$, 0.6%), synchronised swimming ($n = 2$, 0.5%), motorbike cross ($n = 2$, 0.5%), archery ($n = 1$, 0.4%), golf ($n = 1$, 0.4%) and sailing ($n = 1$, 0.4%). Athletes also indicated their competitive levels as follows: club ($n = 188$, 59%), county ($n = 61$, 18%), regional ($n = 55$, 16%) and elite ($n = 22$, 6%). The elite level

consisted of athletes who competed at national and international level. Participants also indicated sport type as an individual ($n = 90$, 26%) and team sport ($n = 254$, 74%). On average the athletes had accumulated nearly eight years of sport experience (range = 1 to 18 years; $M = 7.63$, $SD = 4.44$) and were currently training for nine hours per week (range = 2 to 32 hours/week; $M = 9.34$, $SD = 6.30$).

Measures

Demographic Information

Participants provided information about their age, gender, main sport, type of sports they played, level of competition, years of experience gender of their coach, number of years they have been working with their current coach, and length of training hours.

Coaches' encouragement of performance strategies used in practice and competition

The same adapted versions of the TOPS (Hardy et al., 2010) reported in Chapters 2 and 3 were also used in Chapter 4. Participants completed a total of 68 questions, 36 items for competition (TOPS-CC) and 32 items for practice (TOPS-CP). A stem was again included and phrased as "In practice/In competition, my coach encourages me to...". Participants rated how frequently the item pertained to them using a 5-point Likert scale ranging from 1 (*never*) to 5 (*always*). The internal consistencies of the subscales were previously reported to range from 0.88 – 0.90 to 0.72 – 0.85 for the TOPS-CC (Study 1) and TOPS-CP (Study 2) respectively (Chapters 2 and 3). These values are comparable to the internal consistencies reported for the TOPS, ranging from 0.66 to 0.81 (Thomas et al., 1999).

Coaching behaviours

The Coaching Behaviour Scale for Sport (CBS-S) (Baker et al., 2003; Cote et al., 1999) was used to assess different coaching behaviours from athletes' perspectives. The CBS-S measured four dimensions of coaching behaviour: goal setting (6 items), mental preparation (5 items), competition strategies (7 items) and positive personal rapport (6 items). Each item begins with the stem "My coach..." and example items completing the stem are "provides advice on how to perform under pressure" (mental preparation), "helps me identify strategies to achieve my goals" (goal setting), "helps me focus on the process of performing well" (competition strategies) and "maintains confidentiality regarding my personal life" (personal rapport). Participants were asked to rate their coach's behaviour by responding to each of the items on a 7-point Likert scale, ranging from 1 (*never*) to 7 (*always*). The Cronbach alpha coefficients for the CBS-S subscales have been reported to be above .85 in past research (Cote et al., 2002). The CBS-S has concurrent validity and has been used to assess coaching behaviours' effects on players' anxiety (Baker et al., 2000) and athlete satisfaction in team and individual sports (Baker et al., 2003).

Competitive state anxiety

The Competitive State Anxiety Inventory-2 (CSAI-2) by Martens et al. (1990) was used to assess athletes' intensity and directional interpretation of their cognitive and somatic anxiety symptoms and self-confidence via 27 items (nine per subscale). Each item is rated twice, with the intensity scale ranging from 1 (*not at all*) to 4 (*very much so*) while the direction scale is measured from -3 (*very debilitating: negative*) to +3 (*very facilitative: positive*) with 0 = unimportant. Similar to past research, only the intensity scale for self-confidence was included in the data analysis. For cognitive and somatic

intensity, after reverse coding the intensity score for item 14 (“My body feels relaxed”) and then summing up items representing each subscale, intensity scores range from 9 to 36, and for cognitive and somatic direction scores from -27 to $+27$. Internal reliability values (the Cronbach alpha) for the intensity scale have been reported to range from 0.79 to 0.90 (Martens et al., 1990) and the direction scale from 0.72 to 0.89 (Jones & Hanton 1996; Hanton et al., 2000).

Procedures

The empirical study 4 and 5 received the same ethical approval (ERN 19140). Most participants were recruited through posters and social media platforms (Twitter, Instagram, Facebook) within the Sport and Exercise Science degree programmes, University Sports Club and other universities that participated in the British Universities and Colleges Sport (BUCS) Competition. The data was collected between May 2020 and February 2021. Because of the COVID-19 pandemic, the multi-section survey was changed from the originally planned face-to-face format to online data collection using Jisc) online surveys (JOS). Participants were sent a link (<https://bham.onlinesurveys.ac.uk/coaches-encouragement-of-athletes-use-of-mental-skills-st-2>) to the survey to complete in their own time around their training and competitions. The first page of the survey contained an information letter, which described the purpose of the study, potential benefits and risks, withdrawal guidelines and the confidentiality of the information gained from the research. The participants were told that all information would be kept confidential, and they could withdraw from the study at any time without any consequences. They were then asked to provide their consent on the first page of the online survey to participate in the study. Participants could download a copy of the completed survey with their own unique ID. Although no

participants withdrew from the study, the unique ID would have enabled the researchers to match the survey to the participant and remove it from the data prior to analysis.

From September 2020, participants also had the option to complete the questionnaire face to face after researchers were given permission to return to the field studies. 53 of the participants completed the survey face-to-face following the British Universities and Colleges Sport (BUCS) game venues around Birmingham, Loughborough, Nottingham and Warwick between October and November 2021 with the remainder completing it online. For the face-to-face data collection, participants were gathered around according to the sport and the main researchers gave a briefing about the objective of the study and explained about the consent form, withdrawal options and also each of the sections of the questionnaires. Completion of the questionnaire took approximately 15-20 minutes.

Data Analysis

Preliminary Analyses

First, a data screening procedure was conducted to check for missing data and outliers according to Tabachnick and Fidell (2019). Descriptive statistics including means and standard deviation, and the dependent variables' internal reliabilities (i.e., subscales of the TOPS-CC, TOPS-CP, coaching behaviour and competitive anxiety) were calculated using the Statistical Package for the Social Sciences (SPSS) (version 27). To handle missing data, the Little MCAR (Missing Completely at Random) test was employed to determine if the data were missing at random. If the data were found to be missing at random, multiple imputation was used to handle the missing values. Multiple imputation involves creating multiple datasets with different estimates of the missing values and then combining the results to produce estimates that account for the

uncertainty due to missing data. This approach is recommended because it maximizes the use of available data and provides valid statistical inferences (Tabachnick & Fidell, 2019). Next, multivariate outliers were identified using a Mahalanobis Distance. Outliers were scrutinized and addressed based on their impact on the analysis. If an outlier significantly influenced the results, it was either transformed or removed from the dataset to ensure robust and reliable outcomes.

Analysis of Performance Strategies

A repeated measures MANOVAs was utilized to determine the most and least encouraged performance strategies among the participants. The PS subscales which were measured using the subscales of the Test of Performance Strategies for Competition & Practice (TOPS-CP) act as independent variables. Research by Nordin and Cumming (2008) indicated that repeated measurements reduced the likelihood of Type I error inflation. The dependent variables were the scores on the TOPS-CP subscale. The Greenhouse-Geisser adjustment was employed by Mauchly's test to modify degrees of freedom in cases where the assumption of sphericity was not met (Greenhouse & Geisser, 1959). The results were more convincing since this method allowed for robust and precise comparisons of performance methods.

Next, the Benjamini-Hochberg (BH) approach was used to control the false discovery rate in multiple hypothesis testing. This method works best in study fields with huge datasets, because a single test that permits false positives might accidentally provide a high number of significant p-values (Benjamini & Hochberg, 1995; Glickman et al., 2014). In this study, all results that were

significant before applying the Benjamini-Hochberg (BH) correction also remained so afterwards value (0.005). While dealing with multiple comparisons often increases the chances of false positives, this indicates that findings are robust in nature and strengthens confidence in their validity. Partial eta squared value reported to indicate effect size (0.01 small, 0.06 medium, 0.14 large: Cohen, 1992).

Gender, Competitive Level, and Sport Type Differences

The differences in gender, competitive level, and sport type were analysed using repeated measures (MANOVA) and these variables are considered independent variables which classified under athletes' characteristics based on the revised CE model. The dependent variables were the TOPS-CC and TOPS-CP subscale scores. Pillai's trace was reported due to its robustness against violations of the covariance matrix assumption's homogeneity (Olson, 1976). For competitive level analyses, post hoc comparisons were again made using the BH correction with a false discovery rate of 0.05 to control Type I error without losing statistical power (Benjamini and Hochberg, 1995; Shi et al., 2012).

Predicting Direction of cognitive and somatic competitive anxiety

Hierarchical multiple regressions (HMRs) were conducted to predict how athletes perceive their anxiety in practice and competition either as facilitative or debilitating anxiety. The variables such gender, competitive level, sport type, training years, years of experience, years of working with coach, and cognitive and somatic intensity subscales were entered as a control variable. This method allowed for the sequential entry of variables to control for potential confounding factors (Hoyt et al., 2008). Then, three

models were assessed whether the TOPS-CC and TOPS-CP contributed to variations in the direction of competitive anxiety.

Results

Preliminary analysis

The data were first examined for any missing values. Overall, there were no missing data reported. The data were first examined for any missing values. The data were first analysed for any missing values. The results of Little's MCAR test yielded a chi-square statistic of 38.45 with 343 degrees of freedom, resulting in a p-value of 0.07. Since the p-value was greater than the significance level of 0.05, we failed to reject the null hypothesis, indicating that the missing data in our dataset can be considered MCAR (Little, 1988). Since the pattern of missing data was entirely random, the mean was substituted for these values to maintain dataset integrity (Schafer & Graham, 2002). All study variables are reported in Table 4.1. The internal consistency reliability for each subscale ranged between .79 to .89.

Table 4.1

Means, standard deviations and alpha coefficients for Test of Performance Strategies (TOPS-CC, TOPS-CP), coaching behaviour and competitive anxiety subscales.

Subscale	Competition			Practice		
TOPS2_CC & CP	M	SD	α	M	SD	α
Self-talk	4.25	.40	.86	3.70	.52	.85
Emotional control	4.27	.35	.87	3.68	.53	.85
Automaticity	4.27	.35	.87	3.61	.49	.85
Goal setting	4.26	.33	.86	3.58	.56	.84
Imagery	4.21	.36	.87	3.55	.56	.85
Activation	4.21	.36	.86	3.57	.50	.86
Relaxation	4.10	.34	.86	3.46	.50	.85
Attentional control	4.26	.36	.87	3.68	.48	.85
Positive thinking	4.21	.33	.86			
Coaching behaviour	M	SD	α			

Goal setting	5.70	.52	.80
Mental preparation	5.80	.51	.79
Competition strategies	5.81	.44	.82
Positive personal rapport	5.84	.47	.81
Competitive anxiety	M	SD	α
Cognitive anxiety direction	14.7	4.27	.85
Somatic anxiety direction	17.0	2.80	.89
Cognitive anxiety intensity	29.0	2.13	.85
Somatic anxiety intensity	28.0	2.50	.89

1001 *Note: M = Mean; SD = Standard Deviation; α = Cronbach's alpha*

Main Analyses

Building on the framework established in Chapter 3, the current study revisits the four performance strategies activation, automaticity, attentional control, and emotional control as a basis for comparison with the findings of the present research.

Comparison between TOPS competition and practice (TOPS-CC and TOPS-CP)

The Multivariate analysis of variance (MANOVAs) revealed a significant multivariate effect between the top four subscales (automaticity, activation, emotional control and attentional control) during practice and competition. Pillai's trace = .71, $F(4, 340) = 209.5$, $p < .001$, $\eta^2_p = .71$, with an observed power of 100%. It revealed that coaches encourage more performance strategies in competition than practice with automaticity ($M = 4.30$, $SD = .33$), activation ($M = 4.21$, $SD = .36$), attentional control ($M = 4.30$, $SD = .36$) and emotional control ($M = 4.30$, $SD = .35$).

Gender

The analysis of MANOVA revealed that a significant difference was found between genders. The result revealed that the assumption of homogeneity of the variance-covariance matrices was violated, Box M = 43.85, $F(36, 3576) = .20$, $p < .05$). Therefore, Pillai's trace was reported because it is regarded robust to violations of the equality of covariance matrices assumptions. A significant multivariate effect was found, Pillai's Trace = .037, $F(4, 339) = 3.22$, $p < .05$, partial $\eta^2 = .037$ with an observed power of 83%. Tests of between-subject effects indicated that significant univariate effects were found for activation ($p =$

< .05), attentional control ($p = < .01$) and emotional control ($p = < .05$) indicated that male athletes perceive coaches to be more encouraging of PS usage during competition than female athletes.

Sport Type

To examine for differences according to sport type, each sport was first classified as being either individual (e.g., swimming) or a team sport (e.g., soccer). A second MANOVA was conducted with sport type serving as the independent variable. The result revealed that the assumption of homogeneity of the variance-covariance matrices was violated (Box M = 27.51, $F(36, 10020) = .87, p > .05$). Therefore, Pillai's trace was reported because it is considered robust regarding violations of the assumptions on the equality of covariance matrices. No significant multivariate effect was found, Pillai's Trace = .006, $F(4, 339) = .54, p < .05$, partial $\eta^2 = .01$) with an observed power of 18%.

Competitive level

To examine competitive level differences, four different levels were classified as club, county, regional and elite. The analysis of MANOVA between subject effects was conducted with the competitive level as an independent variable. The result revealed that the assumption of homogeneity of the variance-covariance matrices was violated (Box M = 193, $F(108, 1033) = .001, p < .001$). Therefore, Pillai's trace was reported because it is robust to violations of covariance matrix equality assumptions. No significant multivariate effect was found between the competitive level, Pillai's Trace = .031, $F(12, 1017) = .34, p > .05$, partial $\eta^2 = .01$) with an observed power of 54%.

Hierarchical Multiple Regression

The hierarchical multiple regression was run to predict athletes' perception of performance strategies that encourage by coach on athletes' outcomes (interpretation of the anxiety perceived as facilitative or debilitative). The HRMs were carried out in three steps, and the control variables were gender, sport type, competitive level, experience years, coaching years, and training hours, and cognitive and somatic anxiety intensity.

In Step 1, the demographic variables (such as gender, sport type, and experience years, competitive level, cognitive intensity) and cognitive anxiety intensity were entered into the model as control variables. This was done to account for the influence of these variables on the outcomes of somatic and cognitive anxiety direction. After this initial step, non-significant demographic variables (sport type, competitive level, cognitive intensity) were removed to improve model precision.

In Step 2, the coaching behaviour subscales (including mental preparation, goal setting, competition strategies, and personal rapport) were added to assess the extent to which these behaviours predicted somatic and cognitive anxiety direction. Finally, in Step 3, performance strategies related to both practice and competition (such as attentional control, automaticity, emotional control, and activation) were added to the model to examine their impact on athletes' anxiety perceptions. The results were reported in Tables 4.2 and 4.3 separately for each variable.

Table 4.2

Hierarchical Multiple Regression Analysis Predicting Cognitive Anxiety Direction

Model	Predictor	B	SE B	β	t	p
1	(Constant)	17.480	.800		21.851	< .001
	Gender	-1.268	.455	-.148	-2.785	.006*
	Experience (years)	-.123	.051	-.128	-2.415	.016*
2	(Constant)	4.318	3.381		1.277	.202
	Gender	-1.164	.448	-.136	-2.596	.010*
	Experience (years)	-.116	.050	-.121	-2.316	.021*
	CBS Mental Preparation	.361	.613	.043	.588	.557
	CBS Goal Setting	.591	.647	.072	.914	.362
	CBS Competition Strategies	1.342	.790	.140	1.698	.090
	CBS Personal Rapport	-.051	.626	-.006	-.081	.936
3	(Constant)	10.726	4.413		2.430	.016
	Gender	-.436	.377	-.051	-1.157	.248
	Experience (years)	-.076	.042	-.079	-1.835	.067
	CBS Mental Preparation	.228	.615	.027	.371	.711
	CBS Goal Setting	-.089	.576	-.011	-.155	.877
	CBS Competition Strategies	.426	.677	.044	.629	.530
	CBS Personal Rapport	.000	.584	.000	.000	1.000
	Emotional Control (P)	.397	.650	.049	.611	.542
	Automaticity (P)	1.932	.650	.221	2.972	.003*
	Activation (P)	.917	.524	.106	1.749	.081
	Attentional Control (P)	2.112	.511	.239	4.137	< .001*
	Emotional Control (C)	-1.491	.629	-.122	-2.371	.018*
	Automaticity (C)	-2.762	.628	-.213	-4.398	< .001*
	Activation (C)	1.186	.611	.100	1.942	.053
	Attentional Control (C)	-1.009	.630	-.085	-1.601	.110

Note. CBS = Coaching Behaviors Scale; Dependent variable: Cognitive Anxiety Direction; B = Unstandardized Coefficients; SE B = Standard Error of B; β = Standardized Coefficient; P =Practice; C=Competition

Cognitive Anxiety Direction

The result of the hierarchical regression analysis for TOPS-CC and TOPS-CP coaches encouragement use of performance strategies and demographic factors to predict cognitive anxiety direction was presented in Table 4.2. Multicollinearity analyses show that all VIF values were below the threshold of 10, with values ranging from 1.35 to 3.45. Tolerance values ranged from 0.30 and 0.82, which was well above the lower limit of a threshold value with no significant multicollinearity among predictor variables for this model.

In the first set (Step 1), the demographic variables (such as gender, sport type, and experience years, competitive level, and cognitive anxiety intensity) were entered into the model as control variables. This initial model accounted for 6.2% of the variance in cognitive anxiety direction, $R^2 = .062$, $F(2, 348) = 11.47$, $p = .006$. Specifically, gender significantly predicted cognitive anxiety direction ($\beta = -.148$, $t = -2.785$, $p = .006$). Similarly, experience was also a significant predictor ($\beta = -.128$, $t = -2.415$, $p = .016$), suggesting that athletes with more experience tended to perceive their cognitive anxiety in a more negative direction.

In the second step (Model 2), coaching behaviors (mental preparation, goal setting, competition strategies, and personal rapport) were added. The model remained significant, $R^2 = .087$, $F(6, 344) = 5.47$, $p < .001$, explaining an additional 2.5% of the variance for a total of 8.7%. No significant differences were found for coaching all behaviour scales to predict cognitive anxiety direction, mental preparation ($\beta = .043$, $t = .588$, $p = .58$), goal setting ($\beta = .072$, $t = .91$, $p = .36$), and competition strategies ($\beta = .140$, $t = 1.698$, $p = .090$), and personal

1097 rapport ($\beta = -.006$, $t = -.081$, $p = .093$). These results indicated that when
1098 controlling gender and years of experience, coaching behaviors may not play a
1099 crucial role in how athletes perceive their cognitive anxiety direction.

