

**Antecedents and Outcomes of Sports Coaches' Interpersonal Behaviours: Examining  
External and Internal Control from a Self-Determination Theory Perspective.**

By

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## Abstract

Grounded in Self-Determination Theory, the aim of this thesis was to examine the antecedents and outcomes of internally and externally controlling coach behaviours. Despite the known presence of controlling behaviours within sport, there has been an absence of research on these two controlling dimensions and their co-occurrence within a competitive environment. These limitations were addressed through three separate studies that included athletes and coaches from university sport clubs. Study 1 applied a Person-Centred Approach (PCA) to identify coaches' perceptions of their combined use of autonomy-supportive, internally, and externally controlling behaviours, and associations with their basic psychological needs, motivation, and pressures within their working environment. Study 2 used a PCA to examine the three coaching behaviours from the athlete's perspective, exploring their predictive utility for adaptive and maladaptive outcomes. Finally, study 3 investigated the relationships of negative athlete outcomes, with congruent and incongruent coach-athlete dyad perceptions of internally and externally controlling coach behaviours.

The emergence of a range of coach behaviour profiles in study 1 and 2 supports the importance of adopting a PCA to explore the distinct controlling dimensions; finding combinations of external control and autonomy-support were associated more positively with outcomes in comparison to the use of internal control. Study 2 and 3 revealed that moderate perceptions of internally and externally controlling coach behaviours were more positively associated with athlete outcomes, in contrast to lower perceptions. Therefore, implying that the different controlling coaching behaviours must always be considered and understood when identifying the most adaptive profile in relation to athlete being coached. Additionally, an initial indication of the need for future research to continue to explore relationships among congruent and incongruent coach-athlete dyad perceptions was supported. Across the three studies, support for the distinctive presence that both internal and external control have within the competitive sport environment was evident.

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I would like to dedicate this thesis  
in loving memory of  
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## Keywords

Autonomy-supportive behaviour – behaving in a way that provides others with choice, a rationale for tasks, acknowledgement of feelings, and promoting the use of initiative and independence (Mageau & Vallerand, 2003).

Controlling behaviour – behaving in a pressuring, coercive, and authoritarian manner to inflict a specific and preconceived way of thinking and behaving upon another person (Bartholomew et al., 2010).

Internal control – behaviour that intends to place pressure on individuals by appealing to their feelings of guilt, shame, anxiety, or self-worth (Soenens & Vansteenkiste, 2010).

External control – behaviour that intends to coerce and control individuals using external contingencies, such as deadlines and threats of punishment (Soenens & Vansteenkiste, 2010).

Basic Psychological Needs – The three basic psychological needs (autonomy, competence, and relatedness) are all considered to be innate, present in all developmental periods, and universal across cultures (Deci & Ryan, 2002). These are critical resources which underly individuals' innate inclination to move towards increasing self-organisation, adjustment, and flourishing (Ryan, 1995).

Need satisfaction – individuals feel they are the source of their own actions (autonomy satisfaction), effective in the activities they undertake (competence satisfaction), and experience adequate interpersonal relationships through integrating with other teammates (relatedness satisfaction) (Ryan & Deci, 2017).

Need frustration – individuals perceive pressure and alienation when they perform (autonomy frustration), they experience feelings of failure and an inability to complete a proposed activity (competence frustration), and being isolated from others, and feelings of rejection (relatedness frustration) (Vansteenkiste & Ryan, 2017).

Motivation – the different reasons (motivation regulations) why individuals choose to engage in different behaviours; these reasons lie along a continuum which ranges from controlled to autonomous (Deci & Ryan, 1985; Ryan & Deci, 2007).

Autonomous motivation – intrinsic, integrated and identified regulations; engaging in sport for enjoyment, an integrated sense of self, and valuing the benefits of participation (Ryan & Deci, 2000)

Controlled motivation – introjected and external regulation and amotivation; reasons which fall outside of the inherent rewards of sport participation (Ryan & Deci, 2000)

## Chapter 1

### Introduction

Situated within Self-Determination Theory (SDT; Deci & Ryan, 1985; 2000), this thesis focuses on perceptions of coaching behaviours, their antecedents, and their associations with different outcomes, within the university sport context. The research specifically acknowledges the controlling behaviours used by coaches in combination with autonomy-supportive behaviours, with the aim to explore the internal and external aspects of control. Research has focused primarily on the positive elements of coaching behaviour, examining how autonomy-supportive strategies promote athlete need satisfaction and well-being. As a result, the darker side of coaching within the competitive sport environment, which is linked to control, is often over-looked in order to explore the positive elements. Logically, researchers will be striving to identify the best way to provide adaptive environments that result in positive outcomes for coaches and athletes. However, it is important to acknowledge and study the negative and potentially damaging side of sport that exists, in which athletes are facing negative psychological adjustments that are being prompted by the experience of need frustration, from controlling behaviours (Ryan & Deci, 2017). If we are to understand how we can provide adaptive environments, research into the factors that undermine this and how we can prevent these is just as important as identifying the factors that lead to positive outcomes for coaches and athletes. The controlling, pressured and negative side of coaching behaviours sport is a key area that is currently under-researched, however is still prominent in sport, with coaches often adopting control over more positive and recommended behaviours. The greater our understanding of why this negative environment is still created, despite the knowledge that it is often harmful to all, the easier it will be to educate coaches of the influences on, and effects of, their own behaviour.

Recently, more research has begun examining the controlling behaviours that coaches use in sport, however there are few studies which have investigated how these differ in terms of the internally and externally pressuring strategies used (Bartholomew et al., 2009; 2010; De Meyer et al., 2016). Furthermore, the investigation of these types of controlling behaviours within a high-pressured training and competitive environment appears overlooked, with the tendency to view these as being more normalised, and as such expected by these athletes (Delrue et al., 2019). With this being the case in the sport environment, understanding why coaches may rely on externally or internally controlling strategies is important in order to examine how they are used and the consequences these coaching

behaviours have on athlete outcomes. More recently, it has been recognised within the coaching and teaching literature that leaders adopt both controlling and autonomy-supportive styles in combination, rather than being reliant upon one type of interpersonal behaviour alone (Haerens et al., 2018; Matosic & Cox, 2014). This appears to be a realistic representation of the coaching environment, as despite the awareness that autonomy-support is the recommended and most adaptive style, there are often many determinants that result in this not being the sole behaviour adopted by a coach. In the first section of this chapter, an outline of university sport is given with a focus on the strategic aims and importance of conducting research in this context. Subsequently, it will examine both autonomy-supportive and controlling behaviours using SDT's framework, reviewing current literature in relation to; motivation, basic psychological needs, antecedents, and outcomes for both coaches and athletes. The final section of this introduction will present how the current thesis contributes to addressing the identified limitations in the literature.

### **1.1 An Introduction to Sport at University**

Sport England (2018) acknowledge that Higher Education provides students with the opportunities to continue to participate in sport whilst they study for an academic qualification, as well as offering new sports outside of those experienced within the school curriculum. It is important for research to consider that unlike Physical Education, where a student must participate as the lesson is compulsory, a coach can have a greater impact on whether an athlete chooses to continue in sport as participation occurs in an individual's independent time at university. Ultimately, university sport plays a vital role in trying to sustain sport participation rates during an important transition period for individuals, where physical activity is no longer a requirement of their education and is instead voluntary.

The Governing Body for Higher Education sport in the United Kingdom is British Universities and Colleges Sport (BUCS). The main role of BUCS is to organise competitions between university sport clubs and teams, alongside providing opportunities to compete at the World University Championships and World University Games. BUCS has a membership of almost 170 universities that compete across 50 sports within a league structure; each year engaging 125,000 students throughout the UK. Currently, BUCS consists of six regions within the league format: Midlands, Northern, Northern Ireland, Scottish, South Eastern and Western. This thesis has focused on the Midlands league and the universities who placed within the top 15 places overall in the 2014-15 Academic year. The aim of BUCS is to support students to have the best experience in their university sports career. Thus, highlighting the importance of research continuously developing knowledge in this specific context to ensure

the environment that athletes and coaches are training and working within, is the most adaptive and positive experience for all involved. BUCS has been continuously evolving, with a more prominent awareness growing in both sport and physical activity domains.

University students are exposed to a myriad of stressors during their academic degree experience; transitioning from further education, managing academic deadlines, and learning to live independently (Denovan & Macaskill, 2016). First year undergraduate students have also reported that they arrived feeling under prepared for university and held unrealistic expectations (Kandinko & Mawer, 2013), often believing they would receive the same amount of contact time and staff accessibility as they have experienced previously in further education (Lowe & Cook, 2003; Smith & Hopkins, 2005). Consequently, students at university will commonly find themselves ill-prepared for, and challenged by, being in large cohorts, having limited availability to communicate with staff and a key focus being on independent learning (Murtagh, 2010). In comparison, the university sport club environment can provide a place where connections and accessibility to others is improved. For example, most coaching groups within sports clubs will restrict their sizes to a smaller number of athletes; contrasting to lectures which can exceed two hundred students in attendance, with one lecturer (Cash et al., 2017). With this in mind, a sports coach plays a key role for a student by being available to answer questions and support them with an activity they are choosing to do alongside their academia. As such, this emphasises how a university sports club coach role involves considering many external aspects when working with students, more so than just the coaching of sport specific skills.

University sport and physical activity is seen as an important factor for student recruitment and retention (Byl, 2002; Ciuffo et al., 2014). Amongst those students fortunate enough to receive scholarships and support with their sport when at university, there are also students who are not competing at this higher level who need to be attracted to university settings by adaptive and encouraging sport club environments. As such, this emphasises that sport can be a key factor in a student's choice of university. It is therefore important to ensure this social and relational aspect provides a positive experience; sport can achieve this within a university environment through the creation of a sense of belonging and personal development (Pickard et al., 2020), alongside providing mental and physical health benefits (Eigenschenk et al., 2019).