1100 In the third step (Model 3), practice and competition strategies
1101 (automaticity, attentional control, emotional control, and activation) were
1102 added. The model accounted for a significant amount of variance in cognitive
1103 anxiety direction, $R^2 = .298$, $F(14, 336) = 10.16$, $p < .001$, explaining an
1104 additional 21.1% of the variance, for a total of 29.8%. Automaticity in practice
1105 was a significant positive predictor of facilitative cognitive anxiety direction (β
1106 $= .221$, $t = 2.972$, $p = .003$), indicating that athletes who practiced automaticity
1107 were more likely to view their anxiety as facilitative. Similarly, attentional
1108 control practice significantly predicted facilitative cognitive anxiety ($\beta = .239$, t
1109 $= 4.137$, $p < .001$). In contrast, emotional control during competition was a
1110 significant negative predictor ($\beta = -.122$, $t = -2.371$, $p = .018$), as was
1111 automaticity during competition ($\beta = -.213$, $t = -4.398$, $p < .001$), suggesting
1112 that these strategies during competition were associated with more debilitating
1113 perceptions of cognitive anxiety

1114 **Table 4.3**1115 *Hierarchical Multiple Regression Analysis Predicting Somatic Anxiety Direction*

Model	Predictor	B	SE B	β	t	p
1	(Constant)	19.469	.924		21.080	< .001
	Gender	-1.914	.398	-.251	-4.815	< .001*
	Level	.684	.292	.124	2.346	.020*
	Coaching experience (years)	-.425	.120	-.187	-3.538	< .001*
2	(Constant)	20.423	2.961		6.897	< .001
	Gender	-1.829	.397	-.240	-4.602	< .001*
	Level	.730	.293	.133	2.492	.013*
	Coaching experience (years)	-.439	.122	-.193	-3.603	< .001*
	CBS Mental Preparation	-1.245	.542	-.166	-2.297	.022*
	CBS Goal Setting	1.059	.569	.146	1.861	.064
	CBS Competition Strategies	.391	.699	.046	.559	.577
	CBS Personal Rapport	-.386	.553	-.047	-.698	.486
3	(Constant)	26.578	4.202		6.325	< .001
	Gender	-1.294	.363	-.170	-3.569	< .001
	Level	.725	.266	.132	2.725	.007*
	Coaching experience (years)	-.320	.110	-.141	-2.894	.004*
	CBS Mental Preparation	-.935	.595	-.125	-1.572	.117
	CBS Goal Setting	.867	.551	.119	1.574	.117
	CBS Competition Strategies	.077	.651	.009	.119	.905
	CBS Personal Rapport	-.930	.561	-.114	-1.657	.098
	Emotional Control (P)	-1.259	.628	-.176	-2.004	.046*
	Automaticity (P)	.800	.621	.103	1.287	.199
	Activation (P)	.952	.505	.124	1.886	.060
	Attentional Control (P)	2.871	.490	.365	5.855	< .001*
	Emotional Control (C)	-1.438	.602	-.132	-2.390	.017*
	Automaticity (C)	-2.045	.601	-.177	-3.404	< .001*
	Activation (C)	-1.360	.587	-.129	-2.318	.021*
	Attentional Control (C)	1.293	.604	.122	2.141	.033*

1116 **Note.** CBS = Coaching Behaviors Scale; Dependent variable; Somatic Anxiety Direction; B = Unstandardized
 1117 Coefficients; SE B = Standard Error of B; β = Standardized Coefficients; P =Practice; C=Competition.

Somatic Anxiety Direction

The result of the hierarchical regression analysis for TOPS-CC and TOPS-CP coaches encouragement use of performance strategies and demographic factors to predict somatic anxiety direction was presented in Table 4.3.

Multicollinearity analyses show that all VIF values were below the threshold of 10, with values ranging from 1.55 to 3.80. Tolerance values ranged from 0.45 and 0.75, which was well above the lower limit of a threshold value with no significant multicollinearity among predictor variables for this model. In the first set (Step 1), the demographic variables (such as gender, sport type, and experience years, competitive level, and somatic anxiety intensity) were entered into the model as control variables. In the first set (Step 1), the demographic variables (such as gender, sport type, and experience years, competitive level, training hours, and somatic anxiety intensity) were entered into the model as control variables. The model explained a significant of the variance in somatic anxiety direction, $R^2 = .092$, $F(3, 340) = 11.484$, $p < .001$, accounting for 9.2% of the variance. Gender indicates a significantly negative predictors of somatic anxiety direction ($\beta = -.251$, $t = -4.815$, $p < .001$), which male athletes reported their somatic anxiety as significantly more debilitating compared to female athletes. Importantly, competition level was a positive of somatic anxiety direction ($\beta = .124$, $t = 2.346$, $p = .020$), reported that athletes competing at higher levels viewed their somatic anxiety as more facilitative. Similarly, coaching experience was marginally and negatively predictive of ($\beta = -.187$, $t = -3.538$, $p <$

.001), suggesting that more coaching experience was associated with greater debilitating perceptions of somatic anxiety among athletes.

In the second step (Model 2), coaching behaviors (CBS Mental Preparation, CBS Goal Setting, CBS Competition Strategies, and CBS Personal Rapport) were added. The model remained significant, $R^2 = .112$, $F(7, 336) = 4.923$, $p < .001$, explaining an additional 2.0% of the variance for a total of 11.2%. Importantly, mental preparation emerged as a significant negative predictor of somatic anxiety direction ($\beta = -.166$, $t = -2.297$, $p = .022$), indicating that athletes who engaged in more mental preparation perceived their somatic anxiety in a less facilitative, more debilitating manner. However other coach behaviour subscales of goal setting ($\beta = .146$, $t = -1.86$, $p = .06$), competition strategies ($\beta = .046$, $t = .56$, $p = .57$), and personal rapport ($\beta = -.047$, $t = -.698$, $p = .48$) were not significant predictors of somatic anxiety direction.

In the third step (Model 3) PS subscales of practice and competition were added to analyses the positive predictors of somatic anxiety direction, $R^2 = .307$, $F(14, 328) = 11.575$, $p < .001$, accounting for 30.7% of the variance. Mental preparation was no longer a significant predictor when practice and competition strategies were included ($\beta = -.125$, $t = -1.572$, $p = .117$). Emotional control during practice shows as a significant negative predictor ($\beta = -.176$, $t = -2.004$, $p = .046$). Conversely, attentional control during practice was a strong positive predictor ($\beta = .365$, $t = 5.855$, $p < .001$), suggesting that athletes who practiced attentional control perceived their somatic anxiety as more facilitative. Several competition specific strategies also indicated as significant predictors. Emotional

control during competition ($\beta = -.132$, $t = -2.390$, $p = .017$), automaticity during competition ($\beta = -.177$, $t = -3.404$, $p < .001$), and activation during competition ($\beta = -.129$, $t = -2.318$, $p = .021$) were all significant negative predictors, indicating that reliance on these strategies during competition was associated with a more debilitating perception of somatic anxiety.

In contrast, attentional control in competition was a significant positive predictor ($\beta = .122$, $t = 2.141$, $p = .033$), indicating that attentional control act as facilitative role in competition. Since mental preparation was not significant in Model 3 compared to Model 2, mediation likely happen and should be evaluated. These mediations need to be addressed to see any relationship between mental preparation and somatic anxiety direction would be mediated by any other variables (Baron & Kenny, 1986; Kenny, 2008).-Based on the mediation analysis, although mental preparation met the first criteria, it did not meet the subsequent criteria. The addition of potential mediators (e.g., attentional control) did not explain the relationship, and the direct effect of mental preparation on somatic anxiety remained non-significant in the final model. Therefore, the criteria for mediation were not met, indicating that no mediation effect was present.

Discussion

Overall, this study was undertaken to examine the extent to which athletes' characteristics, coaching behaviours, performance strategies in practice and competition, and cognitive and somatic intensity can predict athletes' perceptions of cognitive and somatic anxiety direction. These findings also offer different perception of causing anxiety is facilitative (improving performance) or debilitating (reducing performance). However, it is important to note that anxiety in this study was not measured at a state level, meaning that fluctuations in anxiety experienced in specific situations or moments were not measured. Results show that the direction of cognitive and somatic anxiety is strongly influenced by athletes' characteristics, especially gender, competitive level, and sport (Woodman & Hardy, 2001). In line with the previous literature, male athletes were more likely to interpret their cognitive and somatic anxiety as debilitating than female athletes, reinforcing the idea that male athletes may feel more pressure or respond more negatively to the competitive stress (Jones & Hanton, 2001). Conversely, athletes in highly competitive level and experience athletes perceived both of anxiety to be more debilitating indicating that although experienced athletes are more skilful, they also experience high pressures, which can exacerbate negative perceptions of anxiety.

In contrast, the influence of coaching behaviours on anxiety direction proved to be more nuanced than initially hypothesized. For cognitive anxiety, coaching behaviours such as mental preparation and competition strategies did not emerge as significant predictors, suggesting that the role of the coach in shaping cognitive anxiety may be

limited when accounted for athletes' characteristics. This finding challenges the revised Coaching Efficacy Model (Boardley, 2018), which suggests that effective coaching behaviours should enhance athletes' performance strategies and, consequently, improve their anxiety management. However, for somatic anxiety, mental preparation emerged as a significant predictor, with athletes who engaged in more mental preparation perceiving their somatic anxiety as more debilitating. Interestingly, this finding differs in what may be expected as previous research that suggests structured mental preparation should enhance more facilitative of anxiety and not debilitating (Hanton et al., 2005; Weinberg & Gould, 2019). In contrast, athletes who become overly engaged in their mental preparation, might become overreact towards their physical symptoms and perceive them to be threatening to performance (Jones et al., 1993).

The key findings of the present study were the use of performance strategies in practice, was found to be one of the main predictors of more facilitative perceptions for both of cognitive and somatic anxiety. When controlling for athletes' characteristics and competitive anxiety intensity, athletes who use automaticity and attentional control in practice were significantly interpret their anxiety as facilitative, which supports use of these strategies to regulate anxiety during competition. These findings are consistent with and therefore psychological strategies in practice may be hugely important in mediating the negative effects of anxiety. Athletes who utilise these PS skills to practice can help them to cope better in stressful situations. (Martens et al., 1990; Neil et al., 2007).

This result shows that employment of specific PS should be included in normal training regimes in order to develop resilience and greater ability to deal with stress. The PS such as emotional control and automaticity in competition correlate to less facilitative

perceptions of both cognitive and somatic anxiety. This establishes the idea that some strategies that work in practice do not necessarily effective during competition, where the individuals have more to plan and react, the athletes may focus on minimizing anxiety instead of facilitating it. It highlights the importance for athletes to find the right balance between preparation and during event especially under high pressure situation

Although both practice and competition strategies play a major role in influencing anxiety direction, the mediation analyses did not support the hypothesis that practice strategies would mediate the relationship between coaching behaviours and anxiety direction. The difference between mental preparation as a predictor for somatic anxiety direction only appeared to be significant in Model 2; however, when both practice and competition strategies were added into the Model 3, mental preparation became a non-significant predictor. Mediation analysis by Baron & Kenny, (1986) showed that the relationship between coaching behaviours and athletes' perceptions of anxiety was not completely eliminated upon adding practice-based strategies. This may imply that coaching behaviours can benefit the anxiety of athletes regardless of the PS used during training (Cox et al., 2006; Feltz et al.,1999). These findings emphasise the relationship involved in the coach–athlete relationship and suggest a greater role for psychological factors in the anxiety management by athletes and the role of coach for to properly guide their athletes to interpret the anxiety especially in competition.

Findings in Relation to the Coaching Efficacy Model

The findings of this study reveal the novel relationship between coaching behaviour, athletes' characteristics and athletes' outcomes that may be associated with coaching effectiveness guided by the revised Coaching Efficacy Model by Boardley (2018). This empirical study adopted the revised CE model to examine coaches encourages of PS and its effect on athletes' perceptions of somatic and cognitive anxiety direction. As stated by Boardley (2018) psychological resilience is a key characteristic of effective coaches, and therefore, coaches should help their athletes to better deal with anxiety as facilitative rather than debilitating.

However, the findings from the current study show that those athletes who use more PS also interpret their somatic anxiety as more debilitating. This finding indicates that mental preparedness is a significant element of coaching effectiveness, but it may turn to negative effects if athletes mistakenly interpret their anxiety symptoms. Research by Jones et al. (1993) supported that relaxation techniques may be helpful in mental preparation that helps athletes' control and cope better in stressful situations. Thus, Boardley (2018) agreed that mental preparation is key for coaching behaviour, however, present study highlights the need for proper interpretation and planning due to overreact towards somatic symptoms. In conclusion, this study provides several insights into how Boardley's (2018) revised Coaching Efficacy Model applies to anxiety management in athletes. The study supports the model's emphasis performance strategies of attentional control and automaticity were key predictors of facilitative anxiety perceptions.

Practical Implications

The practical implication for this finding indicated that coaches need to know the best ways to manage the anxiety among their athletes when designing a training program and in competition. A balance approach of anxiety management should be employed in relation to the anxiety (positive or negative type). Mental preparation is an important aspect of psychological readiness; however, emphasizing it too much can cause athletes to become overreact to their physical symptoms, and interpret the anxiety symptoms negatively, and link it to the performance. Mental preparation should be combined with relaxation techniques and cognitive reframing strategies that help athletes view physiological response such as increased heart rate as normal and possibly even helpful for performance during these competitive situations. Sport psychologists can help this process through cognitive restructuring techniques that help athletes foster a positive mindset toward their anxiety.

Next, the findings indicate that developing specific performance strategies in competition may moderate anxiety level performance. Coaches are suggested to include mindfulness-based practices and flexibility training in their programs, which would allow adaptive responses by an athlete based on the different situations or environments of practice. This type of training will provide the athletes with an ability to change their focus and strategy on demand which in turn will give stronger mental resilience even under stress to reduce their anxiety level. These findings also suggest that coaches must train different performance strategies for their athletes to effectively use them in competitive practice. What athletes learn and practice in training may utilise over to competition. Hence, performance strategies can be practiced daily and should be made

more related to the goals or outcomes of the athlete or team during the competition by the coaches. In competition and training, PS can help coaches and athletes to overcome the anxiety. The more performance strategies that the athletes use in competition, the greater the extent to which the adversity and stressful situations are managed and controlled. Coaches with the help of sport psychologists need to identify the PS strategies that might support athletes in managing and controlling situations, particularly when they occur within a competitive context. The findings of this investigation may also benefit athletes and coaches in customizing the PS use during training and competition according to the psychological needs of the athletes. Creating a strong bond and trust between coaches and athletes may encourage athlete to implement more performance strategies to boost their performance.

Limitations and Future Research Directions

Although this study extends the previous literature on athletes' perception of coaches' encouragement of PS use in practice and competition, some limitations should also be considered. First, anxiety perceptions may also differ as a result of demographic or coaching factors and a cross-sectional design did not allow for ascribing causation between these variables. Longitudinal designs would help to further determine how athletes interpret of anxiety change across training stages which might then also guide the role of coaching in managing anxiety in competition setting. Future research should, therefore, consider the effectiveness of different interventions in anxiety responses and performance improvement. Furthermore, our analyses are based on self-report data, which may be subject to certain biases, e.g. social desirability or recall biases. Future studies may better appreciate how coaching truly impacts athletes' anxiety if they include

objective measures of anxiety, such as physiological indicators. In addition, the individual sport in this study may not generalise to team sports where the complexities of team performance demands and individual demands create different of interpretations of anxiety. Thus, studying wider demographic factors, including cultural background, age and personality would give a more intricate understanding of how different athletes undergo and cope with anxiety.

Lastly, although this study was looking at general coaching behaviours, it warrants further exploration on the dynamic of this mutual relationship that crucial in how well an athlete can manage anxiety level. Future research should investigate how the quality of the coach-athlete relationship, including elements such as trust, communication game strategy efficacy, and motivation efficacy moderates the effects of coaching efficacy on anxiety perceptions.

Conclusions

To our knowledge the current study makes a novel contribution by first examining coaches' encouragement of performance strategies in practice and competition by comparing the encouraged PS in practice vs competition. This study also supports the revised coaching efficacy model by evaluating some elements in coaching and the psychological factors of different elements of coaching behaviours, sources of coaching efficacy, athletes' characteristics and athletes' outcomes. This psychological factor also contributes to the new antecedents in each of the coaching models such as competitive anxiety for athletes' outcomes. Future research is needed to extend this study to explore more psychological factors from coaches' perspectives and their effect on coach efficacy and effectiveness.

Chapter 5

Coaches' Perceptions of Performance Strategies used in Practice and Competition

Coaches' perception of encouragement of performance strategies uses in practice and competition

Role of Coaches in encouraging Performance Strategies in Sport

The coach is an important person in the daily life of athletes helping to build and shape their psychological development. Although coaches work somewhat differently from their athletes, they still need to plan their training and competitions in advance, execute training plans and be flexible to adapt to different challenging situations. To cope with adversity and challenging situations, coaches should encourage their athletes to use performance strategies to improve athlete performance in training and competition. Previous studies have shown that coaches who use performance strategies for their athletes can increase the athletes' motivation and self-confidence (Olusuga et al., 2014; Thelwell et al., 2008). Therefore, coaches should teach their athletes how to effectively use PS to help them to reap the benefits. Using PS could also help athletes manage anxiety symptoms by controlling their emotions and using positive self-talk to gain confidence.

Previous studies have shown that different performance strategies could benefit athletes' performance and development. For example, Ribeiro et al. (2022) found in a study of beach volleyball athletes that mental imagery benefits athletes during training and competition and is related to how confident coaches are in their ability to teach the skills. Another study by Katsikas et al. (2009) found that men score higher in emotional control and relaxation in competition than females among track and field athletes. However, Harwood et al. (2004) found that elite athletes use self-talk and emotional control more effectively. Williams et al., 2021 study the imagery ability associated with

positive anxiety found that mastery imagery and confidence improved stress task performance and help people experience more facilitative anxiety and perform better during demanding situations. Higher level competitive athletes can manage their emotions to achieve an optimal performance. Performance strategies (e.g., goal setting, imagery, relaxation, self-talk, and emotional control) need to be encouraged across the different contexts, so that athletes can practice and fully utilise in different level of stress and practice environment. Previous research reported that athletes who regularly use these PS can increase self-confidence and cope better in stressful situations and focus to achieve their goals (Olusuga et al., 2014; Thelwell et al. 2008; Yalçın et al., 2022).