Research specifically focusing on university sport athletes has looked predominantly at the experience of dual-career athletes, or students transitioning through their sporting career and how the context of university may either enhance or disadvantage their

progression (Aquilina, 2013; Brown et al., 2015). A study using students who were competing in sport at an elite level (national or international), found that despite having access to specialist sport science facilities, lifestyle support and financial scholarships, a number of transitional demands were reported; athletic, academic, psychological, and psychosocial (Brown et al., 2015). Thus, these elite athletes require both internal and external resources to manage and cope with these demands during their time at university. Contrastingly, most students who participate and compete in university sport do so at a more casual level of commitment that would not categorise them as elite, however, this does not prevent them from experiencing the same transitional pressures (Brown et al., 2015). Thus, presenting an interesting area for research to explore in terms of the average student who takes part in sport at university. For example, those who will be confronted by pressures from this academic context, but will not be receiving the additional support that elite student-athletes often receive. Moreover, an examination of the university sport environment at this participatory and less intense competitive level would extend the understanding of the pressures faced by coaches and athletes who are not considered as working with or training to be elite athletes, but still differ to an athlete who is not experiencing additional university pressures. As such, this would enhance the knowledge of how to adapt coach education to inform coaches the most effective approaches to manage these different types of athletes and environments, in order to strive to create the most adaptive experience.

## **1.2 The Importance of University Sport Coaches**

A key factor in a student athlete's experience at university is their sports coach (Bloom et al., 2014). Past studies have investigated how a university sports coach often plays a bigger role than simply improving an athlete's sport performance alone, and in fact also provides support outside of sport; helping with their academic life and own growth (Duchesne et al., 2011; Jowett & Cockerill, 2003). Importantly, Vallée and Bloom (2005) identified that the highest achieving university sports coaches were those who put time into the personal development of their athletes, instead of making their main focus on winning, which in the long-term resulted in greater performance results. Based upon this, Duchesne et al. (2011) suggest that coaches should be assessed on the quality of the relationship they can form with their athletes through the behaviour they choose to adopt, rather than just on their performance and how successful their athletes are in competitions.

In relation to coaches working with university sport clubs, aside from the focus of aiming to get their individual athlete or teams to perform well, there are no specific guidelines that must be followed in order to train their athletes and prepare them for competition within



the BUCS league. In contrast, a physical education teacher often has set lesson plans and key curriculum focus points that they must follow within each lesson. The benefits of the more relaxed approach to training for a coach is that they can deliver their learning points in the manner and structure they wish, due to having greater flexibility in comparison to a teacher. This means they have the opportunity to adapt to the athletes they are working with and focus on specific elements that they may need to improve before upcoming competitions. In contrast, when following a set plan like the curriculum, lessons will often progress even if not all students have mastered the previous tasks.

Dissimilar to teaching, universities do not have specific requirements in relation to the qualification required in order to coach for a sports club. A level two equivalent National Governing Body qualification is the recommended lead level for a coach to possess, however this may not always be realistic for every university club to adhere to, particularly when most sports clubs may train in the middle of a working day or week. Thus, the availability of many suitably qualified coaches, who are likely to also be working full-time elsewhere, is restricted. Without this set structure in place to provide consistency across the board for all university sports clubs, it is important to examine how coaching behaviours may differ across sports and universities, examining what may be influencing the way in which coaches are choosing to deliver their sessions and how these are perceived by their athletes.

### **1.3 BUCS Strategic Aims and a Focus on University Athletes**

The UK has an elite sporting infrastructure with institutes and initiatives designed to nurture the country's future sports stars across a range of sports. Many of these institutes are located at universities, who draw upon their expertise in sports science to hone athletes' talents. Some universities are therefore developing to be a structured support base for athletes, providing the opportunity for students to continue to participate in sport alongside gaining their academic qualifications. Research has predominantly focused on university students who are competing at a national or elite level, often those on scholarships with access to high quality facilities, support programmes and funding (Aquilina, 2013; Brown et al., 2015, Condello et al., 2019; Cross & Fouke, 2019; MacNamara & Collins, 2010). For example, Aquilina's (2013) study highlighted that individual's experiences may vary as a student-athlete depending on which university they attend. This is because the assistance that student-athletes can receive to maintain excellence in their performance whilst at university will differ. The study defines the term 'student-athlete' as someone who undertakes university level education and is also actively involved in elite-level sport. The term 'elite' referred to those who had experience in representing their country in major international competitions,

such as European or World Championships, or Olympic Games. Despite a large number of studies focusing on experiences of student-athletes in the USA, these individuals closely resemble professional sportspeople more so than students. Thus, their experiences cannot be easily applied to British students who are required to perform well both academically and athletically, and not at a professional level (Cross, 2004).

In contrast, the attention placed on researching the average student who may train once or twice a week with their university team and competes for the BUCS level team is less commonly researched. This type of student who participates in sport more casually at university (no scholarship or support for training and competition) is far greater in number, compared to those considered as elite student-athletes (as only few are selected to compete nationally or represent their country in major international competitions; Aquilina, 2013). For this reason, a focus on the average student who participates in competitive sport whilst at university will offer a greater insight into how sport education, and in particular the strategic aims of the BUCS policy, can be applied to address this larger population.

Following the change in the political landscape of Universities within England, as well as globally in the period of 2012-2015 (British Council, 2012; HM Government, 2013; OECD, 2014; Universities UK, 2015), the importance of understanding the purpose of university sport and how this aligns with national sport policy and education is both timely and required. A prominent investigation conducted by Sport England (2014a) outlined the patterns of Higher Education student sport participation and how important this is within Higher Education institutions. Globally, recent university sport research has commonly focused on the physical activity levels within sport participation on campus (Chung et al., 2013; Sarac & McCullick, 2017; Tsigilis et al., 2007, 2009) or the elite student-athletes (Aquilina, 2013; Aquilina & Henry, 2010; Brown et al., 2015; Vickers & Morris, 2021), to examine academic achievement alongside pursuing a professional sporting career commonly supported by a scholarship scheme. However, very little of this research relates specifically to the element of coaches working within the university sport environment with the majority of students who are not considered as elite. Further restricting the understanding and research surrounding the behaviours that should be used with the unique and diverse student population coaches will meet when working for a university.

More specifically, the key structure and focus within university sport is grounded by BUCS policies. The focus of BUCS has noticeably developed across its 100 years of involvement in university sport (Brunton & Mayne, 2020). This has been shown more recently by the changes in the BUCS strategies, progressing to embrace a wider agenda than inter-varsity

sport alone, and instead has widened the focus to different aims of university sport. During 2011-2015, the BUCS strategy concentrated on competition, performance, and participation. The key objectives set to get more students participating in physical activity, as well as increasing the standard of sport on offer via intra-mural sports programmes, and competitions at regional, national, and international level. Therefore, aiming to improve both students' and staff member's experience at university. The BUCS Sport Development Strategy for England 2013-17 was released in 2013 and acknowledged the government white paper Higher Education: Students at the Heart of the System (Business, Innovation and Skills, 2011). The aim of this strategy was to deliver a high standard of student experience.

A more recent strategy update was made by BUCS, in which the key headline was 'The Best University Sport Experience in the World'. Set in 2017, BUCS (BUCS strategy, 2017) outlined their strategic plan for the following four years, focusing on the development of sport in Higher Education to provide a good experience for both staff and students. These strategies were categorised as; physical activity and health, social and recreational sport, intervarsity competition, performance sport, professional and workforce development, inclusion, and profile and influence. The focus of this thesis links closely to the professional and workforce development strand, and more specifically Vision aims 2 and 3; the student experience, and the wider workforce. Vision aim 2, includes 'enhancing the student experience and developing graduate attributes through taking part in Higher Education and physical activity' (BUCS strategy, 2017; pg. 17). A key focus for this is to help to improve the recognition given by university staff and students, on how important participation in sport whilst at university can be. In particular, the uses of sport for the potential personal attributes that can be developed and future employment opportunities. This aim also highlights the need to be able to include students in terms of the consideration of how sport is managed and delivered at their institution, being as they are the individuals receiving and experiencing this whilst studying for their degree. With regards to Vision Aim 3, a greater focus is placed on the workforce element of sport and focuses on 'recognising and creating opportunities for the development of coaches, volunteers and leaders in sport' (BUCS strategy, 2017; pg. 17). This aim acknowledges that Higher Education is vital in terms of producing what could be the future generation of coaches within each sport, and gives students an opportunity to get volunteering experience in something they are interested in. Further, the aim is to be able to highlight to the 'wider sporting landscape' how important the experience and impact of sport in Higher Education is, more than the physical participation alone.

It appears that the key to these strategic aims is the focus on the students attending university. Thus, neglecting the importance of ensuring that coaches who are involved in university sports clubs are being regularly monitored or given opportunities to develop and gain new knowledge and experience from others. A dominant factor in a student athlete's experience of sport can be determined by the coach who leads the sessions they participate in. Therefore, if this element of university sport is not made a priority, it is possible that the other aims within the BUCS strategic plan will struggle to be accomplished. Considering the competitive environment that all BUCS teams will be training and competing within, it is vital that the coach, who plays a prominent role, is able to provide the most adaptive and positive experience for the athletes. Taking into account the added pressures and factors involved in competitions (such as targets to meet and greater responsibility for a coach to produce success), this thesis aims to engage in this environment to understand the controlling types of behaviours that are being used by coaches to counteract such elements. This will help to overcome the lack of understanding on this darker side of the competitive sports context. Finally, it is possible that due to the difference in the competitive nature of the environment, there may be more lenience given towards a controlling coach, as opposed to a teacher acting similarly within a PE lesson. In order to explore this, examining both coaches' and athletes' perceptions within this context will allow an understanding to be gained on these behaviours from these different viewpoints.

The Higher Education Sport Participation and Satisfaction Survey (Sport England, 2016) found that 51% of students were satisfied with the experience of sport they had at university, with the standard of coaching available being rated as the most important factor. According to the survey 57% scored their perception of coaching at university as high in satisfaction (rated between 8-10/10). This finding supports the importance of ensuring that research is concentrated on both athletes and coaches within this context, rather than the sole focus being placed upon athletes. If coaches are significantly influencing athletes, this means the understanding of coaching behaviour is key to encourage an adaptive environment for all. The highest ratings for participating in sport at university were the importance of coaching (71%). Students reported being most satisfied with the technical competence of coaches who lead sports training sessions (63%), yet least satisfied with opportunities to receive coaching (52%) and consequently, improvements in performance as a result of coaching (52%). These statistics highlight the importance of examining coaches who are working at universities in sports clubs, as they were rated so highly by athletes within these surveys.