Athletes are better able to manage challenging circumstances and challenging training environments if their coaches encourage athletes to employ performance strategies which enhance their performance overall. Studies indicate that when coaches use performance strategies, it can have a beneficial impact on athletes' motivation and confidence in themselves (Olusuga et al., 2014; Thelwell et al., 2008). The beneficial effect of PS is significant in competitive settings, which include increased pressure, when athletes must sustain attention and calm. Coaches that actively encourage these strategies prepare their players to cope with stress, keep focused, and perform at their best under pressure. For example, employing positive self-talk may help athletes improve their mental resilience as well as controlling anxiety, while imagery techniques allow them to mentally rehearse their goals and expected outcomes (Corrado et al., 2020; Han et al., 2011). Similarly, Williams et al., (2021) found the imagery ability related to positive anxiety also presented that mastery imagery and confidence enhanced performance on the stress and help individuals to have more facilitative anxiety and perform better in the

stressful task. However, for coaches to teach and employ PS for their athletes, the coaches are required to obtain coaching qualification, especially in sport specific and sport science related. Thus, thru this qualification, athletes believe their coach can guide them with the correct approach over time.

Coaching Qualification

Coaching qualifications are foundational to a coach's ability to foster both the physical and psychological development of athletes. Certified coaches undergo comprehensive training that equips them with essential sport-specific techniques and psychological skills, such as performance strategy implementation, emotional regulation, and resilience-building. As a coach, to fostering athletes' development thru holistic approach, the coach must learn how to support their athletes physically and psychologically. This athlete-cantered approach is emerging as an important goal in modern coaching especially in the mental performance for athletes (Gilbert & Trudel, 2004). A good coach able to teach and guide their athlete throughout the career not only for performance but also in well-being. Previous study shows that coach-athlete relationship, as an aspect of teamwork, is important to build psychological and social well-being in athletes (Behan et al. 2020). Coach that has high level of self-efficacy and qualification could enhance athletes trust and motivation (Kavussanu et al., 2008). In addition, the research conducted by Kassim and Boardley (2018) focuses that developing cohere between coach and athlete leads to improvement in athletes' satisfaction and increase athletes' motivation as well as performance.

The categories and level of coaching qualifications are very based on specific sport and region. It usually consisting of tier-based structure and addresses core subjects

such as sports physiology, sports psychology, nutrition, as well as sports ethics. Professional entities like International Coaching Federation (ICF) provide stage-wise certifications which help coaches deepen their expertise in a progressive manner. These credentials are not just a one-time thing, but most coaching programs require continuing education, keeping the coaches up to date on new developments and best practices. Such lifelong learning is essential for coaches to develop adaptability needed for a dynamic profession, so they can incorporate data-driven techniques that improve athlete performance in the best possible ways. Previous suggests that both coaching effectiveness and coaching qualifications are positively related (Boardley, 2018). Sport psychologists can support athletes through the challenges situations, but well-trained coaches are also generally better able to address the vast majority of issues (including performance anxiety, athletes characteristics, performance outcome) and are associated with greater levels of satisfaction, motivation and trust (Cushion et al., 2003) among athletes and increase the effectiveness and quality of the coach-athlete interactions as well (Tucker & Collins, 2012). In addition, highest levels of certified coaches, tend to have far more expertise and comfort with mental skills training and performance strategies. Well-prepared coaches are also more assured in executing mental skills training, and mental imagery, self-talk, and relaxation strategies that enhance athletes' performance under pressure (Ribeiro et al., 2022) and this increased competency may lead to positive changes to athletes' outcomes.

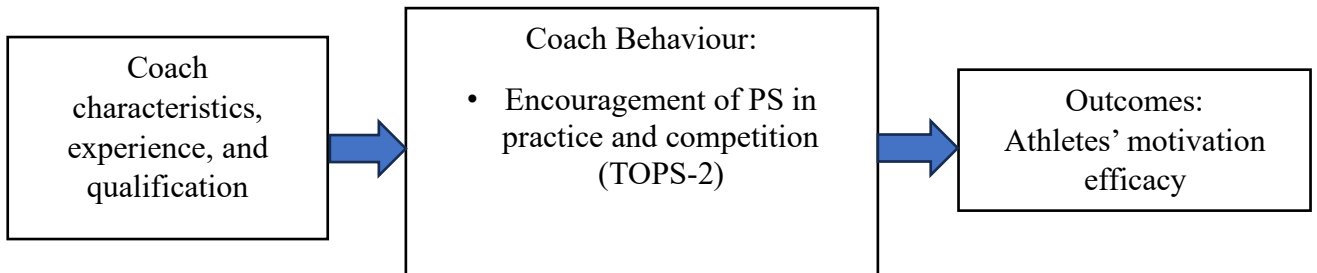
How the revised coaching efficacy model associated with motivation efficacy.

Coaching efficacy and motivation are interrelated especially in sports psychology, both behaviours can help coaches to feel more confidence to coach their athletes and produce good result. coaching efficacy defines as a coach's ability to fulfil the coaching effectiveness, and effectively motivate athletes, to prepare their physical and mental preparation. Despite that coaches that have high level of coaching efficacy could help to develop athletes' character in performance and well-being. One of the essential elements in this model is motivation efficacy, where it refers to a coach's competence self-believe on motivating and fostering athletes' commitment that will influence how an athlete responds to training strategies (Boardley, 2018). According to the revised CE model, good coaching isn't so much about what specific strategies the coaches employ, but trust and mutual understanding between coaches and athletes that motivated them to achieve the performance outcomes.

The revised model highlights the diverse and nuanced nature of coaching efficacy and effectiveness where coaches need to be flexible, supportive, and have formal education, and coaching certificates boost athletes' motivation, satisfaction and confidence (Boardley, 2018) This broadened perspective of coaching to support athletes to achieve their performance outcomes and goals including personal development.

Figure 5.1:

The study variables are mapped to the revised coaching efficacy model.



Although previous studies have examined the effectiveness of performance strategies, relatively few studies have explored the importance of how coach's encouragement can influence the use of PS in practice and competition from coach perspectives. This empirical study highlights three research questions: (1) coaches would encourage performance strategies in practice and competition, but which strategies would be more vs. less encouraged? (2) coaches would encourage more PS in different types of sport, competitive level and gender but to which categories would be more encouraged, (3) which PS were significantly positive predictors of athletes' motivation efficacy. Thus, underpinned by this revised model, three hypotheses were developed, (H1) coaches encourage more PS such as goal setting, and self-talk in competition compared to practice (H2) coaches encourage male, elite and individual athletes more PS in competition compared to practice, (H3) the encouragement of relaxation, self-talk, and emotional control were the positive predictors of athletes' motivation efficacy.

Method

Research Design

A cross-sectional design was again employed.

Participants

To be included in the study, coaches were required to actively coach their athletes in both competition and practice and have had at least one year of coaching experience. They could represent any competitive level or sport type and participate regardless of where they were in their season phase. A total of 168 coaches participated whose ages ranged from 24 to 65 years ($M = 42.75$, $SD = 8.00$). 76% of the sample were male ($n = 128$). They represented 34 sports recruited from clubs and university teams across England. The frequency and percentage of coaches from highest to lowest were as follows: athletics ($n = 23$, 14%), rugby ($n = 15$, 9%), swimming ($n = 15$, 9%), field hockey ($n = 13$, 8%), soccer ($n = 10$, 6%), fencing ($n = 7$, 4%), netball ($n = 7$, 4%), basketball ($n = 6$, 4%), gymnastics ($n = 6$, 4%), rowing ($n = 6$, 4%), track cycling ($n = 5$, 3%), volleyball ($n = 5$, 3%), BMX racing ($n = 4$, 2%), table tennis ($n = 4$, 2%), tennis ($n = 4$, 2%), squash ($n = 4$, 2%), American football ($n = 3$, 2%), baseball/softball ($n = 3$, 2%), boxing ($n = 3$, 2%), golf ($n = 3$, 2%), triathlon ($n = 3$, 2%), badminton ($n = 3$, 2%), archery ($n = 2$, 1%), canoeing/kayaking ($n = 2$, 1%), cricket ($n = 2$, 1%), road cycling ($n = 2$, 1%), bowling ($n = 1$, 0.6%), diving ($n = 1$, 0.6%), handball ($n = 1$, 0.6%), judo ($n = 1$, 0.6%), karate ($n = 1$, 0.6%), lacrosse ($n = 1$, 0.6%), frisbee ($n = 1$, 0.6%) and water polo ($n = 1$, 0.6%). Coaches also indicated their main competitive levels as follows: club ($n = 100$, 59%), county ($n = 17$, 10%), regional ($n = 15$, 9%) and elite ($n = 36$, 32%). The elite level consisted of coaches who coach national and international level athletes. The

coaches indicated their main sport type as individual ($n = 85$, 51%) and team sport ($n = 83$, 49%). On average, the coaches had accumulated nearly 12 years of coaching experience (range = 3 to 25 years; $M = 12.05$, $SD = 5.24$) and were currently coaching their team/athletes for five years (range = 1 to 10 years; $M = 5.09$, $SD = 2.07$).

Measures

Demographic Questionnaire

The coaches completed demographic information to provide their age, gender, sports background, coaching experience, highest coaching qualification and years working with their athletes.

Coaches' encouragement of performance strategies used in practice and competition.

The coaches were asked to complete the adapted version of the TOPS-CC and TOPS-CP used in Chapter 4 (a) for both practice and competition. For both scales, items to reflect positive thinking were again used instead of negative thinking. That is, the wording of certain items was changed from negative to positive phrasing. For example, for the practice subscale "Frustrated and emotionally upset" was rephrased as "Not get frustrated and emotionally upset" whereas for the competition subscale, "Self-talk is negative" was changed to "Use positive self-talk". A stem was again included and phrased as "In practice or in competition I encourage my athletes to...". Participants rated how frequently the item pertained to them using a 5-point Likert scale ranging from 1 (*never*) to 5 (*always*). The internal consistencies of the subscales were previously reported to range from 0.88 to 0.90 for the TOPS-CC (Chapter 2) and from 0.72 to 0.85

TOPS-CP (Chapter 3) respectively. These values are comparable to the internal consistencies reported for the TOPS, ranging from 0.66 to 0.81 (Thomas et al., 1999).

Coaching efficacy

Coaches completed the motivation subscale (seven items) of the CES (Feltz et al., 1999). First, coaches were informed that coaching confidence refers to the extent to which coaches believe that they have the capacity to affect the learning and performance of their athletes. Then they were asked to think about how confident they were as a coach and to rate their confidence for each item on a 10-point Likert scale with anchors of 0 (*not at all confident*) and 9 (*extremely confident*). Each item begins with the stem “Estimate your athletes’ confidence in your ability to...” and examples of items completing the stem are “help my athletes maintain confidence in themselves”, “mentally prepare my athletes for game strategies”, “build the self-esteem of my athletes” and “build team confidence”. The Cronbach alpha coefficients for CES for the motivation subscale have been reported at .91 in past research (Feltz et al., 1999).

Procedures

Study 5 received the same ethical approval (ERN 19140) as study 4. Similar recruitment strategies were again used in Study 3b and involved recruiting coaches as study participants via social media platforms (Twitter, Instagram, Facebook) and through University sports Clubs and other universities that participated in the British Universities and Colleges Sport (BUCS) Competition. The data was collected between May 2020 and February 2021. Because of the COVID-19 pandemic, the multi-section survey was changed from the originally planned face-to-face format to online data collection using JISC online surveys. Participants were sent a link

(<https://bham.onlinesurveys.ac.uk/coaches-encouragement-of-athletes-use-of-mental-skills-st-5>) to the survey to complete in their own time around their training and competition. The first page of the survey contained an information letter, which described the purpose of the study, potential benefits and risks, withdrawal guidelines and the confidentiality of the information gained from the research. The participants were told that all information would be kept confidential, and they could withdraw from the study at any time without any consequences. They were then asked to provide their consent on the first page of the online survey to participate in the study. Participants could download a copy of the completed survey with their own unique ID. Although no participants withdrew from the study, the unique ID would have enabled the researchers to match the survey to the participant and remove it from the data prior to analysis. As a token of appreciation, the first 200 coaches that participated in the survey received a £5 Amazon voucher and were put forward into a £50 prize draw.

From September 2020, participants also had the option to complete the questionnaire face to face after researchers were given permission to return to the field. 25 of the participants completed the survey face-to-face following the British Universities and Colleges Sport (BUCS) game venues in Birmingham, Loughborough, Nottingham and Warwick between October and November 2021 with the remainder completing it online. For the face-to-face data collection, participants were gathered around according to the sport and the main researchers gave a briefing about the objective of the study and explained about the consent form and withdrawal options and were also given a few details about each of the sections of the questionnaires. Completion of the questionnaire took approximately 15-20 minutes.

Data Analysis

Preliminary Analyses

First, a data screening procedure was conducted to check for missing data and outliers according to Tabachnick and Fidell (2019). Descriptive statistics including means and standard deviation and the dependent variables' internal reliabilities (i.e., subscales of the TOPS-CC, TOPS-CP and motivation efficacy) were calculated using Statistical Package for the Social Sciences (SPSS) (version 27). Multivariate outliers were identified using the Mahalanobis Distance and the Little MCAR Test was employed to investigate whether data were missing at random.

Next, the most and least encouraged performance strategies in practice and competition were examined using repeated MANOVA measures for the main analyses. The TOPS-CC and TOPS-CP subscales were used as independent variables with repeated measures following the procedure of Nordin and Cumming (2008) to avoid inflating the Type 1 error when comparing multiple means simultaneously. Mauchly's test for sphericity checked subject variance equality. If this test was important, the Greenhouse-Geisser correction (Greenhouse & Geisser, 1959) reduced the degree of freedom for the tests of the main effects. Next, separate MANOVA between-subject effects were then conducted to examine the differences in performance strategies between gender, sport types and competitive levels. The Pillai trace was used for these analyses because it tolerates covariance matrix homogeneity violations best (Olson, 1976). Post-hoc pairwise comparisons were used for competitive level analysis. Next, the Benjamini-Hochberg (BH) approach was used to control the false discovery rate

in multiple hypothesis testing. This method works best in study fields with huge datasets, because a single test that permits false positives might accidentally provide a high number of significant p-values (Benjamini & Hochberg, 1995; Glickman et al., 2014). In this study, all results that were significant before applying the Benjamini-Hochberg (BH) correction also remained so afterwards value (0.005). While dealing with multiple comparisons often increases the chances of false positives, this indicates that findings are robust in nature and strengthens confidence in their validity. Partial eta squared value reported to indicate effect size (0.01 small, 0.06 medium, 0.14 large: Cohen, 1992).

Finally, hierarchical multiple regressions (HMRs) were chosen to predict athletes' motivation efficacy in coaching which was the primary objective of the present study because it allowed us to enter the variables sequentially in different sets of values defined by our hypothesis to be better controlled statically in case of possible confounding variables (Hoyt et al., 2008). Two models were run to determine either motivation efficacy was a significant predictor of performance strategies. This model was defined as a β -coefficient with a 95% confidence interval, and the corresponding additional ratios were obtained. Collinearity diagnostics were used to diagnose any multicollinearity complications.

Results

Preliminary analysis

The data were analysed for any missing values first. Overall, 0.1% of the data were missing completely at random. (MCAR) (Tabachnick & Fidell, 2019). The expectation maximisation (EM) algorithm imputed remaining missing data (Enders,

2006). Means, standard deviations, Cronbach alpha coefficients) of the TOPS-CC and TOPS-CP subscales and coaching efficacy of motivation) are reported in Table 4.10. In general, coaches encourage more automaticity ($M = 4.21$, $SD = .34$), self-talk ($M = 4.20$, $SD = .40$), goal setting ($M = 4.20$, $SD = .40$) and attentional control ($M = 4.20$, $SD = .40$), whereas relaxation ($M = 4.00$, $SD = .41$) and activation ($M = 4.00$, $SD = .40$) were the least encouraged in competition. Furthermore, relative to performance strategies in practice, coaches encouraged self-talk ($M = 3.90$, $SD = .50$), emotional control ($M = 3.90$, $SD = .54$), attentional control ($M = 3.90$, $SD = .47$) and activation ($M = 3.90$, $SD = .51$) the most, and relaxation ($M = 3.70$, $SD = .50$) and imagery ($M = 3.70$, $SD = .51$) were encouraged the least. However, coaches reported ($M = 7.70$, $SD = .40$) their athletes' confidence during coaching. Alpha coefficients were acceptable ($\alpha > .70$) for all study variables.

Table 5.1

Means, standard deviations and alpha coefficients for Test of Performance Strategies TOPS-CC, TOPS-CP and motivation efficacy.

Subscale	Competition			Practice		
	M	SD	α	M	SD	α
Self-talk	4.20	.40	.89	3.90	.50	.88
Emotional control	4.16	.41	.90	3.90	.54	.90
Automaticity	4.21	.34	.91	3.80	.44	.91
Goal setting	4.20	.40	.91	3.80	.42	.89
Imagery	4.10	.40	.85	3.70	.51	.85
Activation	4.00	.40	.92	3.90	.51	.89
Relaxation	4.00	.41	.91	3.70	.50	.90
Attentional control	4.20	.40	.87	3.90	.47	.91

Positive thinking	4.10	.41	.91
Motivation efficacy	7.7	.40	.93

Note: M = Mean; SD = Standard Deviation; α = Cronbach's alpha

1 **Main Analyses**

2 Based on Chapter 4, the present study re-examines the same four performance
3 strategies (activation, automaticity, attentional control and emotional control) as a
4 comparison to the present study.

5 **Comparison between TOPS competition and practice**

6 An analysis of repeated measure MANOVAs revealed that significant
7 multivariate effect between the top four subscales (automaticity, activation, emotional
8 control and attentional control) during practice and competition. Pillai's trace = .61, $F(4, 164) = 63.80$, $p < .001$, $\eta^2_p = .61$, with an observed power of 100%. It revealed that
9 coaches encourage more performance strategies in competition than practice with
10 automaticity ($M = 4.21$, $SD = .34$), activation ($M = 4.0$, $SD = .38$), attentional control (M
11 $= 4.17$, $SD = .40$) and emotional control ($M = 4.16$, $SD = .41$). Overall, the mean
12 difference for all the TOPS-CP subscales were ($M = 4.14$, $SD = .38$).
13

14 **Gender**

15 The analysis revealed that the assumption of homogeneity of the variance-
16 covariance matrices was violated, (Box M = 65.00, $F(36, 1843) = .01$, $p > .05$).
17 Therefore, Pillai's trace was reported because it is considered robust to violations
18 of the assumptions on the equality of covariance matrices. No significant
19 multivariate effect was found, Pillai's trace = .033, $F(4, 163) = .24$, $p > .05$,
20 partial $\eta^2 = .033$) with an observed power of 42%.

21 **Sport type**

22 The analysis revealed that the assumption of homogeneity of the variance-
23 covariance matrices was violated, (Box M = 53.71, $F(36, 9261) = .050$, $p > .05$).

Therefore, Pillai's trace was reported because it is considered robust to violations of the assumptions on the equality of covariance matrices. No significant multivariate effect was found, Pillai's trace = .029, $F(4, 163) = .30, p > .05$, partial $\eta^2 = .029$) with an observed power of 45%.

Competitive Level

The result revealed that the assumption of homogeneity of the variance-covariance matrices was violated (Box M = 99.6, $F(72, 4230) = .16, p > .05$). A significant multivariate effect was found between the competitive level, Pillai's trace = .097, $F(4, 162) = .04, p < .05$, partial $\eta^2 = .010$) with an observed power of 84%. A tukey post hoc test revealed that coaches encourage more performance strategies in elite athletes than club, county and regional athletes. Using a Benjamini-Hochberg correction to control Type 1 errors when using multiple comparisons ($p < .03$) a significant univariate effect was found for TOPS-CP of automaticity (practice) ($M = 4.18, SD = .39$), activation (practice) ($M = 4.04, SD = .48$), attentional control (practice) ($M = 4.07, SD = .46$) and emotional control (practice) ($M = 4.14, SD = .41$). Overall, the mean difference for all the TOPS-CP subscales were ($M = 4.10, SD = .44$). However, for TOPS-CC automaticity (competition) ($M = 4.33, SD = .30$), activation (competition) ($M = 4.33, SD = .29$), attentional control (competition) ($M = 4.30, SD = .43$) and emotional control (competition) ($M = 4.36, SD = .35$). Overall, the mean difference for all the TOPS-CC subscales were ($M = 4.33, SD = .34$).

Pairwise comparisons

The analysis of marginal means for the TOPS practice subscale revealed the following pairwise comparisons. Self-talk-C was not significantly different from emotional control-P ($p = .61$), imagery-P ($p = .60$), and activation-C ($p = .46$). Emotional control was not significantly different from self-talk-P ($p = .65$), and relaxation-C ($p = .70$). Attentional control was not significantly different from goal setting-C ($p = .34$), and goal setting-P ($p = .47$). Goal setting was not significantly different from emotional control ($p = .54$), and relaxation ($p = .68$). Imagery-C was not significantly different from positive thinking ($p = .53$), and attentional control-P ($p = .66$),

Hierarchical Multiple Regression

The hierarchical multiple regression was run to predict the athletes' motivation of efficacy on performance strategies used in practice and competition. The HRMs were carried out in three steps, and the independent variables were gender, sport type, competitive level, experience years, coaching years and coaching qualification. In Step 1, the demographic factors were entered as control variables, then non-significant variables were then removed. In Step 2 coach qualification and coaching experience as coach's characteristics were entered. Next, PS subscale in practice and competition subscales were then entered as in Step 3 to examine the most significant predictors of athletes' motivation efficacy. The results were reported in Table 5.2 below.

Predictor for Motivation Efficacy

Table 5.2 shows the result of coach's characteristics, PS in practice and competition, and coaching qualification predict motivation efficacy. In Step 1, with the addition of demographic factors (coaching years, gender, level, sport type, coach qualification and coaching experience), the ΔR^2 value of .08 revealed that explained an 8% variance with $F(6, 161) = 2.35, p < .05$. The overall model was significant. In Step 2, with the addition of motivation efficacy, the ΔR accounted for 1% of the total variance $F(4, 157) = .38, p > .05$. The findings revealed that only coach qualification ($\beta = .53, p < .00$), emotional control practice ($\beta = -.29, p < .01$), activation in practice ($\beta = .21, p < .02$), reported as significant predictors of athletes motivation efficacy.

Table 5.2

Hierarchical Multiple Regression Analysis Predicting Motivation Efficacy

Model	Predictor	B	SE B	β	t	p
1	Constant	7.564	0.235	-	32.223	< .001
	Age	-0.002	0.004	-0.042	-0.503	.62
	Gender	0.068	0.074	0.077	0.920	.36
	Sport Type	0.067	0.060	0.089	1.129	.26
2	Constant	7.393	0.239	-	30.889	< .001
	Age	-0.003	0.004	-0.066	-0.809	.42
	Gender	0.070	0.072	0.079	0.961	.34
	Sport Type	0.064	0.059	0.085	1.088	.28
	Coach Qualification	0.081	0.030	0.204	2.651	.009*
	Coaching experience	-0.014	0.008	-0.201	-1.754	.081
3	Constant	8.113	0.549	-	14.783	< .001
	Age	-0.001	0.004	-0.016	-0.192	.848
	Gender	0.090	0.074	0.101	1.217	.225
	Sport Type	0.049	0.060	0.065	0.822	.413
	Coach Qualification	0.089	0.031	0.223	2.818	.005*

Coaching_experience	-	0.009	-0.178	-1.464	.15
	0.013				
Coaching_yrs_with_ath_team	-	0.018	-0.010	-0.108	.91
	0.002				
Emotional Control (P)	-	0.080	-0.290	-2.550	.012*
	0.204				
Automaticity (P)	0.062	0.093	0.073	0.674	.501
Activation (P)	0.217	0.092	0.292	2.351	.020*
Attentional Control (P)	-	0.087	-0.040	-0.375	.708
	0.033				
Emotional Control (C)	0.040	0.098	0.043	0.406	.686
Automaticity (C)	-	0.098	-0.123	-1.392	.166
	0.137				
Activation (C)	-	0.106	-0.133	-1.259	.210
	0.133				
Attentional Control (C)	-	0.097	-0.015	-0.145	.885
	0.014				

Note: B = Coaching_yrs_with_ath_team = coaching year with the team/athletes; Unstandardized Coefficients; $SE\ B$ = Standard Error of B ; β = Standardized Coefficients; P =Practice; C = Competition

Discussion

The present cross-sectional study examined coaches' perceptions of their encouragement of performance strategies in practice and competition guided by the revised CE model. The current study aimed to examine the coaches' perspective of encouragement of PS used in practice and competition context. in practice and competition guided by the revised coaching efficacy model.

Comparing performance strategies encouraged by coaches in practice and competition from the coach's perspective.

The result shows that coaches encourage similar and different performance strategies in practice and competition. From coaches' perception, coaches encouraged more PS in competition than in practice. This finding aligns with previous research indicating that coaches often prioritize performance strategies, such as attentional control, activation, and emotional regulation, more heavily in competitive environments to help athletes manage heightened performance pressure and anxiety (Hanton et al., 2005; Weinberg & Gould, 2019). According to Gould et al. (1999), coaches recognize the unique mental demands of competition and therefore intensify the use of strategies that enhance focus and confidence under pressure. Similarly, studies by Jones and Hardy (1990) and Côté et al. (1995) have demonstrated that coaches place greater emphasis on mental preparation and coping strategies during competition, viewing these strategies as critical to handling the increased stress of competitive performance. In contrast, during practice, PS encouragement tends to be focused on foundational skills and development, where the stress levels are lower, and the focus is on skill acquisition rather than immediate performance outcomes (Horn, 2002). These findings were consistent with athletes' perceptions of their coach's encouragement in Chapter 4. Similar findings were also

reported in Chapters 2 and 3, where coaches encouraged emotional control, goal setting, activation and positive thinking in competition (Chapter 2), however, in practice coaches encouraged more attentional control, activation, emotional control and automaticity the most (Chapter 3). In contrast to Frey et al. (2003) university baseball and softball players reported using more mental skills in competition than in training. However, it is also agreed that athletes who have more experience of training in PS skills indicated they would influence their use in training and competition.

In addition, no significant differences were found in gender and sport type. Coaches encouraged similar PS in practice and competition between male and female athletes and individual and team sport. This finding supported Horn (2008); Myers et al., (2006) study coaches encourage similar PS across gender and sport type; however, coaches encouraged more PS in practice and competition for individual athletes. Studies by Amorose and Horn (2000) indicate that skill development and psychological readiness effect coaching styles and encouragement that similar across gender. Similarly, research by Jowett and Ntoumanis (2004) found that the quality of the coach-athlete relationship and the application of performance strategies did not differ significantly across team and individual sports, indicating a consistent approach in PS encouragement.

This finding supported previous research by Hanton et al. (2005); Gould et al., (2002) that found coaches often tailor their strategy encouragement based on the athlete's skill level and competitive demands, with elite athletes receiving more intensive PS training to meet the higher performance expectations at advanced levels. Studies have shown that elite athletes face greater pressure and more complex competitive challenges, prompting coaches to emphasize advanced mental skills, such as attentional control, emotional regulation, and automaticity, which are critical for sustaining high performance.

under stress (Vealey, 2007). Research by Côté and Gilbert (2009) also suggests that coaches are more likely to employ sophisticated psychological strategies with elite athletes to support their mental resilience and ability to thrive in high-stakes environments. In contrast, non-elite athletes typically receive a focus on foundational skills and general mental preparation, reflecting their developmental stage and lower competitive demands (Horn, 2002).

The results underlined the importance of certain, and more targeted coaching strategies that closely relate to one another and motivation efficacy. Our finding, show that activation during a practice was the strongest predictor of athlete coachability supports Boardley's (2018) model that: coaches who can engage with their athletes appear to be more competent in motivating their teams. This relates to motivation efficacy in the Revised Coaching Efficacy model, as activation is a strategy for ensuring that athletes mental readiness and focus. High level of education and qualification in coaches is reflective of higher athletes' motivation making them more confident and satisfied with their coaching. This in turn suggests that coach education and qualification have a part to play in developing athletes' confidence not technical aspects of their coaching but in psychological aspects

Predictor of Athletes Motivation Efficacy

The results revealed that coach qualification, and attentional control and automaticity were significant predictors of athletes' motivation efficacy. This shows that athletes feel motivated and confident to employ attentional control and automaticity during practice and competition when coaches have a high level of coaching qualifications. This finding supported Hall et al. (2008) study that shows athletes feel more confidence and believe in their coach when their coach have higher qualification thus, can encourage more

PS in their practice and competition than lower qualifications coaches. Higher coaching qualifications may be associated with greater expertise in areas of mental training, which can assist athletes to recognize and appreciate the importance of strategies that include attentional control for focus or automaticity when under pressure (Côté & Gilbert 2009; Vealey 2007). Previous research by Feltz et al. (1999); Horn (2002) supports this finding, suggesting that coaches with advanced qualifications are often better equipped to teach and reinforce complex performance strategies, thereby enhancing athletes' confidence and motivation to implement these skills effectively. However, previous studies reported that coaches still underutilise PS on their coaching even they have higher qualification and knowledge. (Callow et al., 2010; Camire & Trudel, 2014; Hague et al., 2021; Paquette & Sullivan, 2012; Thelwell et al., 2008).

Higher coaching qualifications are associated with greater expertise in psychological skills training, which helps athletes understand the value of each strategies for utilise it in stressful situations (Côté & Gilbert, 2009; Vealey, 2007). When coaches can clearly communicate and model these strategies, athletes are more likely to feel capable and motivated to apply them in both practice and competitive settings, leading to enhanced motivation efficacy. Thus, coaches should always motivate their athletes by learning or attending more coaching courses that cover a greater depth of psychological skills with formal training and qualifications to enhance the use of PS by their athletes.

Practical Implications

The findings have a practical implication for coaching practice, especially in the developing of motivation efficacy for the athletes. For coaches, it is necessary to develop activation strategies that athletes can use during practice. Professional coaches should use different methods of coaching to make the session more engagement and enjoyment for

the athletes. Coaches must also be directly exposed to motivation efficacy as part of their coach education and qualifications,. Thus, educational programmes on how to coach and motivate athletes, especially in practice environments have the potential effect of strengthening athlete-coach relationships as well as overall team performance. However, it is important that coaches appear to maintain control of their emotions to enhance athletes' motivation during competition. Balancing emotional control with showing approachability can be crucial in creating an environment where athletes feel both motivated and supported.

Limitations and Future Directions

Although this study extends the previous literature on athletes' perception of coaches' encouragement of PS use in practice and competition, some limitations should also be considered. First, because a cross-sectional design was used, it did not allow for ascribing causation between these variables. Longitudinal designs would help to further determine how coaches' encouragement of PS in practice and competition can help athletes increase their motivation which might then also guide the coaching effectiveness. Future research should, therefore, consider other variables in psychological areas that could influence athletes' motivation of coachability. Furthermore, the surprising negative relationship between emotional control at practice and athlete coachability requires further exploration. For example, future qualitative research on the subject might further examine how athletes understand emotional control in their coaches and how it may influence just what motivation and participation. Lastly, it will be interesting for future research to investigate how other antecedents of coaching efficacy (e.g., Technique Efficacy or Character-Building Efficacy) interact with Motivation Efficacy in influencing athlete coachability perceptions. With coaching

efficacy being such a complex field of study, knowing how these antecedents working together to improve coaching effectiveness.

Conclusions

To our knowledge, the current study makes a novel contribution by first examining coaches' encouragement of performance strategies in practice and competition from coaches' perspectives. This study also supports the revised coaching efficacy model by testing parts of the dimensions in coaching and psychological factors with a different element of coaching behaviour, athletes and coach's characteristics and athletes' outcomes. This psychological factor also contributes to the new antecedents in each of the coaching models such as motivation efficacy for athletes' outcomes. More research could extend this study by exploring the revised coaching efficacy model with new antecedents that can influence different athletes' outcomes.

Chapter 6

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155 **General Discussion**

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General Discussion

The overall aim of this PhD thesis was to investigate the athletes' and coaches' perceptions of coaches' encouragement of performance strategies on the athletes' outcomes underpinned by the revised coaching efficacy model. This aim was achieved by using cross-sectional research to (a) examine the performance strategies encouraged most and least by coaches in practice and competition (b) examine the encouraged performance strategies through differences in gender, sport types and competitive level, (c) to examine athletes' perceptions of PS used in practice and competition and how athletes interpret the anxiety as facilitative or debilitating, (d) to examine coaches perceptions of PS used in practice and competition influence athletes' motivation of coachability. The research questions and hypothesis were addressed within Chapters 2, 3, 4 and 5 and an overview of the thesis aims was provided in Table 1.3. Applied implications, strengths, limitations and recommendations for future research specific to each study are discussed in each chapter. This chapter begins with a summary of the findings from Chapters 2, 3, 4 and 5. This is followed by a discussion of the applied implications of this thesis before discussing the strengths and limitations and it concludes with recommendations for future research.

Summary of results

Chapter 2. Using a cross-sectional research design, underpinned by the revised coaching efficacy model (Boardley, 2018) Chapter 2 examined athletes' perception of coaches' encouragement of performance strategies used in competition and whether this differed depending on gender, sport type and competitive level, and which variables were strong and positive predictors of athletes' outcomes (coaching satisfaction and athletes' confidence). The study was conducted within sports clubs and among university athletes across England and participating individuals completed a set of questionnaires. Section

one of the questionnaire consisted of Performance Strategies (TOPS 2) (Hardy et al., 2010) competition subscales of a 36-item rating scale that measured nine performance strategies (activation, automaticity, goal setting, self-talk, imagery, relaxation, positive thinking, emotional control and attentional control). Section two of the questionnaires included the Sources of Self-confidence Questionnaire (SSCQ) (Vealey et al., 1998) of 6-item rating scales measuring athletes' confidence in using performance strategies, and the final section of the questionnaire was the seven items of Leadership Subscale of Sports questionnaire (LSS) (Chelladurai et al., 1988) measuring athletes' satisfaction with their coach.

The results of this chapter showed that competitive level, years of coaching, sport type, years of experience with the coach and activation were the positive predictors of athletes' self-confidence, while activation, emotional control and positive thinking were the positive predictors of satisfaction with coaching. This chapter has also shown that athletes use different performance strategies in competition when encouraged to do so by coaches. No gender differences were found, but elite athletes used more performance strategies in competition. This result is in line with Einarsson et al. (2020) who reported that elite athletes use more psychological skills than non-elite athletes. One explanation for this finding could be that elite athletes have experience and are exposed to performance strategies during their training and competitions, so they feel more confident and are able to perform better, more committed and motivated than non-elite athletes. The differences also vary between type of sports. Among elite athletes, athletes who competed as individuals also used more performance strategies than team athletes. Interestingly, coach satisfaction and confidence in mental and physical preparation seem to have an important relationship with performance strategies during competition.

Overall Chapter 2 provides evidence that coaches encouragement of performance strategies in competition supports the revised coaching efficacy model. This supported Boardley's (2018) hypothesis of revised CE model that coach behaviour (coach encouragement) is linked to athlete outcomes (satisfaction and confidence) and directly affects athlete perceptions and evaluations of coach behaviour.

Chapter 3. Following a similar research design to Chapter 2, the main objectives of Chapter 3 were to compare the athletes' perceptions of performance strategies used by athletes themselves and the encouragement by coaches in practice. The second aim was to investigate whether this differs according to gender, sport types and competitive level. Finally, to investigate which variables are the strong and positive predictors of athlete outcomes (satisfaction with coach and quality of training) underpinned by the revised coaching efficacy model.

Chapter 3 results indicate that similar performance strategies (automaticity, activation, attentional control and emotional control) were used by athletes and encouraged by the coach during practice. There were no differences in gender and sport type. Interestingly, elite and club athletes consistently showed that performance strategies of automaticity and emotional control were often used when comparing athletes' use and coaches' encouragement in practice. In addition, results in Chapter 3 also indicated that performance strategies of emotional control for athletes' own use and coaches' encouragement were positive predictors of coaching satisfaction. However, activation was a positive predictor of training quality when encouraged by coaches, and automaticity and activation were positive predictors of training quality when athletes used performance strategies themselves. In both contexts, it shows that coaches' encouragement and athletes'

own use of PS play a vital role in influencing athletes' outcomes, such as quality of training and satisfaction with their coaching.

Comparison between Study 2 and Study 3. Comparison between Study 2 and Study 3. Both Study 2 and Study 3 found that similar PS (emotional control, activation, and automaticity) were commonly used by athletes and encouraged by coaches. However, in both studies no significant differences were found in gender, suggesting that coaches' encouragement of PS was consistent across male and female athletes. Although performance strategies in a competitive environment have been widely studied, the practice environment also provides an important context as performance strategies need to be trained and mastered during training to use in competition. Therefore, coaches need to play their role in supporting and developing performance strategies in both training and competition that are associated with the use of performance strategies in athletes. Furthermore, these findings from both chapters support the new psychological antecedents to test the revised CE model by Boardley (2018) and highlight the importance of performance strategies used in the training context, which may also impact their use in the competition, and coaches play a crucial role in developing athletes' psychological preparation in competition and practice.

Chapter 4. Following a similar research design to Chapters 2 and 3, the main objective of Chapter 4 (a) was to examine athletes' perception of coaches' encouragement of PS use in practice and competition. The second aim was to investigate which variables are significant predictors of how athletes perceive competitive anxiety as facilitative or debilitating that underpinned by the revised coaching efficacy model.