Research on university sport has primarily focused on students' motivations or barriers towards participation in sport (Spivey & Hritz, 2013). Recent research on dual-career student-athletes has begun to emphasise the importance of understanding the role sport can play in a student's lifestyle (Sánchez-Pato et al., 2016). However, even scarcer is the literature on university sport coaches, who may differ in comparison to coaches who are helping at their local sports club. For most sports clubs, the decline in participation by those aged 16-25 years old is the most prominent (Sport England, 2014b). This means it is unlikely that many local club coaches are training those who are the same age as students who are at university. It is also likely that the competition provided by BUCS matches and events may differ when compared to local leagues, alongside the various focuses in life that younger children or older adults may have in replacement of a university degree. However, to date, few studies have considered university student athletes and coaches when researching controlling coaching behaviour and have instead used coaches from a range sports and competitive levels (Bartholomew et al., 2010; Stebbings et al., 2012). This identifies the need to examine the existence of a combination of co-occurring coaching behaviours, with a particular focus on control within a competitive setting. This will help to build the understanding of how coaching may differ dependent of the level of competitiveness in sport and the way this is perceived and potentially accepted by university athletes.

#### **1.4 Self-Determination Theory and its Application to University Sport**

Self-Determination Theory (SDT; Deci & Ryan, 1985) provides a framework of human motivation which can help to explain the reasons why coaches and athletes participate in sport and the positive and negative experiences they have within this context. SDT has identified two main interpersonal behaviours, autonomy-supportive and controlling.<sup>1</sup> The SDT framework has guided numerous studies on autonomy-supportive coaching behaviours and how these relate to an athlete's experience, ultimately leading to positive outcomes such as greater persistence in behaviour within sport, autonomous motivation, and well-being (Amorose & Anderson-Butcher, 2007; Sarrazin et al., 2002). In contrast, research on the impact of controlling coaching behaviours has recently begun to develop, with findings suggesting that this behaviour negatively affects athletes due to experiences such as burnout, depression, and fear of failure (Bartholomew et al., 2011a, Morales-Sánchez et al., 2020,

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<sup>1</sup> More recent conceptual developments have broadened the scope of these two interpersonal styles to explicitly include behaviours that either support or thwart competence and relatedness needs, as well as the need for autonomy, and now also include a third interpersonal style that is indifferent to all three psychological needs (Bhavsar et al., 2019). However, given the primary focus of this thesis is on the use of interpersonal control, the original dimensions of autonomy-supportive and controlling interpersonal styles will be adopted.

Moreno-Murcia et al., 2019). However, a more in-depth investigation of control is currently limited in terms of the understanding of whether all dimensions of control are harmful to the same extent. Due to the detrimental effect of using controlling behaviours, the importance of exploring this is vital if we are to manage it effectively within a competitive sports environment. A coach's behaviour can be determined by a variety of factors, such as their surroundings or how they perceive their athlete's behaviour (Occhino et al., 2014). The way in which their athlete then perceives this environment and behaviour, determines the effect on their own psychological needs, motivation, and outcomes, such as enjoyment and boredom (Alvarez et al., 2009). The term for the way a coach communicates with their athlete has been referred to as interpersonal behaviours and styles, often used interchangeably in the SDT literature (Bartholomew et al., 2010; Rocchi et al., 2017). Within the present thesis, the term behaviours will be adopted when referring to coaches' use of autonomy-support, internal and external control.

Importantly, recent research has begun to recognise that a coach may use a combination of autonomy-supportive and controlling behaviours, resulting in the need for future studies to examine the antecedents which may exist for these mixed interpersonal behaviours and the potential consequences they have for different athlete outcomes (Amoura et al., 2015; Matosic & Cox, 2014; Tessier et al., 2008). Furthermore, a greater understanding of the different types of controlling behaviour coaches may use alongside autonomy-support is needed. Through the application of SDT principles, this thesis aims to extend the current knowledge of the two types of control, internal and external, in relation to both coaches and athletes situated within the university sports coaching environment.

## **1.5 Introduction to the Thesis**

The thesis is structured into six chapters. Following this introduction, chapter 2 begins with a detailed review of the literature on perceptions of coaching behaviours and the antecedents (for coaches) and effects (on athletes) of these behaviours. The literature review also examines what is currently known about internal and external control, and current research on behaviour profiles, within the coaching context, as well as comparison with both teaching and parenting. This chapter concludes by outlining the research programme's aims across the different studies. Chapter 3 is the first study within the thesis and explores the coaching environment from the coach's perspective. This chapter outlines the importance of examining antecedents of coaching behaviours, acknowledges what is currently known about behaviours profiles, and how these differ based on coaches' needs and motivation. Chapter 4 outlines the second study in this programme of research which focuses on perceptions of

coaching behaviours from the athlete's perspective. This chapter examines the different behaviour profiles that athletes perceive their coach to use and the associations of these with their own needs, motivations, and a range of outcomes (fear of failure, enjoyment, and subjective vitality). Chapters 3 and 4 aim to acknowledge the importance of using a person-centred approach to explore the coaching behaviour profiles which emerge from this specific sample. Chapter 5 is the final study which examines coach-athlete dyads on perceptions of controlling coaching behaviours (internal and external control), and the associations these have with negative athlete outcomes (fear of failure and competitive anxiety). The final chapter provides a summary of the findings from the three studies included in this research programme. The key findings are discussed, and the contribution these make to the SDT-based literature is outlined. Lastly, the practical and theoretical implications are discussed, as well as a reflection upon the research programme to highlight its contribution to knowledge and potential advancements for future research in this area.

## Chapter 2

### Review of Literature

Motivational theories provide a framework which enable an explanation of the factors and conditions that can lead to a successful or unsuccessful sport experience (Rocchi et al., 2013). A commonly referenced framework from which to study this in the sport environment is Self-Determination Theory (SDT; Deci & Ryan, 1985, 2000); a macro-theory of motivation. Within this framework there are six sub-theories: Organismic Integration Theory (OIT), Basic Psychological Needs Theory (BPNT), Cognitive Evaluation Theory, Goal Contents Theory, Relationships Motivation Theory and Causality Orientations Theory. Of these six sub-theories, the current thesis will focus on OIT and BPNT to examine perceptions of coaching behaviours, their potential antecedents, and the associations they have with athlete outcomes.

#### 2.1 Organismic Integration Theory: Motivation within Sport

Within SDT (Deci & Ryan, 1985, 2000), different motivational regulations are proposed to lie along a continuum of self-determination, this is encapsulated by Organismic Integration Theory (OIT; Deci & Ryan, 1987). Six different motivational regulations are identified by OIT which vary according to their level of self-determination, each reflecting the quality of motivation. At one end of the continuum lies amotivation which is categorised alone due to this involving a complete lack of either autonomous or controlling motivation. An example of this would be when an athlete sees no point in participating in sport. The controlled forms of motivation follow, with external regulation (i.e., participating in sport for materialistic rewards or to avoid punishment from others, compliance, and reluctance) and introjected regulation (i.e., participating in sport for ego-involvement, and focussing on approval from self and others). Motivation starts to become more autonomous with identified regulation (i.e. participating in sport because it has personal importance, perceiving value in the activity, and self-endorsement of goals) and integrated regulation (participating in sport due to feeling that it is important in relation to one's goals and sense of self), with the end of the continuum being completed by intrinsic regulation, which represents the highest degree of self-determination (i.e. participating in sport out of choice and for pleasure and enjoyment).

An athlete's behavioural regulations of motivation are affected by the way in which they perceive the coaching environment. This is created through a combination of factors such as how the session is structured, delivered and the involvement the athlete experiences. Subsequently, the athlete's cognitive, affective, and behavioural consequences depend heavily on the coach's behaviour (Vallerand & Losier, 1999; Mageau & Vallerand, 2003). The



importance of understanding the underlying motives for participation is due to the depth of research evidence strongly supporting that engaging in sport for autonomous reasons is related to experiencing a range of positive consequences (Ryan & Deci, 2002; Vallerand & Losier, 1999; Vallerand & Ratelle, 2002; Weiss & Ferrer-Caja, 2002). Autonomous motives have been associated with positive psychological outcomes such as well-being and enjoyment, as the individual finds participating intrinsically rewarding (Bouchard et al., 2007; Alvarez et al., 2009). However, often when reliant on external rewards, individuals develop controlled motivation and ultimately experience negative outcomes such as burnout (Bartholomew et al., 2011a; Lemyre et al., 2006). Given these findings, identifying how to encourage a more autonomously motivated athlete, should be the coach's key focus through the consideration of how their behaviour can affect their athlete. This is also applicable to the coach, as their own motivation may be associated with the use of a particular type of behaviour (e.g., a coach with controlled motivation may be more likely to use controlling behaviour). It is important for research to explore motivation across both coaches and athletes in relation to different perceptions of the coach's behaviour. Therefore, allowing an examination of how these coaching behaviours may link to both the coach's own motivation and athlete's motivation.

## **2.2 Basic Psychological Needs Theory: Satisfaction and Frustration within Sport**

Central to SDT is how the behavioural regulations of motivation outlined in OIT are affected by the extent to which three fundamental human needs are satisfied or frustrated, this is encapsulated by Basic Psychological Needs Theory (BPNT, Deci & Ryan, 2000). This theory suggests that for humans to develop and function optimally, the social context must satisfy, rather than frustrate, their basic psychological needs for competence, autonomy, and relatedness (Deci & Ryan, 2000; Vansteenkiste et al., 2010). The need for competence can be satisfied if an individual perceives a sense of mastery through effectively interacting with their environment and being able to show how capable they are (Deci & Ryan, 1985). The need for autonomy refers to the desire to feel volitional in the choice of how one behaves (Ryan, 1995). Finally, the need for relatedness involves the individual feeling as though they belong or connect with significant others (Deci & Ryan, 2000). Satisfaction of an individual's needs has been linked to positive outcomes such as well-being and increased autonomous motivation (Deci et al., 2001; Ntoumanis, 2005). Athletes who experience autonomy satisfaction will feel as though they have some freedom to make choices within their training sessions, competence satisfaction should enforce a sense of belief in an athlete's capability of completing a skills task set, and feelings of relatedness satisfaction involve the athlete feeling accepted and welcomed by their coach or fellow teammates when participating. In contrast,

need frustration is no longer viewed as the opposite of the examples already given, instead need frustration is experienced when these three psychological needs are actively thwarted (Bartholomew et al., 2011b). This process has been shown to lead to maladaptive outcomes such as ill-being or disordered eating (Bartholomew et al., 2011a; Deci et al., 2001). When an individual has their competence is frustrated, they will have feelings of failure and be made to feel as though they are incapable. When an individual's autonomy is frustrated, they will experience pressure to conform to instructions. Finally, when their need for relatedness is frustrated, they will feel rejected and isolated from others (Bartholomew et al., 2011b; Vansteenkiste & Ryan, 2013).