Chapter 4 results indicate that from athletes' perspectives, athletes perceive performance strategies more in competition than practice, where these PS could help to

manage both cognitive and somatic anxiety. PS of attentional control and automaticity indicated positive impacts on anxiety direction in both settings, while the emotional control and relaxation techniques benefits differently in both contexts. However, attentional control shows more positive impact in both settings on facilitating anxiety during competition, where athletes will face higher level of stress. Furthermore, coaching behaviour play a crucial role to utilise these PS skills, especially in competition to help athletes manage their anxiety level effectively. Therefore, coaches need to play their role in supporting and developing performance strategies in both training and competition that are associated with the athlete's performance outcomes. These findings highlight the important performance strategies used in competition context, which may also impact on their use in practice settings. Similar to Chapter 2 and Chapter 3, Chapter 4 also supports the link between psychological and coaching efficacy variables within the coaching model.

Chapter 5. Following a similar research design to Chapters 2, 3 and 4 the main objective of Chapter 5 was to examine the coaches' perception of their encouragement to use PS in practice and competition. The second aim was to investigate which PS was a significant predictor of athletes' motivation of coachability in practice and competition that underpinned by the revised coaching efficacy model.

Chapter 5 results indicate that from coaches' perspectives, performance strategies were more encourage in competition than practice especially for elite athletes. No significant differences were found in gender and sport types which indicate that coaches encouraged similar PS for male and female athletes, and between individual and team sports. However, coaches who have higher coaching qualifications could motivate their athletes to use more performance strategies in practice and competition. These findings

highlight the importance of coaching qualifications and athletes' motivation to support the encouragement of PS use. The PS also provide benefits not only during competition but also in practice settings to build athletes' motivation and confidence. Similar to Chapter 2 and Chapter 3, Chapter 4, result of Chapter 5 also supports the link between psychological variables within the revised coaching efficacy model.

Overall, the findings through the empirical studies of Chapters 2, 3 and 4 and 5 supported the revised model of coaching efficacy by testing the different antecedents of coaching behaviour, coach behaviour, athletes' characteristics and athletes' outcomes within psychological aspects. In Chapter 2 the elements that have been tested using the revised coaching efficacy model were coach's behaviour that include the encouragement of PS use in competition, which may be influenced by athletes' characteristics (gender, sport type, competitive level, experience years, coaching years) and athletes' outcomes (satisfaction with coaching and confidence in mental and physical preparation). In Chapter 3 a similar antecedent has been tested for coach's' behaviour and athletes' characteristics, however, the satisfaction of the coach and quality of training have been tested as athlete outcomes in the practice context. In Chapter 4 the similar antecedents of athletes characteristics (gender, competitive level and sport type, experience years, coaching years), and cognitive and somatic anxiety intensity as control variables have been tested for coach behaviour (encouragement of PS in practice and competition) and also mental strategies, goal setting, competition strategies and personal rapport, and how athletes interpret the anxiety as facilitative or debilitating act as athletes outcomes, However, in Chapter 5 coaches' perception of their encouragement of PS used acted as coach behaviour, however coaches characteristic consist of (gender, competition level, sport types, coaching qualification, years of experience), and athletes' motivation of

coachability as athletes outcomes. In addition, all the findings from these studies extend the coaching and psychology literature by testing parts of the revised CE model dimensions which is the main objective of the thesis.

Applied Implications

The specific implications have been addressed in each empirical chapter, so they will not be repeated here. Therefore, this section focuses on the important contributions of this information, highlighting how the novel findings support the revised model of coaching efficacy and the contributions to the literature on performance strategies for both coaches and athletes. Overall, the thesis has contributed new findings that support the revised model of coaching efficacy by testing the new antecedents in the psychological area within a different context.

Firstly, based on the findings from all the empirical chapters, from the results of Chapters 2, 3 4, and 5 we know that encouragement from the coach was an important behaviour to gain the athletes' confidence in the encouragement of performance strategies used in both contexts (practice and competition). Each of the empirical studies built on the limitations and future recommendations to fill the gaps of the respective study. Therefore, it is important to acknowledge the encouragement from the coach as the main contributor to athletes' success. This is because athletes will learn and practice the strategies during training, master them repeatedly over time and use them in competition. Therefore, coaches play a significant role to help and motivate their athletes to build their confidence in utilising PS in practice and competition. Importantly, this supports the revised framework of the coaching efficacy model. Therefore, it is recommended that those who involved in athlete development programmes should include performance strategies as part of motivating athletes from training to competition. In addition, for coaches to

effectively integrate these skills, they required additional education, especially in psychology skills that can benefits the effectiveness of performance strategies in their training program. Sports psychologists also could work together with the coach by implementing performance strategies with athletes. In doing so, they would gain confidence in their abilities to coach not only the physical aspects but the psychological aspects as well. Coaches also should be aware that athletes may use different performance strategies at different times and for multiple purposes.

The findings of this thesis also provide new insight for athletes and coaches to explore more of PS and their benefits in practice and competition. Coaches should help athletes develop, learn and be trained in specific PS based on athletes' psychological needs and coaches' goals that can help in develop athletes 'development. In order to support their athletes to use PS, coaches also should have the knowledge and be involved in psychology workshops/sessions to get a better understanding and knowledge to help them employ the PS in daily training sessions.

Overall, this thesis provides evidence that athletes' and coaches' perceptions toward the encouragement of performance strategies are related to athletes' characteristics, coaching behaviour, and athlete outcomes. Although various characteristics and outcomes influence the use of performance strategies, coaches should understand the variations across different genders, sport types and competitive levels and which PS therefore might be more suitable for them in different settings. Thus, athletes and coaches should work together to develop and use performance strategies in each training session and competition.

In summary, encouragement of performance strategies is an important component in sport psychology and coaching, however, it is still underutilised by coaches concerning

athlete performance and wellbeing. Encouragement from coaches is crucial to enable athletes to apply specific performance strategies in different contexts and help them to achieve their goals. This is important in the field of sport psychology and also coaching to explore and test the other dimensions of the revised coaching efficacy model to help athletes and coaches to design their training programme that includes the PS skills and the impact on athletes' performance. This is particularly relevant in research examining the relationship between performance strategies, coaching efficacy and belief, coach attitudes and behaviours, coach effectiveness and coach education.

Strengths and Limitations

It is important to consider the strengths and limitations of this thesis when assessing the significance of the findings and their potential application. The advantages and disadvantages discussed in this section are extensions of those discussed in Chapters 2, 3, 4 and 5.

A major strength of this thesis was that by combining performance strategies (sport psychology) and coaching efficacy (coaching) it filled an important empirical gap identified in the literature review and we now know more about coaches' encouragement of PS in different contexts and how this may influence how coaches behave towards athletes' perception of CE, athletes' characteristics and athletes' outcomes. Another great strength of this thesis was the comparison of the perceptions of athletes and coaches in the two different contexts (practice and competition) (Chapters 4 & 5). This allows for direct comparisons between coaches' and athletes' perceptions and has offered new insights into the coaching framework.

In summary, these findings are largely consistent with the framework of the revised coaching efficacy model (Boardley, 2018) and a conceptual process model of

youth mental skills training (MST) by Holland et al. (2007). Paquette and Sullivan (2013) proposed the broader framework could be used to add another theoretically important construct on the use of performance strategies by coaches. Horn (2002) also claims that the way coaches act can be influenced by the way athletes act and that the main goals of coaching are to improve athletes' motivation and behaviour.

Another great strength of this thesis was the theoretical gap. This is the first of a new type of research to explore the revised coaching model within the sport psychology context. None of the previous work has underpinned this model to test the relationship between coaching efficacy and performance strategies simultaneously. Interestingly, all the variables used in the thesis supported Boardley's (2018) model. All the proposed additional ~~aspects and elements~~ antecedents in the revised coaching efficacy model show a significant result and significantly support the revised model. Finally, this thesis used the TOPS 2 to measure athletes' and coaches' perceptions of the use of performance strategies. TOPS 2 (Hardy et al., 2010) was well established in previous work and has high validity and reliability of measurement. Therefore, this made this study more valid in terms of the measurements used.

Although the current study revealed some interesting gaps and findings, it also has some limitations to be considered. First, whilst this study tested most of the coaching efficacy model, the following coaching efficacy information and the coach's efficacy belief components were not tested. Therefore, we do not know if other elements in coaching efficacy could contribute to the use of performance strategies and directly affect athletes' outcomes. Second, all the empirical studies only rely on the self-reported measure, which are subject to biased when they report their own perceptions. Due to the repeated measurement of the same subscales, it is possible that they were not tested using

consistent metrics, and comparisons across contexts may be affected by response sensitivity and other item differences. Because the TOPS -2 questionnaire was modified to meet the research objectives, participants might be forced to provide answers that do not reflect their true perceptions, thoughts and feelings. The difference in sample size in Chapter 5 (male vs. female coaches) also contributed to the limitations of this study.

Despite the limitations discussed above and specifically within Chapters 2, 3 4, and 5, this thesis provides a unique and valuable contribution to understanding the importance of coaches' encouragement in athletes' use of performance strategies during practice and competition, and the role of the coaches in delivering performance strategies to their athletes may be influenced by various factors. Based on the strengths and limitations discussed, several future research directions are outlined in the next section.

Future Directions

The future directions for research discussed below consider research within the context of sport psychology and coaching literature. First, the present study tested most of the revised coaching efficacy model to meet the objectives of the study. However, some of the other dimensions were untested, so future research could test the whole of the coaching efficacy model which considers the new variables/antecedents that are related to CE dimensions and constructs, for example, emotional intelligence and the coach-athlete relationship with different athletes' outcomes. Secondly, our findings are just based on the practice and competition settings but do not know which time frame the data was collected within (e.g., before, during and after competition and practice) or specifically when coaches encourage their athletes to use performance strategies. Thus, future research could examine the time frame in a more nuanced way (e.g., leading up to a competition)

(Thomas et al., 2007). For example, future research could examine the use of performance strategies before and after competition to compare both settings.

Next, this study used the same data analysis methods (MANOVAs and hierarchical multiple regression) in all empirical chapters to compare the results of each chapter. Future research could therefore use a multivariate correlation approach, such as structural equation modelling (SEM) which allows researchers to conduct model tests by examining multiple criterion-like variables simultaneously and obtain significant test results for fitting the overall model to the data (Liu et al., 2018).

Finally, this thesis uses only quantitative methods in the empirical chapters. Future research could extend this study by using qualitative methods design (e.g., coach and athlete interviews) and longitudinal studies, which offer a more comprehensive approach and can monitor changes over time when evaluating performance strategies, antecedents and outcomes of CE which warrant further attention. For example, researchers could investigate whether coaches' development of performance strategies is effective at improving CE and, if so, whether such changes lead to significant changes in coaches' behaviour and athletes' outcome. In addition, longitudinal studies might evaluate the influence of various factors in the revised model based on intervention in the specific circumstance. For example, researchers could examine whether coaches' development of performance strategies is successful in improving CE and, if so, whether such changes lead to meaningful changes in coach behaviour and athlete outcomes.

Conclusion

In conclusion, this thesis aimed to examine athletes' and coaches' perceptions of coaches' encouragement of performance strategies in the two contexts and to examine which variables were the positive predictors of athlete outcomes by testing the revised coaching efficacy model. These aims were achieved through cross-sectional studies by determining the most and least encouraged performance strategies in competition and practice and which variables would be the strongest predictors of athletes' outcomes (satisfaction, confidence, quality of training, competitive anxiety, and motivation efficacy).

Overall, the revised model of coaching efficacy model supports the process of coaches' encouragement of performance strategies in practice and competition by examining the relationship between athletes' characteristics coaching behaviour, and athletes' outcomes as the main factors contributing to the objectives of the thesis. This thesis reveals several novel contributions from the studies as Chapters 2, 3, 4 and 5 supported the revised coaching efficacy model by showing that coaching encouragement acts as a coaching behaviour antecedent, and it directly influences athlete/coach characteristics and outcomes. This study has also shown a new way forward in coaching, directly linking performance strategies and competitive anxiety, coaching satisfaction, confidence in mental preparation and athletes' motivational efficacy on coachability. However, further research should be conducted to fully conceptualise the encouragement of performance strategies by fully tested the dimensions in the revised of coaching efficacy model by adding different types of psychological variables such as, personality trait, coach-athletes relationship, resilience, emotional regulation to gains more insights on coaching psychology area. In summary, this thesis offers the researchers, athletes, coaches

and sports psychology practitioners a better understanding of performance strategies in relation to coaching behaviour and coaching efficacy, and the role of coaches in influencing the use of performance strategies across different contexts.

COVID-19 Impact Statement

The COVID-19 pandemic had a significant impact on the data collection for my PhD study, specifically for chapter 4 and chapter 5, which was originally planned to be conducted face-to-face from 2019 to 2022. Initially, my supervisory team planned to conduct in-person data collection for athletes and coaches throughout England including observations, interviews, and field assessments. Because of the lockdowns for almost 18 months starting from March 2019 until August 2022, in-person data collection was impossible to achieve because of the few restrictions such as social distancing, travel restrictions, and the shutting down of the universities. I have to adjust my data collection plan to online assessment using the online survey. Even though this new method worked out for me to keep moving forward, the different challenges that need attention such as lower response rates, lack of control of the participant environment and other distractions that could affect the quality of data, and it is more difficult to engage participant during online assessment in comparison to face-to-face. Moreover, the pandemic also affected my routine and the process of PhD work such as the monthly supervision (face-to-face), increased family responsibilities, and mental health challenges. Despite these challenges, I do believe these new methods and my supervisory team make the best options and decision to continue motivate and support me until the end. I also learned how to be resilient and more flexible when facing adversity, thus I am confident with this new plan and all these challenges make me more confident to finish this thesis.

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Appendix 1 : Recruitment Email for (Chapter 2)

1261

1262 Dear Head Coach/Team Manager/Club Captain,

1263

1264 I am writing to let you know about research that we are conducting in the School of Sport,
1265 Exercise, and Rehabilitation Sciences at the University of Birmingham and to request your
1266 permission to carry out the research with your club/team.

1267

1268 We are interested in what mental skills coaches encourages their athletes to use in
1269 competition situations and how this is related to the athletes' own experiences in sport.

1270 We are recruiting athletes who are 18 years of over and currently training and competing
1271 in their sport, regardless of level, experience, or phase of season.

1272

1273 Their participation would involve completing a questionnaire pack that will take
1274 approximately 20 minutes. They will be asked questions regarding their sport background,
1275 their coach's encouragement of mental skills, and their general experiences in sport.

1276

1277 If you do give us permission to carry out this research, we could arrange a convenient time
1278 and day for us to visit your club/team to explain the study to any potential participants. We
1279 will provide them with an information sheet and a consent form to sign (see attached for
1280 copies). Participation is voluntary and there is no compulsion to take part.

1281

1282 Those who agree to participate will be given the questionnaire pack to complete and return
1283 directly to a member of our research team or complete an online version of the
1284 questionnaire, depending on their preference.

1285

1286 If you would like to any more information concerning this study, please do not hesitate to
1287 contact us. A brief summary presenting the results and findings will be available from
1288 www.bestsports.org at the end of the study.

1289

1290 Many thanks in advance for considering our request.

1291

1292 Yours sincerely,

1293 Dr Jennifer Cumming

1294

1295

1296

Appendix 2 : Information Letter for (Chapter 2)

1297

1298

1299 Dear Participant,

1300 Thank you for considering to take part in this study, which has been approved by the School of Sport,
1301 Exercise, & Rehabilitation Sciences' Safety and Ethics Committee.

1302 ***What is our study about?***

1303 Coaches can positively affect athletes' performance, behaviour, and psychological and emotional well-being.
1304 The major role of a coach is to help athletes develop technical and tactical skills and promote sport specific
1305 physical development. But, coaches also create, develop and influence young athletes' mental preparation by
1306 mentoring and encouraging mental skills (e.g., imagery, goal-setting).

1307 We are interested in what mental skills your coach encourages you to use in competition situations and how
1308 this is related to your own experiences in sport. If you decide to participate in our study, you will be asked
1309 to complete a questionnaire pack that will take approximately 20 minutes to complete. You will be asked
1310 questions regarding your sport background, your coach's encouragement of mental skills, and your general
1311 experiences in sport.

1312 ***What will happen to the results of the research study?***

1313 By participating in this study, you are also agreeing that your results may be used for scientific purposes,
1314 including publication in scientific journals, so long as your confidentiality is maintained. There are no
1315 known risks associated with participation in this research.

1316

1317 **All your personal data will remain confidential and will be solely used for academic purposes.**
1318 **Consequently, we would be grateful if you were honest in your responses to the questionnaires.** In
1319 accordance with the Data Protection Act (1998) raw and processed data from this investigation will be kept
1320 for a period of ten years following completion of the study. Hard copies of questionnaires will be kept securely
1321 in a locked filing cabinet and computer files will be stored on a password protected University computer. Your
1322 data will only be accessed by the study investigators. After this time period, all the data collected will be
1323 destroyed.

1324

1325 ***Who can take part?***

1326 We are recruiting athletes 18 years and over who are currently (i.e., injury free) training and competing in their
1327 sport, regardless of level, experience, or phase of season.

1328

1329 ***How can I take part?***If you decide to participate in our study, you will be given a questionnaire to complete
1330 at a time and place of your preference (e.g., before or after a training session). If you prefer, you can also
1331 complete the questionnaire online at www.limesurvey.XXXXX (URL address to be added once the online
1332 version is created).

1333 ***Do I have to take part?***Please note, your participation in this study is voluntary and you may withdraw any
1334 time before 31st March 2017. If you choose to withdraw from the study please contact Dr Jennifer Cumming
1335 (contact details below) to inform us of your decision. If you choose to withdraw, your data will be destroyed
1336 and not included in the study.

If you would like to any more information concerning this study, please do not hesitate to contact us. A brief summary presenting the results and findings will be available from www.bestsports.org at the end of the study. We can also email you a copy of these results if you wish to provide us with your email address on the consent form.

Thank you for your considered participation in this project. This letter is yours to keep. Thank you,

Appendix 3 : Consent Form for (Chapter 2)

ID :

Leaving no stone unturned: Training talented athletes' mental skills for performance and personal success

	Tick to consent
I confirm that I have read and understand the information letter, and have had the opportunity to ask questions.	
All questions have been answered to my satisfaction	
I understand that my participation is voluntary and that I am free to withdraw at any time before 31 st March 2017.	
I give consent for the data that I provide to be used for research purposes.	
I understand that this will be entirely confidential.	
I agree to take part in the above study.	
I would like to receive an e-mail with a summary of the results from the study. If yes, please provide us email address _____	

Print name

Signed

Date

1359
1360
1361

Appendix 4 : Questionnaire Pack for (Chapter 2)

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ID :

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1366

Instructions

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1374

This questionnaire is made of **7** parts. In each part you will be asked to read a number of sentences. You should respond to each sentence separately using the scale on the right hand side and circling the appropriate number. The scale changes in each part so please make sure you read it carefully. If you make a mistake cross it out and circle another number. Please respond to all the sentences. **There are no right or wrong answers, so please answer honestly.** Some sentences may appear similar but please respond to all statements by circling the appropriate number.

1375

1376

PART 1: INFORMATION ABOUT YOU

1377

Please fill in the blank or tick the appropriate response.

1378

Age: _____ Years

1379

Gender: Female ☐ Male ☐

1380

What is your main/major sport?

1381

PLEASE KEEP THIS SPORT IN MIND WHEN COMPLETING THE REST OF THE QUESTIONNAIRE!

1384

1385

How would you classify your sport? Individual ☐ Team ☐

1386

What level do you currently play (check highest level)?

1387

Recreational ☐ Club ☐ County ☐ Regional ☐ National ☐ International/Professional ☐

1388

1389

If you compete for the University, what team do you play on? _____ (e.g., 1st, 2nd, 3rd)

1390

What phase of the season are you currently in?

1391

Pre-Season ☐ Competitive Season ☐ Off-Season ☐ N/A ☐

1392 **What is the total number of years you have participated in this sport** (including this year)?
1393 _____ Years

1394 **What is the total number of years you have worked with your current main coach** (including
1395 this year)? _____ Years (If less than a year, please indicate the number of months: _____
1396 Months)

1397 **On average, how many hours per week do you train/compete?** _____ Hours

1398

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1408 **Part 2: How often does your coach encourage you to use mental skills in competition?**

1409 Each of the following items describes a specific situation that you may encounter in competition.

1410 Please rate how frequently these situations apply to you from 1 (never) to 5 (always).

In competition, my coach encourages me to...	Never	Rarely	Sometimes	Often	Always
1. Talk positively to get the most out of competitions	1	2	3	4	5
2. Keep emotions in control when under pressure	1	2	3	4	5
3. Trust my body to perform skills	1	2	3	4	5
4. Set personal performance goals	1	2	3	4	5
5. Rehearse performance in my mind	1	2	3	4	5
6. Get myself "up" if I feel flat	1	2	3	4	5
7. Use relaxation techniques to improve performance	1	2	3	4	5
8. Keep my thoughts positive	1	2	3	4	5
9. Avoid visual distractions that would affect my performance	1	2	3	4	5
10. Manage self-talk effectively	1	2	3	4	5
11. Manage my emotions at competitions	1	2	3	4	5
12. Be sufficiently prepared to perform on automatic pilot	1	2	3	4	5
13. Set very specific goals	1	2	3	4	5
14. Imagine competitive routine before I do it	1	2	3	4	5
15. Get myself psyched up to perform well	1	2	3	4	5
16. Use relaxation strategies as a coping strategy	1	2	3	4	5
17. Use positive self-talk	1	2	3	4	5
18. Not let environmental conditions affect my performance	1	2	3	4	5
19. Say things to help competitive performance	1	2	3	4	5
20. Control emotions if I make a mistake	1	2	3	4	5

In competition, my coach encourages me to...

	Never	Rarely	Sometimes	Often	Always
21. Allow whole skill or movement to happen naturally without concentrating on each part	1	2	3	4	5
22. Evaluate whether I achieve competition goals	1	2	3	4	5
23. Rehearse the feel of performance in my imagination	1	2	3	4	5
24. Get my intensity levels just right	1	2	3	4	5
25. To use a relaxation technique when I am starting to "lose it"	1	2	3	4	5
26. Have thoughts of success	1	2	3	4	5
27. Not let sleep loss impair my performance	1	2	3	4	5
28. Say specific cue words or phrases to help performance	1	2	3	4	5
29. Not let my emotions keep me from performing my best	1	2	3	4	5
30. To perform skills without consciously thinking	1	2	3	4	5
31. Set specific result goals	1	2	3	4	5
32. Visualise competition going exactly the way I want it	1	2	3	4	5
33. Get myself ready to perform	1	2	3	4	5
34. Relax myself to get ready to perform	1	2	3	4	5
35. Imagine succeeding	1	2	3	4	5
36. Not let loud noises affect my performance	1	2	3	4	5

1411

1412 Part 3. Satisfaction with Your Coach?

1413 Please respond to each of the following statements by indicating the degree to which the
1414 statement is true for you.

	Extremely dissatisfied	Dissatisfied	Slightly dissatisfied	Neutral	Slightly satisfied	Satisfied	Extremely satisfied
1. The leadership provided by my coach in competition situations.	1	2	3	4	5	6	7

2. How my coach treats me in competition situations.	1	2	3	4	5	6	7
3. My coach's ability to train me in competition situations.	1	2	3	4	5	6	7
4. The guidance provided by my coach in competition situations.	1	2	3	4	5	6	7
5. The respect and fair treatment I get from my coach in competition situations.	1	2	3	4	5	6	7
6. How my coach deals with problems in competition situations.	1	2	3	4	5	6	7
7. The support I get from my coach in competition situations.	1	2	3	4	5	6	7

1415

1416 **Part 4. Your confidence in your mental and physical preparation**

1417 Indicate how generally confident are you in your mental and physical preparation for competition
1418 by giving a percentage (%).

1419

0% – 10 – 20 – 30 – 40 – 50 – 60 – 70 – 80 – 90 – 100%		%
No confidenceCompletely confident		
In competition, how confident are you in your ability to...	1. Keep your focus on the task?	
	2. Psych yourself up?	
	3. Be mentally prepared?	
	4. Stay focused on your goals?	
	5. Prepare yourself physically and mentally?	
	6. Give maximum effort?	

1420

1421 **Part 5. How do you feel about your sport participation?**

1422 Each of the following items describes how athletes may feel towards sport participation, including
1423 all training and competition. Please consider your own sport participation and rate the following
1424 items on **the extent to which you feel you experience each one of them** from 1 (almost never)
1425 to 5 (almost always).

	Almost Never	Rarely	Sometimes	Frequently	Almost Always
1. I'm accomplishing many worthwhile things in my sport	1	2	3	4	5
2. I am emotionally drained from my involvement in my sport	1	2	3	4	5

	Almost Never	Rarely	Sometimes	Frequently	Almost Always
3. The effort I spend in my sport would be better spent doing other things	1	2	3	4	5
4. I am not achieving much in my sport	1	2	3	4	5
5. I feel so physically tired from my sport training that I have trouble finding energy to do other things	1	2	3	4	5
6. I don't care as much about my sport performance as I used to	1	2	3	4	5
7. I'm not performing to my ability in my sport	1	2	3	4	5
8. I'm not into my sport like I used to be	1	2	3	4	5
9. I'm feeling emotionally burned out in terms of my sport participations	1	2	3	4	5
10. I feel less concerned about being successful in my sport than I used to	1	2	3	4	5
11. I am exhausted by the emotional demands of my sport	1	2	3	4	5
12. It seems that no matter what I do, I don't perform as well as I should	1	2	3	4	5
13. I feel successful at my sport	1	2	3	4	5
14. I have negative feelings toward my sport	1	2	3	4	5
15. I am exhausted by the physical demands of my sport	1	2	3	4	5
16. My body feels overly tired from my sport participation	1	2	3	4	5
17. I feel physically 'wiped out' from my sport	1	2	3	4	5
18. I feel like I have little left in the emotional tank when playing my sport	1	2	3	4	5

1426

1427

Part 6. Your Sport Experiences

1428

Using the scale provided, please indicate how often you have felt this way about your participation

1429

in your main sport this season. Your sport participation includes all training and competition.

1430

1431

	Almost Never	Rarely	Sometim es	Frequen tly	Almost Always
1. I believe I am capable of accomplishing my goals in sport.	1	2	3	4	5
2. I feel energized when I participate in my sport.	1	2	3	4	5
3. I am dedicated to achieving my goals in sport.	1	2	3	4	5
4. I feel excited about my sport.	1	2	3	4	5
5. I feel capable of success in my sport.	1	2	3	4	5
6. I feel energetic when I participate in my sport.	1	2	3	4	5
7. I am determined to achieve my goals in sport.	1	2	3	4	5
8. I am enthusiastic about my sport.	1	2	3	4	5
9. I believe I have the skills/technique to be successful in my sport.	1	2	3	4	5
10. I feel really alive when I participate in my sport.	1	2	3	4	5
11. I am devoted to my sport.	1	2	3	4	5
12. I enjoy my sport	1	2	3	4	5
13. I am confident in my abilities.	1	2	3	4	5
14. I feel mentally alert when I participate in my sport.	1	2	3	4	5
15. I want to work hard to achieve my goals in sport.	1	2	3	4	5
16. I have fun in my sport	1	2	3	4	5

1432

1433

1434 **Part 7: Your Feelings Towards Sport Participation**

1435 Please answer the questions according to your feelings and experiences when participating in
1436 your sport.

1437

1438

1439

1440

	Not at all true			Somewhat true			Very true
1. I am skilled at my sport.	1	2	3	4	5	6	7
2. In my sport, I get opportunities to make choices.	1	2	3	4	5	6	7
3. In my sport, I feel close to other people.	1	2	3	4	5	6	7
4. In my sport, I feel I am pursuing goals that are my own.	1	2	3	4	5	6	7
5. I feel I am good at my sport.	1	2	3	4	5	6	7
6. I feel I participate in my sport willingly.	1	2	3	4	5	6	7
7. There are people in my sport who care about me.	1	2	3	4	5	6	7
8. In my sport, I have a say in how things are done.	1	2	3	4	5	6	7
9. I get opportunities to feel that I am good at my sport.	1	2	3	4	5	6	7
10. In my sport, I really have a sense of wanting to be there.	1	2	3	4	5	6	7
11. In my sport, there are people who I can trust.	1	2	3	4	5	6	7
12. In my sport, I feel that I am being forced to do things that I don't want to do.	1	2	3	4	5	6	7
13. I have the ability to perform well in my sport.	1	2	3	4	5	6	7
14. In my sport, I can take part in the decision making process.	1	2	3	4	5	6	7
15. I have close relationships with people in my sport.	1	2	3	4	5	6	7
16. In my sport, I feel I am doing what I want to be doing.	1	2	3	4	5	6	7
17. I can overcome challenges in my sport.	1	2	3	4	5	6	7
18. In my sport, I get opportunities to make decisions.	1	2	3	4	5	6	7
19. I show concern for others in my sport.	1	2	3	4	5	6	7
20. I choose to participate in my sport according to my own free will.	1	2	3	4	5	6	7

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Appendix 5 : Information Letter for (Chapter 3)

1444

1445 Dear Participant,

1446 Thank you for considering to take part in this study, which has been approved by the School of
1447 Sport, Exercise, & Rehabilitation Sciences' Safety and Ethics Committee.

1448 ***What is our study about?***

1449 Coaches can positively affect athletes' performance, behaviour, and psychological and emotional
1450 well-being. The major role of a coach is to help athletes develop technical and tactical skills and
1451 promote sport specific physical development. But, coaches also create, develop and influence
1452 young athletes' mental preparation by mentoring and encouraging mental skills (e.g., imagery,
1453 goal-setting).

1454 We are interested in what mental skills your coach encourages you to use in practice/training
1455 situations and how this is related to your own experiences in sport. If you decide to participate in
1456 our study, you will be asked to complete a questionnaire pack consisting of 7 sections that will take
1457 approximately 20 minutes to complete. You will be asked questions regarding your sport
1458 background, your coach's encouragement of mental skills, and your general experiences in sport.

1459

1460 ***What will happen to the results of the research study?***

1461 By participating in this study, you are also agreeing that your results may be used for scientific purposes,
1462 including publication in scientific journals, so long as your confidentiality is maintained. There are no
1463 known risks associated with participation in this research.

1464 **All your personal data will remain confidential and will be solely used for academic**
1465 **purposes. Consequently, we would be grateful if you were honest in your responses to the**
1466 **questionnaires.** In accordance with the Data Protection Act (1998) raw and processed data from
1467 this investigation will be kept for a period of ten years following completion of the study. Hard
1468 copies of questionnaires will be kept securely in a locked filing cabinet and computer files will be
1469 stored on a password protected University computer. Your data will only be accessed by the study
1470 investigators. After this time period, all the data collected will be destroyed.

1471

1472 ***Who can take part?***

1473 We are recruiting athletes 18 years and over who are currently (i.e., injury free) training and competing in their
1474 sport, regardless of level, experience, or phase of season.

1475 ***How can I take part?***

1476 If you decide to participate in our study, you will be given a questionnaire to complete at a time and
1477 place of your preference (e.g., before or after a training session). If you prefer, you can also complete
1478 the questionnaire online at <https://www.surveymonkey.com/s/MST20142015>.

1479 ***Do I have to take part?***

1480 Please note, your participation in this study is voluntary and you may withdraw any time before
1481 31st March 2015. If you choose to withdraw from the study please contact Dr Jennifer Cumming
1482 (contact details below) to inform us of your decision. If you choose to withdraw, your data will be
1483 destroyed and not included in the study.

1484 If you would like to any more information concerning this study, please do not hesitate to contact
1485 us. A brief summary presenting the results and findings will be available from www.bestsports.org

1486 at the end of the study. We can also email you a copy of these results if you wish to provide us
1487 with your email address on the consent form.

1488 Thank you for your considered participation in this project. This letter is yours to keep. Thank you,
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Appendix 6 : Consent Form for (Chapter 3)



UNIVERSITY OF
BIRMINGHAM

**** VERY IMPORTANT ****

Your date of birth: ____ / ____ / ____
D M Y

Your number of siblings: ____
#

	Tick to consent
I confirm that I have read and understand the information letter, and have had the opportunity to ask questions.	
All questions have been answered to my satisfaction	
I understand that my participation is voluntary and that I am free to withdraw at any time before 31 st March 2015.	
I give consent for the data that I provide to be used for research purposes.	
I understand that this will be entirely confidential.	
I agree to take part in the above study.	
I would like to receive an e-mail with a summary of the results from the study. If yes, please provide us email address _____	

Print name

Signed

Date

Appendix 7 : Questionnaire Pack for (Chapter 3)



UNIVERSITY OF
BIRMINGHAM

Instructions

This questionnaire is made of **3** parts. In each part you will be asked to read a number of sentences. You should respond to each sentence separately using the scale on the right hand side and circling the appropriate number. The scale changes in each part so please make sure you read it carefully. If you make a mistake cross it out and circle another number. Please respond to all the sentences. **There are no right or wrong answers, so please answer honestly.** Some sentences may appear similar but please respond to all statements by circling the appropriate number.

PART 1: INFORMATION ABOUT YOU

Please fill in the blank or tick the appropriate response.

Age: _____ Years

Gender: Female ☐ Male ☐

What is your main/major sport? _____

PLEASE KEEP THIS SPORT IN MIND WHEN COMPLETING THE REST OF THE QUESTIONNAIRE!

How would you classify your sport? Individual ☐ Team ☐

What level do you currently play (check highest level)?

Recreational ☐ Club ☐ County ☐ Regional ☐ National ☐ International/Professional ☐

If you compete for the University, what team do you play on? _____ (e.g., 1st, 2nd, 3rd)

What phase of the season are you currently in?

Pre-Season ☐ Competitive Season ☐ Off-Season ☐ N/A ☐

1560 **What is the total number of years you have participated in this sport** (including this year)? _____
1561 Years

1562 **What is the total number of years you have worked with your current main coach** (including this year)?
1563 _____ Years (If less than a year, please indicate the number of months: _____ Months)

1564 **On average, how many hours per week do you train/compete?** _____ Hours

1565

1566

Part 2: How often does your coach encourage you to use performance strategies in practice/training?

Each of the following items describes a specific situation that you may encounter in your practice. Please rate how frequently these situations apply to you from 1 (never) to 5 (always).

	In practice, I will...					In practice, my coach encourages me to...				
	Never	Rarely	Sometimes	Often	Always	Never	Rarely	Sometimes	Often	Always
1. Motivate myself to train through positive self-talk	1	2	3	4	5	1	2	3	4	5
2. Control my emotions when things are not going well	1	2	3	4	5	1	2	3	4	5
3. Perform skills without consciously thinking	1	2	3	4	5	1	2	3	4	5
4. Set very specific goals	1	2	3	4	5	1	2	3	4	5
5. Imagine what my performance will feel like when I am visualizing	1	2	3	4	5	1	2	3	4	5
6. Get my intensity levels just right	1	2	3	4	5	1	2	3	4	5
7. Use relaxation techniques to improve my performance	1	2	3	4	5	1	2	3	4	5
8. Control distracting thoughts when training	1	2	3	4	5	1	2	3	4	5
9. Talk positively to get the most out of practice	1	2	3	4	5	1	2	3	4	5
10. Not let my performance suffer when something upsets me	1	2	3	4	5	1	2	3	4	5

	In practice, I will...					In practice, my coach encourages me to...				
	Never	Rarely	Sometimes	Often	Always	Never	Rarely	Sometimes	Often	Always
11. Perform automatically without having to consciously control each movement	1	2	3	4	5	1	2	3	4	5
12. Set goals to help me use practice time effectively	1	2	3	4	5	1	2	3	4	5
13. Imagine watching myself as if on video replay when I visualize my performance	1	2	3	4	5	1	2	3	4	5
14. Get myself "up" when feeling flat	1	2	3	4	5	1	2	3	4	5
15. Use practice time to work on relaxation technique	1	2	3	4	5	1	2	3	4	5
16. Focus my attention effectively	1	2	3	4	5	1	2	3	4	5
17. Manage my self-talk effectively	1	2	3	4	5	1	2	3	4	5
18. Not let my emotions keep me from performing my best	1	2	3	4	5	1	2	3	4	5
19. Allow whole skill or movement to happen naturally without concentrating on each part	1	2	3	4	5	1	2	3	4	5
20. Set realistic but challenging goals	1	2	3	4	5	1	2	3	4	5
21. Rehearse my performance in my mind	1	2	3	4	5	1	2	3	4	5
22. Psych myself up to perform well	1	2	3	4	5	1	2	3	4	5

	In practice, I will...					In practice, my coach encourages me to...				
	Never	Rarely	Sometimes	Often	Always	Never	Rarely	Sometimes	Often	Always
23. Practice using relaxation techniques at workouts	1	2	3	4	5	1	2	3	4	5
24. Maintain my concentration during long practices	1	2	3	4	5	1	2	3	4	5
25. Say things to myself to help my practice performance	1	2	3	4	5	1	2	3	4	5
26. Not get frustrated or emotionally upset when practice does not go well	1	2	3	4	5	1	2	3	4	5
27. Monitor all the details of each move to successfully execute skills	1	2	3	4	5	1	2	3	4	5
28. Not set goals for practice, just go out and do it	1	2	3	4	5	1	2	3	4	5
29. Visualize successful past performances	1	2	3	4	5	1	2	3	4	5
30. Get into an ideal performance state	1	2	3	4	5	1	2	3	4	5
31. Use workouts to practice relaxing	1	2	3	4	5	1	2	3	4	5
32. Keep my attention from wandering while training	1	2	3	4	5	1	2	3	4	5

Part 3. Who has influenced your use of performance strategies?