Original research on BPNT focused on need satisfaction and individual's well-being (Ryan et al., 1994). Over the last decade, studies which concentrate on need frustration and the negative and 'darker' side of human functioning have increased (Bartholomew et al., 2011b, Morbée et al., 2020; Vansteenkiste & Ryan, 2013). Early work on need frustration examined it as a lower level of need satisfaction, yet relationships between low need satisfaction and maladaptive outcomes such as ill-being were found to be weak and often absent (Adie et al., 2008; Quested & Duda, 2010). However, these two need constructs were instead seen as being asymmetrical, highlighting that need satisfaction does not include feelings of need frustration whereas need frustration can include low need satisfaction (Vansteenkiste & Ryan, 2013). An example of low need satisfaction may involve an individual feeling as though they are not given as many choices within a training session as they might like. In contrast, feelings of need frustration may be present when an individual feels forced to participate or rejected from other athletes. Further, research conducted by Bartholomew et al. (2011b) supported need frustration standing alone as a distinct construct. Their findings showed that whilst lower need satisfaction is likely to cause negative effects over time and may be unintentional, the active nature of need thwarting leads to feelings of need frustration; through pressure, incompetence, and rejection. Further support for this comes from Warburton et al. (2020), who examined how both the frustration and satisfaction of needs can co-occur to different extents in PE and sport contexts; providing support for the asymmetrical relationship between the two (Vansteenkiste & Ryan, 2013). Warburton et al. (2020) found that when an individual experienced moderate need satisfaction, high need frustration was not as detrimental on the outcomes measured. As such, the importance of considering the combined rather than separate, association of need satisfaction and need frustration with motivation and psychological health was demonstrated. Thus, suggesting that

when need frustration was experienced, simultaneous experiences of need satisfaction appear to offer a protective effect.

Since the recognition of satisfaction and frustration as separate constructs, rather than opposite ends of a continuum, more research has begun to examine how these can have exclusive effects and as such be part of either a bright (Haerens et al., 2015; Ryan & Deci, 2000) or dark (Bartholomew et al., 2011b; Stebbings et al., 2012), motivational pathway. The distinction between these pathways has been presented within a dual-process model (Jang et al., 2016), showing that need satisfaction sits within a bright pathway with autonomy-supportive behaviours and optimal functioning, whereas need frustration sits within a separate pathway with controlling behaviours and non-optimal functioning (Bartholomew et al., 2011a; 2011b). Research by Haerens et al. (2015) investigated how PE students' perceptions of need satisfaction and frustration were differentially related to motivational outcomes, finding that autonomy-support was associated with autonomous motivation and mediated by experiences of need satisfaction. In contrast, the use of controlling behaviours was related to controlled motivation via need frustration.

Despite the significant advances of research on the darker side of coaching and implications within sport, there are still several limitations on the understanding of basic psychological needs in relation to both externally and internally controlling behaviours. Findings from the parental literature provide a base for future research to extend and test in different contexts. In relation to need experiences, research from the parental literature has found that internally controlling parenting behaviours have dominated over externally, with a particular focus on the use of parent conditional regard (Assor et al., 2004). The findings highlighted how parents using internal control, and more so conditional regard, were forcing children's needs for autonomy and relatedness against each other. This internal control inferred that in order for the child to experience relatedness satisfaction and feelings of being cared for by their parent, they would need to give up their need for autonomy. However, even when accepting this type of behaviour from their parent, findings suggest that children are having to adapt their natural behaviour in order to live up to the demands from their parents, inflicting potentially damaging results on their well-being (Assor et al., 2004; Roth & Assor, 2012). Thus, examining athletes' need experiences as a result of different controlling behaviours will enable researchers to gain a greater insight into motivation and functioning of athletes in competitive sport environments.

### **2.3 Interpersonal Coaching Behaviours: Autonomy-Support, Internal Control and External Control**

In relation to the three basic psychological needs, two main interpersonal coaching behaviours have been highlighted within the research literature; autonomy-supportive and controlling (Bartholomew et al., 2010; Deci & Ryan, 2000). Research literature has for many years, suggested that these interpersonal behaviours can affect the way an athlete experiences their training environment and sporting experience as a whole (Vallerand & Losier, 1999). However, there are still elements of this process that are yet to be explored in as much detail as others. There are key differences in the way that coaches manage their athlete's behaviour, resulting in adopting autonomy-supportive or controlling behaviours (Delrue et al., 2019). Autonomy-supportive behaviours involve the coach giving their athletes empowerment and supporting their motivation, whilst controlling behaviours involve using pressure to coerce athletes to think or act in a certain way (Bartholomew et al., 2010; Haerens et al., 2015; Reeve, 2009). For example, if an athlete indicates resistance towards a task, an autonomy-supportive coach would be more inclined to acknowledge their athlete's feelings and try to explain the purpose of the task (Aelterman et al., 2017). Whereas a controlling coach would be focused on their own needs, becoming insistent that the athlete completes the task in order for them to experience satisfaction of their personal session goals, often using threats to get athletes to finish the session (Bartholomew et al., 2010). Out of these distinct constructs, autonomy-support has been labelled as the brighter side and associated with positive outcomes, whereas control represents the darker side of coaching behaviours due to the associations with negative outcomes (Bartholomew et al., 2011a). Research has highlighted the importance of understanding the three elements which are used in combination to provide an autonomy-supportive behaviour overall; autonomy-support, structure, and involvement (Deci & Ryan, 2002; Wilson et al., 2009). Firstly, the process of providing autonomy-support within this behaviour as a whole, involves removing pressures on individuals and instead offering options and personal initiation (Deci & Ryan, 2002). Secondly, the use of structure enables feedback to be given to the individual which will assist them with progressing toward their goal, as well as making outcomes clear from the outset (Deci & Ryan, 2002). Finally, the use of involvement requires placing the individual's well-being under great consideration, acknowledging they may face difficulties and ensuring they feel accepted within their environment (Deci & Ryan, 2002). Findings from research examining these three elements of autonomy-supportive behaviour, both separately and as a unidimensional variable, have shown strong cross-over between each one, with difficulties in

distinguishing between the use of autonomy-support and involvement (Wilson et al., 2009). Furthermore, the examination of autonomy-supportive behaviours has more commonly been studied as one measure (Stenling et al., 2015).

Controlling behaviours have been proposed to consist of four sub-dimensions; negative conditional regard, intimidation, the controlling use of rewards and excessive personal control (Bartholomew et al., 2010). When a coach uses negative conditional regard, they may withdraw any attention being given to their athlete if they do not meet set goals or engage in desired behaviours. The use of intimidation involves the use of verbal abuse to achieve humiliation of their athlete through shouting or using threats such as punishment. The controlling use of rewards by a coach involves promising athletes tangible rewards if they achieve a set goal or participate in their session. Finally, when a coach is displaying excessive personal control, they will be showing an interest in their athlete's life outside of sport in order to try to interfere with elements that they may feel are having an impact on their training. Just as it has been important to acknowledge need frustration in its own right, controlling behaviours are no longer viewed as being the opposite end of a continuum to autonomy-supportive behaviours.; instead, they should be considered as distinct constructs (Bartholomew et al., 2011b; Cheon & Reeve, 2013; Haerens et al., 2018). These findings supported that the absence of autonomy-support cannot automatically infer the presence of control, and vice versa. As such, research has found that autonomy-support is a strong predictor of positive variables such as need satisfaction, engagement, and well-being, whereas controlling behaviour has predicted need frustration and maladaptive functioning (Bartholomew et al., 2011a; Cheon et al., 2016; De Meyer et al., 2014; Gunnell et al., 2013, Haerens et al., 2015).

Two separate aspects of control have been identified from these four sub-dimensions of control; external and internal control, primarily within the parenting and teaching contexts (Assor et al., 2004; De Meyer et al., 2016; Soenens & Vansteenkiste, 2010). Externally controlling strategies, involve the use of behaviours which pressurise an individual to perform in a specific way through the use of excessive personal control, or controlling rewards. Contrastingly, internally controlling strategies draw upon using an individual's sense of guilt and anxiety to engage them in an activity, potentially through the withdrawal of attention (negative conditional regard), or embarrassment using intimidation strategies (Assor et al., 2004; Bartholomew et al., 2010; Soenens & Vansteenkiste, 2010).

Vansteenkiste et al. (2019) suggest that SDT has room to allow for variability in the amount that both autonomy-support and control can affect an athlete (Deci & Ryan, 1985).

Thus, although coaches may be aware that controlling behaviours are not more adaptive than autonomy-support, it may be that the use of specific elements of controlling behaviours are dependent upon the situation and athletes involved (Ryan et al., 2019; Soenens et al., 2015). Despite research heavily concentrating autonomy-supportive strategies used by coaches, it is also essential to consider what happens if a coach does not provide opportunities for their athletes to experience need satisfaction (e.g., freedom of choice, feeling accepted). In the absence of autonomy-support, it does not automatically infer that the coach is trying to pressurise their athlete to participate or make them feel as though they are not welcome through feelings of need frustration (Bartholomew et al., 2010; Vansteenkiste & Ryan, 2013). Therefore, controlling behaviour must be investigated in its own right to help enhance our understanding of the distinct connections different types of control may have in relation to potential antecedents and the influence they may have on athletes, when compared to autonomy-support alone.