In reference to the performance strategies described above, who has influenced your use of these strategies in your sport (practice and/or competition situations)? Please respond by circling the appropriate number below, as well as responding to the two questions below.

		Not at all true for me		Somewhat true for me		Very true for me
1. My parents	N/A	1	2	3	4	5
2. My siblings	N/A	1	2	3	4	5
3. A current/former coach	N/A	1	2	3	4	5
4. A current/former teacher	N/A	1	2	3	4	5
5. A sport psychologist	N/A	1	2	3	4	5
6. A physiotherapist/massage therapist	N/A	1	2	3	4	5
7. Another athlete/teammate	N/A	1	2	3	4	5
8. Reading books/blogs/articles	N/A	1	2	3	4	5
9. From an ap	N/A	1	2	3	4	5
10. Role model (e.g., elite athlete in my sport)	N/A	1	2	3	4	5
11. No one else – I figured it out on my own	N/A	1	2	3	4	5
12. Other: _____	N/A	1	2	3	4	5

Part 4. Satisfaction with Your Coach?

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

	Extremely dissatisfied	Dissatisfied	Slightly dissatisfied	Neutral	Slightly satisfied	Satisfied	Extremely satisfied
1. The leadership provided by my coach.	1	2	3	4	5	6	7
2. How my coach treats me.	1	2	3	4	5	6	7
3. My coach's ability to train me.	1	2	3	4	5	6	7

4. The guidance provided by my coach.	1	2	3	4	5	6	7
5. The respect and fair treatment I get from my coach.	1	2	3	4	5	6	7
6. How my coach deals with problems.	1	2	3	4	5	6	7
7. The support I get from my coach.	1	2	3	4	5	6	7

Part 5: Your approach to practice/training

Indicate your agreement for each of the following items from 1 (Strongly Disagree) to 9 (Strongly Agree)

	Strongly disagree				Neither agree nor disagree				Strongly agree
1. I am easily distracted by other people in training	1	2	3	4	5	6	7	8	9
2. I always have a competition plan that covers all eventualities.	1	2	3	4	5	6	7	8	9
3. When people are chatting in training, I have a tendency to stop training and join in.	1	2	3	4	5	6	7	8	9
4. I mentally rehearse my competition plan a lot in training.	1	2	3	4	5	6	7	8	9
5. When my training session isn't going well, I try to overcome the problem.	1	2	3	4	5	6	7	8	9
6. It is easy for me to focus in training even when there are distractions.	1	2	3	4	5	6	7	8	9
7. I have a competition plan that I prepare and practice in training.	1	2	3	4	5	6	7	8	9
8. I find it hard to keep trying if I make a mistake in training.	1	2	3	4	5	6	7	8	9
9. I rarely get distracted from my training program.	1	2	3	4	5	6	7	8	9
10. When something goes wrong in training I find it difficult to carry on with my training program.	1	2	3	4	5	6	7	8	9
11. When training, nothing distracts me from my training program.	1	2	3	4	5	6	7	8	9
12. I always prepare very carefully for competitions.	1	2	3	4	5	6	7	8	9
13. I am good at dealing with problems during training.	1	2	3	4	5	6	7	8	9

Appendix 8 : Recruitment Email for (Chapter 4 (a))

Dear Head Coach,

I am writing to let you know about research that I am conducting in the School of Sport, Exercise and Rehabilitation Sciences at the University of Birmingham and to request your permission to involve your club/team.

I am interested in the coaches' role in encouraging athletes' mental skills in practice and competition and how this is related to different athlete outcomes (e.g. athletes' confidence in competition). I am recruiting both coaches and athletes who are 18 years or over who are currently training and competing for their sport, regardless of their performance level, years of experience, or whether they are in/off the season. The athletes must have been working with their current coach/head coach for at least one year before completing the survey.

Participation would involve completing an online questionnaire pack that will take approximately 10 minutes. Athletes will be asked questions regarding their sports background, playing experience, length of coach relationship, and competition level. Coaches will be asked about their sports background, coaching experience, highest coaching qualification, and years of working with athletes.

If you are willing for the club/team to be involved in the research, I have included information sheets attached to this email that can be forwarded to any other coaches and athletes. I could also arrange a convenient time and day to discuss the study and answer any questions you might have. Participation is voluntary, and there is no compulsion to take part. Anyone who chooses to participate will be asked to provide their informed consent on the online survey's first page. Participants (undergraduate students) in the School of Sport, Exercise and Rehabilitation Sciences at the University of Birmingham are eligible for a research hour to participate in this study. In contrast, the first 200 hundred coaches who participate in the study will receive a £5 Amazon voucher for completing the questionnaire. All coaches who participate in the study will be eligible to enter their name into a prize draw for a £50 Amazon voucher.

The online survey for athletes can be accessed here: www.xxxxx.xxx

The online survey for coaches can be accessed here: www.xxx.xxx

If you would like to know more about this study, please do not hesitate to contact me.

Many thanks in advance for considering my request.

Yours sincerely,

Che Nadia Che Samsudin

Doctoral Researcher
School of Sports, Exercise, and Rehabilitation Sciences,
University of Birmingham

Appendix 9 : Information Letter for (Chapter 4 (a))

"Coaches' Encouragement of Athletes Use of Mental Skills Strategies during Practice and Competition"

Dear Participant,

I am a PhD student in the School of Sport, Exercise, & Rehabilitation Sciences at the University of Birmingham. In this current study, I am investigating the topic of "Coaches' Encouragement of Athletes Use of Mental Skills Strategies during Practice and Competition". Information on this study is provided below, along with what is involved if you decide to participate.

What is our study about?

Coaches can positively affect athletes' performance, behaviour, and psychological and emotional well-being. Coaches may also create, develop and influence young athletes' mental preparation by mentoring and encouraging mental skills (e.g., imagery, goal-setting, self-talk). Encouragement by coaches may affect athletes' use of different performance strategies in practice and competition. I am interested in how your main coach encourages you to use different mental skills in practice and competition and how this impacts your perceptions of the coach, the quality of the relationship you have with them, and your experiences during practice and competition.

Who can take part and compensation?

I am recruiting athletes 18 years and over who are currently (i.e., injury free) training and competing in their sport, regardless of level, experience, or phases of seasons, playing experiences and have been working with their current main coach for at least one year. Participants (undergraduate students) in the School of Sport, Exercise and Rehabilitation Sciences at the University of Birmingham are eligible for one research hour for their participation in this study.

How can I take part?

If you decide to participate in our study, you will be asked to complete an online questionnaire pack that will take approximately 20 minutes and can be found here: www.XXXXX (**URL address to be added once the online version is created**).

Do I have to take part?

Please note, your participation in this study is voluntary, and you may withdraw any time up to **2 weeks** following your participation. You will be assigned a unique response ID number upon your successful completion of the survey. You can quote the ID number if you wish to withdraw your response from the survey. The ID number can be printed out, sent by email or downloaded as a PDF. If you choose to withdraw from the survey, please contact me (contact details below) to inform me of your decision. If you decide to withdraw, your data will be destroyed and not included in the study.

If you would like to know more about this study, please do not hesitate to contact me. I can also email you a copy of these results if you wish to provide your email address on the consent form.

What will happen to the results of the research study?

By participating in this study, you agree that your results may be used for scientific purposes, including publication in scientific journals, so long as your confidentiality is maintained. There are

no known risks associated with participation in this research. **All your personal data will remain confidential and will be solely used for academic purposes. Consequently, we would be grateful if you were honest in your responses to the questionnaires.** Under **General Data Protection Regulation (GDPR) (2018)**, raw and processed data from this investigation will be kept for ten years following the study's completion. Electronic files will be stored in a password-protected file stored on the University's secured server. Only the researcher and supervisors will only access your data. After this period, all the data collected will be destroyed.

Many thanks,

Che Nadia
Doctoral Researcher

[Redacted signature]

Research Supervisors :
Professor Jennifer Cumming

[Redacted signature]

Dr Ian. D. Boardley

[Redacted signature]

School of Sport, Exercise and Rehabilitation Sciences,
University of Birmingham, Birmingham,
B15 2TT

Appendix 10 : Consent Form for Chapter 4 (a)

Consent Form for Participation in the Research Study Entitled:

"Coaches' Encouragement of Athletes Use of Mental Skills Strategies during Practice and Competition"

	Tick to consent
I have read the information provided and any questions I have been answered to my satisfaction in this letter and/or I am aware that I can contact the researchers for further information.	
I agree to participate in this research, realizing that I may withdraw at any time – up to 2 weeks following my participation – without reason and without prejudice.	
I understand that all information provided is treated as strictly confidential and will not be released by the investigator unless required to by law.	
I have been advised as to what data is being collected, what the purpose is, and what will be done with the data upon completion of the research	
I agree that study data gathered for the study may be published provided my name or other identifying information is not used.	
I would like to be contacted after the study completed with a summary of the result. (Please provide your email below if you wish to be contacted)	
I agree to participate in the study and entitled for ONE research hour as a compensation.	
Voluntary Consent by Participant: o I have read the preceding consent form, or it has been read to me, and I fully understand the contents of this document and voluntarily consent to participate in the research study entitled "Coaches' Encouragement of Athletes Use of Mental Skills Strategies during Practice and Competition". All of my questions concerning the research have been answered to my satisfaction. I hereby agree to participate in this research study. I also voluntarily agree to all the statements described in this document and understand this consent ends after this study.	

Name : _____

Email : _____

Date : ____/____/____ .

Your kind cooperation and truthfulness in answering the questionnaire and involvement with this study are much appreciated.

Thank you.

Appendix 11 : Questionnaire Pack for (Chapter 4 (a))



UNIVERSITY OF
BIRMINGHAM

Instructions

This questionnaire is made of 6 parts. In each part, you will be asked to read several sentences. You should respond to each sentence separately using the scale on the right-hand side and circling the appropriate number. The scale changes in each part so please make sure you read it carefully. If you make a mistake cross it out and circle another number. Please respond to all the sentences. **There are no right or wrong answers, so please answer honestly.** Some sentences may appear similar but please respond to all statements by circling the appropriate number.

Part 1: Demographic Questions

Please fill in the blank or tick the appropriate response.

Age: _____ Years

Gender: Female ☐ Male ☐ Other ☐

What is your main/major sport? _____

Gender of your current coach Female ☐ Male ☐ Other ☐

PLEASE KEEP THIS SPORT IN MIND WHEN COMPLETING THE REST OF THE QUESTIONNAIRE!

How would you classify your sport? Individual ☐ Team ☐

What level do you currently play (check highest level)?

Recreational ☐ Club ☐ County ☐ Regional ☐ Elite ☐

If you compete for the University, what team do you play on? _____ (e.g., 1st, 2nd, 3rd)

What phase of the season are you currently in?

Pre-Season ☐ Competitive Season ☐ Off-Season ☐ N/A ☐

What is the total number of years you have participated in this sport (including this year)? _____
Years

What is the total number of years you have worked with your current coach (including this year)?
_____ Years (If less than a year, please indicate the number of months: _____ Months)

On average, how many hours per week do you train/compete? _____ hours.

Part 2: How often does your coach encourage you to use performance strategies in PRACTICE?

Each of the following items describes a specific situation that you may encounter in your practice. Please rate how frequently these situations apply to you from 1 (never) to 5 (always).

"In practice, my coach encourages me to"...	Never	Rarely	Sometimes	Often	Always
33. Motivate myself to train through positive self-talk	1	2	3	4	5
34. Control my emotions when things are not going well	1	2	3	4	5
35. Perform skills without consciously thinking	1	2	3	4	5
36. Set very specific goals	1	2	3	4	5
37. Imagine what my performance will feel like when I am visualizing	1	2	3	4	5
38. Get my intensity levels just right	1	2	3	4	5
39. Use relaxation techniques to improve my performance	1	2	3	4	5
40. Control distracting thoughts when training	1	2	3	4	5
41. Talk positively to get the most out of practice	1	2	3	4	5
42. Not let my performance suffer when something upsets me	1	2	3	4	5
43. Perform automatically without having to consciously control each movement	1	2	3	4	5
44. Set goals to help me use practice time effectively	1	2	3	4	5

"In practice, my coach encourages me to"...

	Never	Rarely	Sometimes	Often	Always
45. Imagine watching myself as if on video replay when I visualize my performance	1	2	3	4	5
46. Get myself "up" when feeling flat	1	2	3	4	5
47. Use practice time to work on relaxation technique	1	2	3	4	5
48. Focus my attention effectively	1	2	3	4	5
49. Manage my self-talk effectively	1	2	3	4	5
50. Not let my emotions keep me from performing my best	1	2	3	4	5
51. Allow whole skill or movement to happen naturally without concentrating on each part	1	2	3	4	5
52. Set realistic but challenging goals	1	2	3	4	5
53. Rehearse my performance in my mind	1	2	3	4	5
54. Psych myself up to perform well	1	2	3	4	5
55. Practise using relaxation techniques at workouts	1	2	3	4	5
56. Maintain my concentration during long practices	1	2	3	4	5
57. Say things to myself to help my practice performance	1	2	3	4	5
58. Not get frustrated or emotionally upset when practice does not go well	1	2	3	4	5
59. Monitor all the details of each move to successfully execute skills	1	2	3	4	5

"In practice, my coach encourages me to"...	Never	Rarely	Sometimes	Often	Always
60. Not set goals for practice, just go out and do it	1	2	3	4	5
61. Visualize successful past performances	1	2	3	4	5
62. Get into an ideal performance state	1	2	3	4	5
63. Use workouts to practise relaxing	1	2	3	4	5
64. Keep my attention from wandering while training	1	2	3	4	5

Part 3. How often does your coach encourage you to use mental skills in COMPETITION?

Each of the following items describes a specific situation that you may encounter in competition. Please rate how frequently these situations apply to you from 1 (never) to 5 (always).

"In competition, my coach encourages me to"...

	Never	Rarely	Sometimes	Often	Always
1. Talk positively to get the most out of competitions	1	2	3	4	5
2. Keep emotions in control when under pressure	1	2	3	4	5
3. Trust my body to perform skills	1	2	3	4	5
4. Set personal performance goals	1	2	3	4	5
5. Rehearse performance in my mind	1	2	3	4	5
6. Get myself "up" if I feel flat	1	2	3	4	5
7. Use relaxation techniques to improve performance	1	2	3	4	5
8. Keep my thoughts positive	1	2	3	4	5
9. Avoid visual distractions that would affect my performance	1	2	3	4	5
10. Manage self-talk effectively	1	2	3	4	5
11. Manage my emotions at competitions	1	2	3	4	5
12. Be sufficiently prepared to perform on automatic pilot	1	2	3	4	5

"In competition, my coach encourages me to"...

	Never	Rarely	Sometimes	Often	Always
13. Set very specific goals	1	2	3	4	5
14. Imagine competitive routine before I do it	1	2	3	4	5
15. Get myself psyched up to perform well	1	2	3	4	5
16. Use relaxation strategies as a coping strategy	1	2	3	4	5
17. Use positive self-talk	1	2	3	4	5
18. Not let environmental conditions affect my performance	1	2	3	4	5
19. Say things to help competitive performance	1	2	3	4	5
20. Control emotions if I make a mistake	1	2	3	4	5
21. Allow whole skill or movement to happen naturally without concentrating on each part	1	2	3	4	5

22. Evaluate whether I achieve competition goals	1	2	3	4	5
23. Rehearse the feel of performance in my imagination	1	2	3	4	5
24. Get my intensity levels just right	1	2	3	4	5
25. To use a relaxation technique when I am starting to "lose it"	1	2	3	4	5
26. Have thoughts of success	1	2	3	4	5
27. Not let sleep loss impair my performance	1	2	3	4	5
28. Say specific cue words or phrases to help performance	1	2	3	4	5
29. Not let my emotions keep me from performing my best	1	2	3	4	5
30. To perform skills without consciously thinking	1	2	3	4	5
31. Set specific result goals	1	2	3	4	5
32. Visualize competition going exactly the way I want it	1	2	3	4	5
33. Get myself ready to perform	1	2	3	4	5
34. Relax myself to get ready to perform	1	2	3	4	5
35. Imagine succeeding	1	2	3	4	5
36. Not let loud noises affect my performance	1	2	3	4	5

Part 4. What are your perceptions of your coach's behaviour?

Each of the following items describes a situation that you may encounter during your practice and competition. Please rate how frequently these situations apply to you from 1 (Never) to 7 (Always).

"My coach....."

	Never		Fairly often			Always	
Mental preparation							
1. Provides advice on how to perform under pressure	1	2	3	4	5	6	7
2. Provides advice on how to be mental tough	1	2	3	4	5	6	7
3. Provides advice on how to stay confident about my abilities	1	2	3	4	5	6	7
4. Provides advice on how to stay positive about me	1	2	3	4	5	6	7
5. Provides advice on how to stay focused	1	2	3	4	5	6	7
Goal Setting							
6. Helps me identify strategies to achieve my goals	1	2	3	4	5	6	7
7. Monitors progress towards my goals	1	2	3	4	5	6	7
8. Helps me set-short term goals	1	2	3	4	5	6	7
9. Helps me identify target dates for attaining goals	1	2	3	4	5	6	7
10. Helps me set long term goals	1	2	3	4	5	6	7
11. Provides support to attain my goals	1	2	3	4	5	6	7

	Never		Fairly often		Always		
Competition Strategies							
12. Helps me focus on the process of performing well	1	2	3	4	5	6	7
13. Prepares me to face a variety of situations in competition	1	2	3	4	5	6	7
14. Keeps me focused on competition	1	2	3	4	5	6	7
15. Has a consistent routine at competition	1	2	3	4	5	6	7
16. Deals with problems I may experience at competitions	1	2	3	4	5	6	7
17. Shows confidence in my ability during competitions	1	2	3	4	5	6	7
18. Ensures that facilities and equipment are organised for competition	1	2	3	4	5	6	7
PERSONAL RAPPORT							
19. Shows understanding for me as a person	1	2	3	4	5	6	7
20. Is a good listener	1	2	3	4	5	6	7
21. Is easily approachable about personal problems I might have	1	2	3	4	5	6	7
22. Demonstrates concern for my whole self (i.e., other parts of my life beyond sport)	1	2	3	4	5	6	7
23. Is trustworthy with my personal problems	1	2	3	4	5	6	7
24. Maintains confidentiality regarding my personal life.	1	2	3	4	5	6	7

Part 5: What are your thoughts you might have about your coach?

Please read these statements carefully and indicate your level of agreement with each one by circling the appropriate number. Please respond **honestly** from 1 (Strongly Disagree) to 7 (Strongly Agree) .

<i>Regarding my current coach-athlete relationship...</i>	Strongly Disagree	Disagree	Slightly Disagree	Neutral	Slightly Agree	Agree	Strongly Agree
1. I like my coach	1	2	3	4	5	6	7
2. I trust my coach	1	2	3	4	5	6	7
3. I respect my coach	1	2	3	4	5	6	7
4. I appreciate the sacrifices my coach has experienced to improve performance	1	2	3	4	5	6	7
5. I am committed to my coach	1	2	3	4	5	6	7
6. I am close to my coach	1	2	3	4	5	6	7

7. I think that my sport career is promising with my coach	1	2	3	4	5	6	7
8. In training I am at ease with my coach	1	2	3	4	5	6	7
9. In training I am responsive to his/her efforts	1	2	3	4	5	6	7
10. In training I am ready to do my best	1	2	3	4	5	6	7
11. In training I adopt a friendly stance	1	2	3	4	5	6	7

Part 6: What are your thoughts and feelings that you generally experience during competition?

Please read each statement carefully and circle the appropriate number in each section. The inventory is divided into 2 sections. Section 1 asks you to rate the level (amount) of symptoms that you **usually** experience, and section 2 asks you to rate whether you **usually** view these symptoms as positive (facilitative) or negative (debilitative) towards performance

		SECTION 1 (com				SECTION 2 (dire						
		Not at all	Some- what	Moder- ately so	Very much so	Very negative (debilitative)			Unimportant		Very positive (facilitative)	
1	I am concerned about this competition	1	2	3	4	-3	-2	-1	0	+1	+2	+3
2	I feel nervous	1	2	3	4	-3	-2	-1	0	+1	+2	+3
3	I feel at ease	1	2	3	4	-3	-2	-1	0	+1	+2	+3
4	I have self-doubt	1	2	3	4	-3	-2	-1	0	+1	+2	+3
5	I feel jittery	1	2	3	4	-3	-2	-1	0	+1	+2	+3
6	I feel comfortable	1	2	3	4	-3	-2	-1	0	+1	+2	+3
7	I am concerned that I may not do as well in this competition as I could	1	2	3	4	-3	-2	-1	0	+1	+2	+3
8	My body feels tense	1	2	3	4	-3	-2	-1	0	+1	+2	+3
9	I feel self-confident	1	2	3	4	-3	-2	-1	0	+1	+2	+3
10	I am concerned about losing	1	2	3	4	-3	-2	-1	0	+1	+2	+3

11	I feel tense in my stomach	1	2	3	4	-3	-2	-1	0	+1	+2	+3
12	I feel secure	1	2	3	4	-3	-2	-1	0	+1	+2	+3
13	I am concerned about choking under pressure	1	2	3	4	-3	-2	-1	0	+1	+2	+3
14	My body feels relaxed	1	2	3	4	-3	-2	-1	0	+1	+2	+3
15	I am confident I can meet the challenge	1	2	3	4	-3	-2	-1	0	+1	+2	+3
16	I am concerned about performing poorly	1	2	3	4	-3	-2	-1	0	+1	+2	+3
17	My heart is racing	1	2	3	4	-3	-2	-1	0	+1	+2	+3
18	I am confident about performing well	1	2	3	4	-3	-2	-1	0	+1	+2	+3
19	I am worried about reaching my goal	1	2	3	4	-3	-2	-1	0	+1	+2	+3
20	I feel my stomach sinking	1	2	3	4	-3	-2	-1	0	+1	+2	+3
21	I feel mentally relaxed	1	2	3	4	-3	-2	-1	0	+1	+2	+3
22	I am concerned that others will be disappointed with my performance	1	2	3	4	-3	-2	-1	0	+1	+2	+3
23	My hands are clammy	1	2	3	4	-3	-2	-1	0	+1	+2	+3

24	I am confident because I mentally picture myself reaching my goal	1	2	3	4	-3	-2	-1	0	+1	+2	+3
25	I am concerned I won't be able to concentrate	1	2	3	4	-3	-2	-1	0	+1	+2	+3
26	My body feels tight	1	2	3	4	-3	-2	-1	0	+1	+2	+3
27	I am confident at coming through under pressure	1	2	3	4	-3	-2	-1	0	+1	+2	+3

Appendix 12 : Information Letter for Chapter 4 (b)

"Coaches' Encouragement of Athletes Use of Mental Skills Strategies during Practice and Competition"

Dear Coaches,

I am a PhD student in the School of Sport, Exercise, & Rehabilitation Sciences at the University of Birmingham. In this current study, I am investigating the topic of "Coaches' Encouragement of Athletes Use of Mental Skills Strategies during Practice and Competition". Information on this study is provided below, along with what is involved if you decide to participate.

What is our study about?

Coaches can positively affect athletes' performance, behaviour, and psychological and emotional well-being. Coaches may also create, develop and influence young athletes' mental preparation by mentoring and encouraging mental skills (e.g., imagery, goal-setting, self-talk). Encouragement by coaches may affect the use of different performance strategies in practice and competition. I am interested in how coaches encourage their athletes to use different mental skills in practice and competition and how this impacts your perceptions of the coach, the quality of the relationship you have with your athletes, and how confident you are in coaching.

Who can take part and compensation?

I am recruiting coaches who are currently coaching their athletes/team regardless of gender, age, and sports background, have coaching qualifications, years of experience working with athletes/teams. To participate in this study, you will have worked with your current athletes/team for at least a year. The first 200 hundred coaches who participate in the study will receive a £5 Amazon voucher for completing the questionnaire. All coaches who participate in the study are eligible to enter their names into a prize draw for a £50 Amazon voucher.

How can I take part?

If you decide to participate in our study, you will be asked to complete an online questionnaire pack that will take approximately 20 minutes to complete at www.XXXXXX (**URL address to be added once the online version is created**).

Do I have to take part?

Please note, your participation in this study is voluntary, and you may withdraw any time up to **2 weeks** following your participation. You will be assigned a unique response ID number upon your successful completion of the survey. You can quote the ID number if you wish to withdraw your response from the survey. The ID number can be printed out, send by email or downloaded as a PDF. If you choose to withdraw from the survey, please contact me (contact details below) to inform me of your decision. If you decide to withdraw, your data will be destroyed and not included in the study. If you would like to know more about this study, please do not hesitate to contact me. I can also email you a copy of these results if you wish to provide your email address on the consent form.

What will happen to the results of the research study?

By participating in this study, you agree that your results may be used for scientific purposes, including

publication in scientific journals, so long as your confidentiality is maintained. There are no known risks associated with participation in this research. **All your data will remain confidential and will be solely used for academic purposes. Consequently, we would be grateful if you were honest in your responses to the questionnaires.** Under General Data Protection Regulation (GDPR) (2018), raw and processed data from this investigation will be kept for ten years following the study's completion. Hard copies of questionnaires will be held securely in a locked filing cabinet, and computer files will be stored on a password-protected University computer. The study investigators and supervisors will only access your data. After this period, all the data collected will be destroyed.

Many thanks,

Che Nadia Che Samsudin
Doctoral Researcher

Research Supervisors :

1. Professor Jennifer Cumming

2. Dr Ian. D. Boardley

School of Sport, Exercise and Rehabilitation Sciences,
University of Birmingham, B15 2TT

Appendix 13 : Consent form for Chapter 4 (b))

Consent Form for Participation in the Research Study Entitled:

"Coaches' Encouragement of Athletes Use of Mental Skills Strategies during Practice and Competition"

	Tick to consent
I have read the information provided, and any questions I have been answered to my satisfaction in this letter and/or I am aware that I can contact the researchers for further information.	
I agree to participate in this research, realizing that I may withdraw at any time – up to 2 weeks following my participation – without reason and prejudice.	
I understand that all information provided is treated as strictly confidential and will not be released by the investigator unless required by law.	
I have been advised what data is being collected, what the purpose is, and what will be done with the data upon completion of the research.	
I agree that study data gathered for the study may be published provided my name or other identifying information is not used.	
I would like to be contacted after the study completed with a summary of the result. (Please provide your email below if you wish to be contacted)	
I agree to participate in this study and entitled to compensation.	
Voluntary Consent by Participant: o I have read the preceding consent form, or it has been read to me, and I fully understand the contents of this document and voluntarily consent to participate in the research study entitled "Coaches' Encouragement of Athletes Use of Mental Skills Strategies during Practice and Competition". All of my questions concerning the research have been answered to my satisfaction. I hereby agree to participate in this research study. I also voluntarily agree to all the statements described in this document and understand this consent ends after this study.	

Name : _____

Email : _____

Date : ____/____/____ .

Your kind cooperation and truthfulness in answering the questionnaire and involvement with this study are much appreciated.

Thank y

Appendix 14 : Questionnaire Pack for Chapter 4 (b))



UNIVERSITY OF
BIRMINGHAM

Instructions

This questionnaire is made of **5 parts**. In each part, you will be asked to read several sentences. You should respond to each sentence separately using the scale on the right-hand side and circling the appropriate number. The scale changes in each part, so please make sure you read it carefully. If you make a mistake, cross it out and circle another number. Please respond to all the sentences. **There are no right or wrong answers, so please answer honestly.** Some sentences may appear similar, but please respond to all statements by circling the appropriate number.

.....

Part 1: Demographic Questions

Please fill in the blank or tick the appropriate response.

Age: _____ Years

Gender: Female ☐ Male ☐ Other ☐

What is your main sport? _____ (sport that you coach majority of the time)

PLEASE KEEP THIS SPORT IN MIND WHEN COMPLETING THE REST OF THE QUESTIONNAIRE!

How would you classify your sport? Individual ☐ Team ☐

What level do you currently coach (check highest level)?

Recreational ☐ Club ☐ County ☐ Regional ☐ Elite ☐

What phase of the season are your team currently in?

Pre-Season ☐ Competitive Season ☐ Off-Season ☐ N/A ☐

What is your highest coaching qualification? _____ (for main sport)

How many years of experience do you have as a coach (including this year)? _____ Years

What is the total number of years you have worked/coached with your current team/sport (including this year)? _____ Years

(If less than a year, please indicate the number of months: _____ Months)

Part 2: How often does you encourage your athletes to use performance strategies in PRACTICE?

Each of the following items describes a specific situation that you may encounter in your practice. Please rate how frequently these situations apply to you from 1 (never) to 5 (always).

"In practice, I encourage my athletes to....."	Never	Rarely	Sometimes	Often	Always
1. Motivate themselves to train through positive self-talk	1	2	3	4	5
2. Control their emotions when things are not going well	1	2	3	4	5
3. Perform skills without consciously thinking	1	2	3	4	5
4. Set very specific goals	1	2	3	4	5
5. Imagine what their performance will feel like when visualizing	1	2	3	4	5
6. Get their intensity levels just right	1	2	3	4	5
7. Use relaxation techniques to improve their performance	1	2	3	4	5
8. Control distracting thoughts when training	1	2	3	4	5
9. Talk positively to get the most out of practice	1	2	3	4	5
10. Not let their performance suffer when something upsets them	1	2	3	4	5
11. Perform automatically without having to consciously control each movement	1	2	3	4	5

"In practice, I encourage my athletes to....."

	Never	Rarely	Sometimes	Often	Always
12. Set goals to help them use practice time effectively	1	2	3	4	5
13. Imagine watching themselves as if on video replay when visualize their performance	1	2	3	4	5
14. Get themselves "up" when feeling flat	1	2	3	4	5
15. Use practice time to work on relaxation technique	1	2	3	4	5
16. Focus their attention effectively	1	2	3	4	5
17. Manage their self-talk effectively	1	2	3	4	5
18. Not let their emotions keep them from performing their best	1	2	3	4	5
19. Allow whole skill or movement to happen naturally without concentrating on each part	1	2	3	4	5
20. Set realistic but challenging goals	1	2	3	4	5
21. Rehearse their performance in my mind	1	2	3	4	5
22. Psych themselves up to perform well	1	2	3	4	5
23. Practice using relaxation techniques at workouts	1	2	3	4	5
24. Maintain their concentration during long practices	1	2	3	4	5

"In practice, I encourage my athletes to....."

	Never	Rarely	Sometimes	Often	Always
25. Say things to themselves to help their practice performance	1	2	3	4	5
26. Not get frustrated or emotionally upset when practice does not go well	1	2	3	4	5
27. Monitor all the details of each move to successfully execute skills successfully	1	2	3	4	5
28. Not set goals for practice, just go out and do it	1	2	3	4	5
29. Visualize successful past performances	1	2	3	4	5
30. Get into an ideal performance state	1	2	3	4	5
31. Use workouts to practice relaxing	1	2	3	4	5
32. Keep their attention from wandering while training	1	2	3	4	5

Part 3. How often does you encourage your athletes to use mental skills in COMPETITION?

Each of the following items describes a specific situation that you may encounter in competition. Please rate how frequently these situations apply to you from 1 (never) to 5 (always).

"In competition, I encourage my athletes to"....

	Never	Rarely	Sometimes	Often	Always
1. Talk positively to get the most out of competitions	1	2	3	4	5
2. Keep emotions in control when under pressure	1	2	3	4	5
3. Trust their body to perform skills	1	2	3	4	5
4. Set personal performance goals	1	2	3	4	5
5. Rehearse performance in their mind	1	2	3	4	5
6. Get themselves self "up" if I feel flat	1	2	3	4	5
7. Use relaxation techniques to improve performance	1	2	3	4	5
8. Keep their thoughts positive	1	2	3	4	5
9. Avoid visual distractions that would affect their performance	1	2	3	4	5
10. Manage self-talk effectively	1	2	3	4	5
11. Manage their emotions at competitions	1	2	3	4	5
12. Be sufficiently prepared to perform on automatic pilot	1	2	3	4	5

"In competition, I encourage my athletes to"....

	Never	Rarely	Sometimes	Often	Always
13. Set very specific goals	1	2	3	4	5
14. Imagine competitive routine before they do it	1	2	3	4	5
15. Get themselves psyched up to perform well	1	2	3	4	5
16. Use relaxation strategies as a coping strategy	1	2	3	4	5
17. Use positive self-talk	1	2	3	4	5
18. Not let environmental conditions affect their performance	1	2	3	4	5
19. Say things to help competitive performance	1	2	3	4	5
20. Control emotions if they make a mistake	1	2	3	4	5
21. Allow the whole skill or movement to happen naturally without concentrating on each part	1	2	3	4	5

22. Evaluate whether their achieve competition goals	1	2	3	4	5
23. Rehearse the feel of performance in their imagination	1	2	3	4	5
24. Get themselves intensity levels just right	1	2	3	4	5
25. To use a relaxation technique when they starting to "lose it"	1	2	3	4	5
26. Have thoughts of success	1	2	3	4	5
27. Not let sleep loss impair their performance	1	2	3	4	5
28. Say specific cue words or phrases to help performance	1	2	3	4	5
29. Not let their emotions keep them from performing their best	1	2	3	4	5
30. To perform skills without consciously thinking	1	2	3	4	5
31. Set specific result goals	1	2	3	4	5
32. Visualize competition going exactly the way they want it	1	2	3	4	5
33. Get themselves ready to perform	1	2	3	4	5
34. Relax themselves to get ready to perform	1	2	3	4	5
35. Imagine succeeding	1	2	3	4	5
36. Not let loud noises affect their performance	1	2	3	4	5

Part 4. How do you use your emotion during coaching?

Each of the following items describes a situation that you may encounter in your coaching. Please rate how frequently these situations apply to you from 1 (Strongly Disagree) to 5 (Strongly Agree).

	Strongly Disagree	Disagree	Neither Disagree nor Agree	Agree	Strongly Agree
1. I know when to speak about my personal problems to others	1	2	3	4	5
2. When I am faced with obstacles, I remember times I faced similar obstacles and overcame them	1	2	3	4	5
3. I expect that I will do well on most things I try	1	2	3	4	5
4. Other people find it easy to confide in me	1	2	3	4	5
5. I find it hard to understand the non-verbal messages of other people	1	2	3	4	5
6. Some of the major events of my life have led me to re-evaluate what is important and not important	1	2	3	4	5
7. When my mood changes, I see new possibilities	1	2	3	4	5
8. Emotions are one of the things that make my life worth living	1	2	3	4	5
9. I am aware of my emotions as I experience them	1	2	3	4	5
10. I expect good things to happen	1	2	3	4	5
11. I like to share my emotions with others	1	2	3	4	5
12. When I experience a positive emotion, I know how to make it last	1	2	3	4	5

	Strongly Disagree	Disagree	Neither Disagree nor Agree	Agree	Strongly Agree
13. I arrange events others enjoy	1	2	3	4	5
14. I seek out activities that make me happy	1	2	3	4	5
15. I am aware of the non-verbal messages I send to others	1	2	3	4	5
16. I present myself in a way that makes a good impression on others	1	2	3	4	5
17. When I am in a positive mood, solving problems is easy for me	1	2	3	4	5
18. By looking at their facial expressions, I recognize the emotions people are experiencing	1	2	3	4	5
19. I know why my emotions change	1	2	3	4	5
20. When I am in a positive mood, I am able to come up with new ideas	1	2	3	4	5
21. I have control over my emotions	1	2	3	4	5
22. I easily recognize my emotions as I experience them	1	2	3	4	5
23. I motivate myself by imagining a good outcome to tasks I take on	1	2	3	4	5
24. I compliment others when they have done something well	1	2	3	4	5
25. I am aware of the non-verbal messages other people send	1	2	3	4	5

	Strongly Disagree	Disagree	Neither Disagree nor Agree	Agree	Strongly Agree
26. When another person tells me about an important event in his or her life, I almost feel as though I have experienced this event myself	1	2	3	4	5
27. When I feel a change in emotions, I tend to come up with new ideas	1	2	3	4	5
28. When I am faced with a challenge, I give up because I believe I will fail	1	2	3	4	5
29. I know what other people are feeling just by looking at them	1	2	3	4	5
30. I help other people feel better when they are down	1	2	3	4	5
31. I use good moods to help myself keep trying in the face of obstacles	1	2	3	4	5
32. I can tell how people are feeling by listening to the tone of their voice	1	2	3	4	5
33. It is difficult for me to understand why people feel the way they do	1	2	3	4	5

Part 5. How confident your athlete is in your ability to coach?

Please rate your confidence in your coachability for each of the items below by circling the number that best describes your thoughts, from 0 (Not at all confident) to 9 (Extremely confident).

"Estimate your athletes' confidence in your ability . . ."

	Not at all confident		Moderately confident			Extremely Confident			
MOTIVATION									
1. Help my athletes maintain confidence in themselves	0	1	2	4	5	6	7	8	9
2. Mentally prepare my athletes for game strategies	0	1	2	4	5	6	7	8	9
3. Build the self-esteem of my athletes	0	1	2	4	5	6	7	8	9
4. Motivate my athletes	0	1	2	4	5	6	7	8	9
5. Build team cohesion	0	1	2	4	5	6	7	8	9
6. Build the self –confidence of my athletes	0	1	2	4	5	6	7	8	9
7. Build team confidence	0	1	2	4	5	6	7	8	9