It should also be considered that both basic psychological needs and motivation regulations may be varied in their relationships with internal and external control, if they are distinct, it would be expected that differing amounts will be present. As an example, Amorose and Anderson-Butcher (2015) suggest that in relation to introjected motivation, athletes who were perceiving autonomy-supportive coaching behaviours were able to create closer relationships with their coach, meaning that they were more inclined to participate in activities in order to avoid letting their coach down. They also inferred that athletes may have started to internalise the externally motivated elements of their sport, due to the context satisfying the athlete's needs but not creating the environment for them to become fully self-determined. Findings from Delrue et al.'s (2019) study showed that the use of autonomy-support predicted greater need satisfaction and more engagement, along with less need frustration and anger; relative to the use of control. Ng et al. (2012) also highlighted that when considering real life situations in sport, a coach may consider that an autonomy-supportive behaviour is not the first behaviour they would instinctively use. With some coaches believing that under certain situations, the use of controlling behaviour can be warranted or perhaps more useful than engaging in autonomy-support. Despite this, SDT highlights a continuum as to how beneficial or harmful either behaviours can be, which is dependent on the context and people within it (Deci & Ryan, 1987; Haerens et al., 2018; Ryan & Deci, 2017; Ryan et al., 2019; Soenens et al., 2015).

Research has shown that autonomy-supportive coaching behaviours are strongly associated with greater psychological need satisfaction and more autonomous forms of

motivation in athletes (Deci & Ryan, 2000; Felton & Jowett, 2013; Gagné et al., 2003; Vallerand & Losier, 1999). On the other hand, controlling coach behaviour which leads to the athlete experiencing need frustration is likely to result in more controlled motivation and an increase in negative consequences such as dropout (Blanchard et al., 2009; Pelletier et al., 2001). Delrue et al. (2019) found that athletes who were high in autonomous motivation anticipated greater need satisfaction when experiencing autonomy-support, and lesser need satisfaction from controlling behaviour, when compared to those who were low in autonomous motivation. This supports that the type of motivation regulation the athlete feels, can influence their perceptions of coach behaviours and their expectations of need satisfaction and frustration. The study also found that athletes who had high controlled motivation or amotivation did not benefit more from the use of a controlling behaviour. In summary, the findings suggest that autonomy-supportive behaviours are more likely to lead to adaptive outcomes, whilst control will lead to negative outcomes, even when an athlete has high controlled motivation or amotivation.

Delrue et al. (2019) suggested that some coaches may consider that the use of autonomy-support in situations of misbehaviour is too lenient to regain control, however the study's results reported the opposite. Therefore, the combination of an autonomy-supportive behaviour with the provision of structure appears to present as the most ideal version to promote engagement and autonomous motivation (Curran et al., 2013; Jang et al., 2010; Vansteenkiste et al., 2012). Delrue et al. (2019) found that the use of autonomy-support when an athlete is struggling seems to help athletes stay positive and focused when they are being challenged or facing frustration of their need for competence. Overall, such findings suggest that the use of control is likely to have a reduced adverse effect when athletes are failing, if it is combined with elements of autonomy-support.

### ***2.3.1 Aspects of Internally and Externally Controlling Behaviours***

Within SDT literature, controlling behaviours have been presented as two different dimensions, known as internally and externally (Ryan, 1982; Soenens et al., 2010). Internally controlling behaviours aim to pressurise individuals through appealing to their feelings of guilt or anxiety. Whereas externally controlling behaviours involve persuading or controlling individuals using external contingencies such as incentives or punishments (De Meyer et al., 2016; Wijnia et al., 2014). The distinction made between internally and externally controlling behaviours has been predominantly explored within the parenting literature (Assor et al., 2004; Gershoff, 2013), and more recently in education (De Meyer et al., 2016). It is apparent that more research is beginning to emerge which examines controlling behaviours within the

sport context using the subscales presented by Bartholomew et al. (2010) of; negative conditional regard, intimidation, controlling use of rewards and excessive personal control (Barcza-Renner et al., 2016; Bartholomew et al., 2011a; Delrue et al., 2017; Ramis et al., 2017). These subscales have been categorised as those which manipulate the coach-athlete bond through internal control (negative conditional regard and intimidation), and those which apply external pressures through external control (the controlling use of rewards and excessive personal control). Previous research has suggested that externally controlling behaviours tend to be more apparent due to the pressurising nature of trying to gain control through the use of contingent rewards. Whereas internally controlling behaviours tend to be more discrete, by withdrawing attention or expressing disappointment (Bartholomew et al., 2010; De Meyer et al., 2016). As such, internal control is seen as being more covert and insidious, increasing in the directed impact on an individual (Soenens & Vansteenkiste, 2010). Therefore, it is important to explore the antecedents and outcomes associated with internally and externally controlling behaviours outside of the parenting and education contexts. It is possible that one type of control may be more damaging than another, be predicted by different antecedents, and co-exist in various combinations with autonomy-support.

Research which has examined students' perceptions of internally controlling teaching has been related not only to higher levels of introjected regulation, but also to higher levels of external regulation and lower levels of identified regulation and intrinsic motivation (De Meyer et al., 2016). These associations were obtained even though the occurrence of internally controlling teaching behaviour was quite low. This finding suggests that even mildly rated negative experiences which include perceptions of controlling behaviours are typically very salient when they occur, meaning even a sporadic exposure to controlling teaching may result in detrimental effects for a student (De Meyer et al., 2014; Haerens et al., 2015; Kins et al., 2012). Athletes subjected to internally controlling behaviours such as intimidation or negative conditional regard, may be left feeling humiliated or questioning their self-worth, thus thwarting both their competence and relatedness needs. This will also leave athletes with no choice but to give up their autonomy and comply with the advocated behaviours to maintain a satisfactory relationship with their coach and avoid conflict (Bartholomew et al., 2010). External control is said to be predictive of external regulation and amotivation (Soenens & Vansteenkiste, 2010). When an individual is exposed to this sort of behaviour, they will feel pressured (externally motivated) which, coupled with low competence, may lead to experiencing a helpless orientation towards the task (amotivation). Internal control can also have an influence on external and introjected motivation, as there are this behaviour creates



outside pressures on the individual, which are exacerbated through internally controlling emotional states such as guilt.

The parenting literature is the predominant domain in which externally and internally controlling behaviours have been examined, with findings suggesting that children of parents who adopted an internally controlling behaviour (e.g., withdrawing love and attention) were more likely to experience negative outcomes which can be considered as internal themselves, such as depression and experience anxiety (Barber, 1996). Whereas the use of externally controlling parenting (e.g., promising rewards) has been found as being a stronger predictor of outcomes which can be considered as external problems such as aggression and misbehaving in children (Gershoff et al., 2012). It is therefore of importance to investigate these behaviours in greater depth within a different context, such as sport, to identify whether similar outcomes are present. In De Meyer et al.'s (2016) study, internally controlling teaching was reported as being less common in PE, which is why it may be more detrimental when used as students are not as familiar with it, in comparison to externally controlling strategies. This suggests that external control is more likely to be used towards the class, rather than a single student, for which internal control can be more specifically aimed at one individual which could cause greater harm. Therefore, students may become more engaged with a lesson when they assume that teachers, who rely upon external strategies, are putting in a lot of effort into the lesson and are more committed to their students' learning process. It is possible that through a lack of understanding of the effects of such behaviours, these externally controlling strategies are perceived as being motivating rather than frustrating. However, when considering this justification of using control outside of PE it is possible that this may be different due to other contexts being more accustomed to the two types of control, with possible alternate outcomes.

Another avenue that De Meyer et al.'s (2016) study did not explore is the differences in need experiences which may occur as a result of the two types of control. If they are found to relate differently to need frustration, or potentially need satisfaction, this may help to support the distinct nature of these types of control. As, if students are only experiencing greater need frustration when they perceive internal control, they are likely to view this as more damaging when compared to external control. Wijnia et al. (2014) chose to compare internally and externally controlling strategies within education. They found that both types of controlling strategies were associated with undermining students' motivation and their ability to complete problem-based learning tasks. Investigating more specifically in Physical Education (PE) lessons, Hein et al. (2015) found that it was only internally controlling teaching

strategies which were positively linked to students feeling angry or subjected to bullying; mediated by their own need frustration. When researching perceptions of externally controlling teaching strategies, students associated these with negative emotions, external motivation, and less engagement in school lessons. Moreover, these findings warrant investigation of both internal and external control within the sport coaching environment, as it would be incorrect to assume that athletes would share the exact same viewpoint on their coach's behaviour in comparison to the perceptions of students in previous research (De Meyer et al., 2016).

Research has examined the differences between autonomy-supportive, internally, and externally controlling behaviours using an experimental research design to identify if these influenced conceptual and rote learning performances; finding initial differences between the types of control used (Vansteenkiste et al., 2005). Participants were assigned to randomly to an experimental condition, with each group given different instructions. Prior to the participants reading a text which would provide them with information on nutrition, the instructions for doing so were delivered in one of three different behaviours; autonomy-supportive, externally, or internally controlling. The externally controlling context employed the use of controlling language such as "you should" and "you must". Whereas the internally controlling context created a sense of guilt through wording such as "children follow the guidelines of the four-leaf clover to feel good about themselves and avoiding feeling guilty for not doing so". The third condition, autonomy-supportive, the wording used was more welcoming, with examples including "you may decide for yourself to follow the guidelines". After reading the text, participants were tested on their conceptual and rote learning of this immediately, and then again four weeks following. This study found that across the different contexts used, both externally and internally controlling behaviours had the same debilitating effect on conceptual learning, resulting in a reduced conceptualisation and integration of the information over the four weeks, when compared to the autonomy-supportive context. The researchers suggested that it was not surprising to find these similar effects as internally controlling communication styles are associated with an introjected regulation for performing an activity as well as being externally regulated, meaning that the outcomes are just as negative as they would be if an externally controlling context was experienced. Participants who were in the internally controlling condition had higher rote learning scores at both immediate and four-week evaluations when compared with those who were in both the external and autonomy-supportive contexts. This suggests that internally controlling behaviours may be able to prompt engagement in learning, however, it must be considered

that individuals are unlikely to be experiencing volitional learning. Instead, the choice to participate in learning would be associated with trying to suppress the internal pressures felt within the environment that may be caused by the behaviour of significant others, resulting in a superficial level of engagement with the task (Vansteenkiste et al., 2005).

Overall, despite research acknowledging the imperativeness of understanding the coaching behaviours which engage positive outcomes, progressing the understanding of the reasons why controlling behaviours are still relied upon will help reduce the likelihood of maladaptive outcomes (Amorose & Anderson-Butcher, 2015). With regards to the few studies which have examined these different types of control, they have predominantly been within the teaching and parent environments and have not followed a unified approach. For example, Soenens et al. (2012), Assor et al. (2004), and Gershoff (2013) only examined one element of control in relation to students, either external or internal, restricting our understanding of how these two types of control may be present within the same context. Only De Meyer et al. (2016), Hein et al. (2015), and Wijnia (2014) have studied both internal and external control simultaneously within a classroom setting in relation to student outcomes. Further, it is important to acknowledge how these two controlling behaviours may co-exist within training sessions and be used by a coach in combination with autonomy-support, whilst potentially all having different antecedents and associations. These remain to be examined, in particular within the coaching environment. Building upon Wijnia et al.'s (2014) findings and aligning with the recent emergence of the co-occurrence of need satisfaction and need frustration, future work should consider exploring the co-existence and associations of coaching behaviours. Therefore, this provides an area of research yet to be studied within the coaching environment, allowing the opportunity to examine both internal and external control, whilst acknowledging the presence of autonomy-support at the same time, has not previously been considered in sport.

### ***2.3.2 Profiles of Autonomy-Supportive and Controlling Behaviours***

Despite the evidence that autonomy-supportive behaviour is associated with positive cognitive, affective, and behavioural outcomes (Mageau & Vallerand, 2003), several questions remain to be addressed in terms of the effectiveness of this behaviour when coaching athletes and why it is not always used. The recognition of the coach being able to engage in both autonomy-supportive and controlling behaviours has briefly been discussed in previous studies (Grolnick, 2003; Bartholomew et al., 2010), supporting the need to examine combinations of both types of behaviours (e.g., providing a rationale for athletes, yet engaging in negative conditional regard). Pelletier et al. (2001) found further evidence that controlling

behaviours are not the exact opposite of autonomy-supportive behaviours; both behaviours were associated positively with introjected motivation, suggesting a co-occurring presence as the coach may use components of both behaviours in their delivery. Additionally, findings from both the parental (Silk et al., 2003) and PE literature (Tessier et al., 2008) support the concept of a coach engaging in both behaviours within the sport context. Tessier et al.'s (2008) findings were based on an intervention and showed that greater autonomy-support does not mean that the controlling behaviour will necessarily decrease; suggesting both behaviours can be engaged in simultaneously. However, Fraser-Thomas and Côté (2009) found that despite the negative consequences from using a controlling behaviour when delivering a session, coaches continued to adopt these strategies.

New instruments to help measure controlling behaviours in their own right have enabled research to expand upon the idea that autonomy-support and control do not lie at either end of the same continuum (Bartholomew et al., 2010; 2011a). Bartholomew et al. (2009) also commented that although the preferred style of coaching is autonomy-supportive, this may not always be the most effective, as coaches may prefer, or need, to use a combination of both autonomy-supportive and controlling behaviours in order to get the most out of their athlete. A coach needs to be aware that an athlete may choose to engage in a sporting activity because they find it purely enjoyable (intrinsic motivation), but at the same time they may also be taking part as they value the benefits that come from doing the exercise (identified regulation). Expanding on this, Ryan et al. (2009) highlight that the different motivational regulations from SDT can be applied to most intentional acts in some combination. Therefore, a mixture of coaching behaviours to suit these variances and combinations of motivation is required, taking into consideration that one coaching behaviour may not be appropriate in all situations. This confirms that the coach's influence on their athletes is very important as they are responsible for creating the environment that they participate in within sport.

The adaptive nature of using autonomy-supportive coaching behaviours is well supported by the literature, alongside the developing research around the detrimental impact of controlling interpersonal behaviours (Amorose & Anderson-Butcher, 2007; Bartholomew et al., 2011a). However, there are few studies which have examined combinations of autonomy-supportive and controlling behaviours and investigated how these 'profiles' may relate to athletes' needs and motivation within the sport environment (Matosic & Cox, 2014), or classroom setting (Amoura et al., 2015; Collie et al., 2019; Haerens et al., 2018). These studies employed the use of a person-centred approach. This is commonly used in order to

identify subgroups of individuals who share particular relations among attributes (Amoura et al., 2015; Haerens et al., 2018; Vansteenkiste et al., 2009). Further, this approach allows researchers to examine how autonomy-supportive and controlling behaviours can be combined by an individual.

In the education context, De Meyer et al. (2014) suggested research surrounding behaviour combinations would provide the opportunity to examine whether and how teachers who use both behaviours affect student's motivations and behaviour compared to teachers who predominantly use one behaviour. Matosic and Cox (2014) highlighted that the reason for their study was due to no current research existing which explored the potential of both behaviours co-existing within the sport context. Their study examined different combinations of five perceived coaching behaviours (autonomy-support and the four controlling strategies identified by Bartholomew et al., 2010), finding that the coach profile which consists primarily of supportive behaviours was the most adaptive for an athlete's training and competition. Three profiles were identified; a controlled, a supportive, and a supportive and controlled by rewards profile. The common profiles identified within the teaching literature include; high autonomy-support-high control; low autonomy-support-low control; high autonomy-support-low control, and low autonomy-support-high control (Amoura et al., 2015; Haerens et al., 2018). Overall, these studies provide support for the notion that autonomy-support and control are independent constructs which can be combined in several ways. However, the researchers make it clear that the identification of these combined behaviour profiles does not suggest that a profile including moderate levels of both behaviours is any better than a strong autonomy-supportive and low controlling profile (Matosic & Cox, 2014). Alongside perceptions of their coach's autonomy-supportive and controlling behaviour, data was collected on the satisfaction of the athlete's needs and their motivation regulations. To extend the findings of this study, future research could include coach antecedents, need frustration and additional outcomes such as fear of failure, enjoyment, and subjective vitality. Building on the work of Matosic and Cox (2014), research should continue to identify different profiles in order to assess the dynamic interaction and impact of behaviours associated with co-occurring autonomy-supportive and controlling interpersonal behaviours alongside the determinants of these behavioural profiles. Further, to fully investigate the co-occurring behaviours and acknowledge the dimensions of control, future research must include perceptions of autonomy-support, internal and external control as distinct behaviours to measure. Using both the coach's and their athlete's perceptions of coach behaviour profiles to form a comparison, would also provide a more holistic

understanding of existing combinations and the opportunity to examine how the differences in congruence between these may lead to different athlete outcomes.

With the exception of the previous profile studies highlighted, much of the research of coaching behaviours has used a variable-centred approach to the analysis, meaning the current understanding of combined behaviours, and their relationships with other variables amongst different groups is limited. Moreover, investigations into how profiles of behaviour may be independent in terms of the presence of the two types of control, alongside autonomy-support is currently unknown; research on need supportive and need thwarting behaviours has been examined by Haerens et al. (2018). Employing a person-centred approach to identifying behaviour profiles enables distinctive subgroups to emerge from the data, which are categorised by their differences across the behaviours. Furthermore, profiles formed using person-centred methods can provide a greater insight into the interindividual differences or similarities that may be present when studying a combination of variables, as opposed to researching isolated variables (Franco et al., 2017; Haerens et al., 2010).

Person-centred approaches have increased in their contribution to literature by exploring questions about how subgroups of individuals have different associations to outcome variables, instead of highlighting how this relationship may apply on average to the participants within a sample (Wang et al., 2016). This approach further provides the opportunity for research to examine the interactive associations of coaching behaviours, as well as linking them to individual's needs, motivations, and outcomes. Therefore, research questions which focus on whether the simultaneous use of different behaviours may be related to different outcomes can be explored, providing a greater practical understanding of how these behaviours are used realistically, rather than in isolation.

### ***2.3.3 Controlling Coach Behaviours and Associations with Athlete Welfare and Abuse***

Within the coach-athlete relationship, there can be a darker side resulting in sometimes intentional or unintentional experiences of athlete maltreatment (Kavanagh et al., 2017). An under-recognised, yet dominant form of abuse in sport is emotional, with athletes being exposed to 'sustained and repeated pattern of deliberate non-contact behaviours by a person in a critical relationship role that has the potential to be harmful to an individual's affective, behavioural, cognitive, or physical well-being' (Kavanagh et al., 2017, p. 2). The competitive sport environment can enhance the use of such behaviours with athletes believing that they must accept any negative experiences or behaviours which may allow them to achieve the best results, viewing this as normalised in order to win (Bringer et al., 2001; Kerr & Dacyshyn, 2000). Further, athletes have been found to perceive emotionally harmful

coaching behaviours as a sign that their coach was highly invested in ensuring the athlete improved and performed their best, finding this motivating when training or competing (Stirling & Kerr, 2014). However, athletes who had perceived controlling behaviours when competing as normal and part of the environment have also reported that after retiring, they identified that these were in fact abusive and harmful (Kerr & Dacyshyn, 2000).

Previous literature has examined the occurrence of abuse experienced by athletes within the coach-athlete relationship (Burke, 2001; Stirling & Kerr, 2009). Emotional abuse has been identified as the most reported form of maltreatment experienced by athletes (Alexander et al., 2011). The experience of emotional abuse can be through verbal (humiliation and ridicule), and the withdrawal of attention and support (such as not paying the athlete any attention when expected or providing limited feedback); both traits of controlling coaching behaviours (Bartholomew et al., 2010). Despite the awareness that emotionally abusive behaviours from coaches towards their athlete can be harmful, research has shown that this is commonly normalised as something required to being successful when participating in sport competitively (Stirling & Kerr, 2008; 2013). This normalisation of emotional abuse in competitive environments, often considered as required to develop mental toughness and athletic talent of athletes, is an understudied and under-recognised element of emotional abuse (Kerr & Stirling, 2017). It therefore seems that due to these emotionally abusive behaviours being viewed as acceptable and normal by both athletes and coaches, they may bring about a less negative reaction when compared to physical or sexual abuse in sport contexts.

Research has identified how athletes can be socialised to accept that harmful sporting practices are an element of the context where performance outcomes dominate above everything else (Douglas & Carless, 2006). Although competitive sport can emphasise that athletes must embrace mental toughness and perseverance to produce optimum performance, these are also considered in the same tolerance as harmful practices, likely disguising the negative impact on athletes (Coakley, 2015). The use of punishment, yelling or intimidation has been found to be more prominent in athletes when coaches are using controlling behaviours (Bartholomew et al., 2011b). However, it is important that research can be used to educate professionals and organisations on how to challenge these ingrained assumptions about the most effective ways of developing competitive athletes often being to rely on abusive practices (Kerr & Stirling, 2019). Further, if research can understand the antecedents of these negative behaviours, future education can be employed to create ways of interrupting this reliance process, to develop successful unharmed athletes.

Competitive sport contexts, systems and institutions often normalise the process which enables and encourages a coach to use their power over an athlete and become controlling through using bargaining or reducing their athlete's freedom as an example (Stirling, 2013; Stirling & Kerr, 2013). This could instead be seen by outsiders as persuading an athlete to perform something that could be dangerous to them, whilst the coach sees this as a worthwhile risk to produce a successful performance outcome (Vveinhardt & Fominiene, 2020). This approach would suggest that athletes become used to being manipulated and maltreated by their coach and is something that soon becomes unavoidable within competitive sport (Stirling, 2013; Stirling & Kerr, 2013). It is therefore vital to further explore why these environments allow this behaviour and approach to be normalised, resulting in control over athletes that would not often be approved of elsewhere (Pike & Scott, 2014).

Within the sporting context, it is important to recognise how undermining the use of controlling behaviour by a coach can be when evaluating or surveying an athlete's performance. Research conducted in the parental literature addresses this with findings on how damaging the intrusive monitoring by parents can be on children's self-esteem and depression (Kerr & Stattin, 2000). Whilst it is well known that an athlete's performance within sport is constantly reviewed, the application of the parental literature suggests that excessive surveillance and control by a coach will have a negative influence on an athlete's well-being (Kerr & Stattin, 2000). Due to the need to receive critique to continue to develop as an athlete, it is possible that coaches find it difficult to avoid causing an element of psychological harm to their athletes (Slobounov, 2008). However, it is crucial to avoid athletes from becoming victims of abuse and controlling negative coach behaviour, often just because they believe they deserve punishment, or perceive such behaviour as normal and something they should tolerate (Lazarević et al., 2014). Such perceptions can be explained by acknowledging the power that is given to the authority figure in a situation who is often expected to be firm and showing a sense of control over others (Narwal, 2014). Despite this, the behaviour of showing authority can be poisoned by a coach's incompetence, or obsessive focus on prize winning, and creating superficial relationships with their athletes (Jowett, 2005). Associations between unethical coaching behaviour and negative outcomes such as bullying is examined less within sport when compared to environments such as workplaces and academia, which have found only providing supportive and welcoming behaviours through ethical communication will remove the likelihood of bullying (Aleassa & Megdadi, 2014; Pörhölä et al., 2006).



## **2.4 Antecedents of Coaching Behaviour: Coaching Context and Perceptions of Athlete Motivation**

McLean (2010) highlighted that coaches who are motivated help to promote a healthy working environment. Therefore, coaches should aim to reflect on the reasons they coach and how the various factors in their coaching context interact. Several potential antecedents of coaching behaviour have been reviewed by Matosic et al. (2016) from previous studies, suggesting there are three broad categories: personal factors, perceptions of others' behaviours and motivation, and social factors. Social factors which are relevant to the coach include those such as the coaching context and perceptions of their athlete's motivation. However, there are few studies which examine these antecedents in terms of coaches' autonomy-support and controlling behaviour, with most research examining the impact of these behaviours instead (McLean & Mallett, 2012). Within the education field, influences on the teaching context have been examined, with findings suggesting that a teacher's exposure to a range of perceived external pressures such as unmotivated students and stressful job responsibilities may easily draw them towards adopting a controlling style of behaviour (Reeve, 2009). Within the sport context, Rocchi et al. (2013) examined how pressures from the coaching context and perceptions of athletes' motivation determined coaches' self-determined motivation and their use of autonomy-supportive behaviours. Results from this study indicated that a perception of low administrative pressures, combined with self-determined athletes, positively predicted the use of autonomy-supportive behaviours. These findings supported Taylor et al. (2008) in the education context, who reported that teachers who experienced psychological need satisfaction had higher levels of self-determined motivation and were more autonomy-supportive towards their students. Pelletier et al. (2001) also studied teacher's motivation for work in relation to contextual factors, finding that school demands and pressures from other teachers resulted in less self-determined motivation and a decrease in their autonomy-supportive teaching behaviours.

### ***2.4.1 Perceptions of Athlete Motivation***

An important determinant for both autonomy-supportive and controlling behaviours is the perception of the individuals' motivation with whom coaches are working with. Within the teaching context, research has highlighted that if a teacher perceives student motivation as being low and controlled, they are likely to engage in controlling behaviours in a misguided attempt to increase student engagement, ultimately leading to continued undermining of motivation (Reeve, 2009). Similarly, Reeve et al. (2014) found teachers were more likely to use controlling behaviours when students were disengaged as they felt that this approach was

the most effective. From an athlete's perspective, Delrue et al. (2019) suggested that they may approve of the use of controlling behaviours if their coach uses it to regain the control of a session or activity that may have been getting out of hand. If other athletes are being disruptive, those behaving are likely to support the coach using a manner in which their session regains control and, therefore, these behaviours may not cause them harm.

De Meyer et al. (2016) found that PE teachers have raised concerns over whether realistically autonomy-supportive teaching will always result in positive outcomes, as they suggest that a controlling strategy may often be needed or be more effective in certain situations (Aelterman et al., 2013). PE teachers reported that students who they perceive as being high in controlled motivation would respond most effectively to controlling forms of behaviour. This supports Ng et al. (2012), who also found that when sport science students perceived individuals to be controlled in their motivation, the use of an autonomy-supportive behaviour would not be as effective as using controlling strategies. Haerens et al. (2018) and Pelletier et al. (2001) investigated athletes' motivation as an outcome from the coaches' behaviour, whilst Healy et al. (2014), examined this as a mediator between coaches' behaviour and significant outcomes, it has not been considered how coaches' perceptions of an athlete's motivation may alter their use of controlling behaviours. Reeve (2013) infers that individuals will constantly be interpreting the environment they are in to ensure their behaviour is appropriate. Therefore, teachers and coaches should not aim to match their delivery style to their students' or athletes' perceived motivation, and rather assume that all participants will thrive the most from the use of autonomy-support, regardless.

On the other hand, it seems sensible to acknowledge that teachers and coaches may need to adapt and adjust their delivery style at times to work with the exact audience they have in front of them. Therefore, examining this antecedent will expand upon the current research available by exploring whether different perceptions of athlete motivation influence coaches use of either internal or external control. Due to the impact a coach has on an athlete, understanding the antecedents of their behaviour (e.g., the coaching context and athlete motivation), is needed in order to know what may be affecting the different behaviours they display (Amorose, 2007). Therefore, this would provide an insight into the antecedents which promote a coach to use autonomy-supportive and controlling behaviours. Alongside the coaching context, a coach's behaviour may also be influenced by their perceptions of their athlete's motivation (Mageau & Vallerand, 2003). For example, controlling behaviour may be used if the coach perceives their athletes to be lacking in motivation (Reeve, 2009). They may use this as a way to attempt to re-engage the athletes through the production of an

environment which promotes an artificial controlled form of motivation (Mageau & Vallerand, 2003).

#### ***2.4.2 The Coaching Context***

The coaching context can include a variety of pressures placed upon the coach, such as handling athletes' expectations and motivation, as well as ensuring they are delivering to the standard the club expect them to. Research on coaches developing a more autonomy-supportive behaviour as opposed to controlling is currently limited, presenting the challenge of being able to educate coaches on how to move towards a more effective coaching behaviour (Ahlberg et al., 2008). Amorose (2007) and Su and Reeve (2011) highlighted several challenges related to the context which prevent a coach from being autonomy-supportive. For example, coaching at an elite level can bring about stress and the potential experience of a lack of control over athletes. In order to try to hit certain targets (medals and league positions), the coach may need to regain control over the context by employing a controlling behaviour of behaviour.

Stebbing et al. (2012) studied coaches from different sports and status level in relation to being either part or full time (paid and volunteer). Those who felt they had the most opportunities to develop professionally reported a greater need satisfaction, and therefore experiences of psychological well-being and the use of autonomy-supportive behaviours towards athletes. Those who felt minimal professional development opportunities reported greater need frustration and psychological ill-being, therefore an increase in the use of controlling behaviours. Perceptions of job security were found to be a moderate positive predictor of coaches' need satisfaction, in contrast, no relationship was found with need frustration. The authors inferred that a lack of job security may in fact be related to low need satisfaction instead, unless coaches are actively exposed to controlling behaviours which frustrate their needs. The findings on work-life conflict suggested that there was a positive relationship with psychological ill-being. However, it was highlighted that when investigating coaches who are working at a competitive level, conflict between their work and other life responsibilities is likely to result in low satisfaction and high frustration of their needs. The differences in demands faced across levels of competition were supported by findings that coaches who worked at recreational and club level of the sport had no association between work-life conflict and their need satisfaction. With this lower level of sport potentially requiring less time demands for the coach, it would appear that this is less of a determinant for their needs experiences and therefore coaching behaviour.

Another study that has examined antecedents of coaching behaviours found that basketball coaches who they felt there was a lot of pressure from other coaches, following a set criteria of basketball curriculum, and administrative pressure perceived themselves as low in their use of autonomy-supportive behaviour (Rocchi et al., 2013). Iachini (2013) had similar results that found that the more a coach felt like they were being pressurised based on the performance of their athlete, the less likely they were to adopt autonomy-supportive behaviours. The studies presented suggest that external pressure on a coach will tend to be associated with the use of low autonomy-supportive behaviours and more commonly controlling behaviours when trying to motivate athletes (Reeve, 2009). Pelletier and Sharp (2009), highlight that coaches will commonly be challenged by time constraints or evaluations based upon how well their athlete is competing, but education needs to be able to inform coaches how they should not let such pressure affect them, ultimately avoiding the use of controlling behaviours.

As previously highlighted, understanding the antecedents of coach behaviour is of great importance due to the impact that such behaviours have on their athlete's motivation and associated outcomes (Amorose, 2007; Occhino et al., 2014; Stebbings et al., 2012). Examining how antecedents may differ across autonomy-support, and internal and external control within the university sport environment, will enable the identification of those antecedents which have a greater impact upon the most adaptive and maladaptive profiles and provide more in-depth information on how the coach can be educated in ways to avoid or deal with certain factors that are shown to have negative effects on their own behaviour. There are significant differences that athletes and coaches must contend with whilst working and training within a university environment, in comparison to a local club session or participating in a physical education lesson (Denovan & Macaskill, 2016). Therefore, this highlights the opportunity to extend the research field through the examination of both the coaching context and coaches' perceptions of their athlete's motivation as antecedents, within the university environment.

## **2.5 Coaching Behaviours and their Associations with Athlete Outcomes**

Studies conducted on athlete outcomes when examining coaching behaviour have focused on the relationships with either autonomy-support or control. Therefore, research has been limited in terms of not exploring how these may relate differently across the two dimensions of controlling behaviours.

### ***2.5.1 Athlete Outcomes; Fear of Failure, Competitive Anxiety, Enjoyment, and Subjective Vitality***

When athletes are involved in environments which include social comparison and see success as being better than others, they can perceive competitive situations as stressful, resulting in increased fear of failure and anxiety. Fear of failure within the sporting environment has been defined as individuals who associate consequences such as punishments or negative evaluations from others, with failure (Conroy et al., 2002; Correia et al., 2017; Smith & Smoll, 1997). If a coach uses controlling behaviours such as punishment, then they are likely to increase fear of failure in their athletes due to pressuring them into believing success is the only aim when performing (Tsai & Chen, 2009). When students experienced need frustration from teachers using controlling behaviours, this was associated with more fear of failure. Research has explored how positive relationships have been found between controlling coaching behaviours and athletes' fear of failure; with an increased exposure to this negative outcome within competitive environments where athletes experience greater pressures from coaches and significant others to perform well (Mesagno et al., 2012; Rumbold et al., 2012). One study has found that high use of controlling behaviours and low autonomy-support was associated by profiles of high fear of failure in athletes (Sagar et al., 2007). Therefore, by using rewards, punishment can promote need frustration and increase in ill-being and burnout, strengthening fear of failure. In contrast, coaches who encourage personal progression using autonomy-support, reduce athletes' fear of failure due to the freedom to make decisions and autonomy.

When taking part in sport at a competitive level, athletes are faced with stressors in both training and competition. Elite athletes spend considerable time and commitment to their sport, with the results of their performances often impacting on their future sporting career (Conroy et al., 2001). Conroy et al. (2002) suggest that fear of failure can be considered as a potential source of stress for athletes; holding the belief that if one is to fail to successfully complete a task, it will result in aversive consequences. It is seen as a function of one's interaction with others and can reflect an individual's desire to avoid the lowering of one's evaluation. Sagar et al. (2009) suggest that it is of great interest to coaches to ensure athletes can manage any fear of failure they have to reduce the likelihood of negative consequences such as burnout. Highly competitive environments provide many opportunities for athletes to experience fear of failure, partly due to their performance being judged by others such as coaches or parents, using success in the competition as the criteria assessed against. Fear of failure is present when an individual allows others to be responsible for controlling their

behaviour through asking for their approval or fearing disapproval (Moreno-Murcia et al., 2014). Thus, fear of failure has become a variable of interest in research due to sports generating fear and shame, leading to stress and avoidance behaviours and lower performance.

Athletes participating in competitive sport are commonly exposed to greater stress and anxiety due to the demands of performing successfully under high levels of stress (Masaki et al., 2017). The psychological perspective of stress can have benefits to athletes participating in competitions when processing this as arousal, but also deleterious effects when the demands placed on the athlete are too much (McEwen, 2002). In performance situations where evaluation is likely, stress can be seen as sport anxiety, and defined as a tendency to respond with state anxiety (Smith et al., 2007). Research has found athletes' perceptions of controlling coaching behaviours to be positively associated with their competitive anxiety (Ramis et al., 2017), whilst also reporting there were no relationships present between competitive anxiety and autonomy-supportive behaviours (Cho et al., 2019). It is important to acknowledge the significance of competitive anxiety only being evidence so far as linking to the presence of controlling behaviours, and further investigate how this may differ between the two distinct dimensions of control and autonomy-support.

Two positive outcomes which have been explored previously in relation to autonomy-supportive behaviours within the coaching environment include enjoyment and subjective vitality. Enjoyment is viewed within sport as a reflection of a positive affective response from the athlete, resulting in fun and pleasure (Scanlan et al., 2005). Ryan and Frederick (1997) defined subjective vitality as being able to have enough energy to emanate a positive feeling from oneself. Enjoyment is an important outcome to investigate when trying to gain a better understanding of individual's psychological well-being as it is known for being a positive emotion stemming from experiences of need satisfaction (Kimićek & Harris, 1996). Previous research has shown that athletes' perceptions of an autonomy-supportive coach were a positive predictor of their own enjoyment and vitality, as well as having positive associations with need satisfaction (Adie et al., 2008; Alvarez et al., 2009; Garza-Adame et al., 2017; Monteiro et al., 2018; Pineda-Espejel et al., 2019; Quested et al., 2012). Thus, with such positive outcomes associated with this behaviour, the importance of coaches using this are amplified to encourage the most adaptive experience for athletes. The majority of research investigating enjoyment as an outcome for athletes has been conducted with young participants, at a school or club level of participation, identifying an area for further research with elite, or high-performance athletes (Mosqueda et al., 2019). Further, it is important to

understand how variables affect enjoyment and psychological well-being of individuals. A particular focus on athletes in relation to this is required in order to educate coaches effectively on how they should use appropriate behaviours to create the most adaptive environment. Subjective vitality combined with enjoyment in sport, is vital to both psychological and physical functioning.

## **2.6 Congruence in Perceptions of Coaching Behaviours between Coaches and Athletes**

Previous research has highlighted that the way in which we perceive a person affects the way we choose to behave towards them (Jones et al., 2010). This subsequently influences how they react and behave toward us, highlighting the existence of a reciprocal relationship. This statement is of great importance as to why research should consider taking the perspective of both the coach and athlete into consideration. Due to a significant number of studies examining coaching behaviours being reliant upon self-report from the coaches, it is known that these cannot always be the most reliable due to a coach's potential bias towards oneself, or because they would not want to admit to using controlling behaviours (Baumeister et al., 2007). Coaches and athletes who share similar perceptions are likely to have greater relationship satisfaction (Jowett & Cockerill, 2003). Whereas coaches and athletes who are dissimilar in their perceptions will have challenges such as conflicts and disagreements (Jowett, 2003).

There is a strong element of reliance and interdependence upon both coach and athlete when working together; the athlete needs to learn new skills and knowledge from the coach, whilst the coach needs to be able to provide this to the athlete, with the ultimate aim of a successful performance (Antonini & Seiler, 2006). The way in which athletes and coaches interact can directly or indirectly have an influence on outcomes such as enjoyment, motivation, and performance. This dyadic relationship may also impact upon the quality of coaching provided (Jowett & Poczwardowski, 2007). Further, Cushion et al. (2006) suggest that neither the athlete nor coach can be considered as being independent, as they are in fact continuously interdependent in their behaviour. From this, it is suggested that research within the coaching context moves forward to examining the inter-individual and coach-athlete dyads (Poczwardowski et al., 2006). Although previous research in this area has found that autonomy-supportive coaching behaviours are related to the most positive outcomes for the athlete (Alvarez et al., 2009; Amorose & Anderson-Butcher, 2015; Conroy & Coatsworth, 2007), a common limitation lies within the data collection methods, having only collected data from either the coach or the athlete there has been an incomplete understanding of the effects of a coach's behaviour on an athlete. The exploration of perceptions from both coach

and athlete dyad within the coaching environment is vital to finding the most adaptive situation where both coach and athlete have perceptions which bring about the most successful and positive outcomes. Moreover, Vallerand (2001) suggests that coach and athlete behaviour can be modified by their perceptions of one another. Therefore, examining and building upon research which includes both the coach's and athlete's view of coaching behaviour will enable a better understanding of how these perceptions compare.

Research on discrepancies between coach and athlete perceptions of team cohesion, suggests that being able to provide coaches with information on how their athletes perceive them may increase their awareness of the behaviour they choose to use (Zakrajsek et al., 2007). Ultimately, this will result in the most adaptive behaviour being used, leading to positive consequences and potentially a decrease in the difference between perceptions. The limitations of previous research which has used self-report methods with either the coach or athlete means it lends itself towards being answered in a socially desirable manner. To avoid this, including both the athlete and coach in studies has been proposed as producing a more accurate unbiased reflection of perceptions of the coaching context (Adie et al., 2008; Stebbings et al., 2012). Examining the congruence of perceptions of behaviours will provide the opportunity to study how these relate to athlete outcomes. It would be expected that if both perceptions are similar, with a profile dominant in autonomy-supportive behaviour, the effect on the athlete would be positive. In contrast, if incongruence is identified, with the athlete perceiving a controlling dominant profile whilst the coach perceives themselves as more autonomy-supportive, then the athlete is likely to experience negative consequences. However, if the coach perceives their behaviour to be dominant in control, yet the athlete perceives greater autonomy-support, this should be associated with positive consequences for the athlete. Therefore, it is predicted that congruence in the perceptions of behaviours will be linked to a better outlook on athlete outcomes, when compared to incongruence.

A study examining congruence in perceptions used data from both coaches and athletes to identify initially whether coaches were over- or under-reporting their perception of their own coaching behaviour (Rocchi & Pelletier, 2018). The study examined how the level of congruence in perceptions was associated with athletes' psychological needs in sport. The key findings included; when both athlete and coach were in agreement of their perceptions of the coach's behaviour, supportive behaviours predicted need satisfaction whilst thwarting behaviours predicted need frustration. Findings on incongruence suggested that athletes whose coaches did not overestimate their behaviours, experienced more need satisfaction and decreased need frustration, when compared to those who had coaches who over-



reported their behaviour. This study used coaches and their group of athletes, meaning the coach will have reported on their generic perception of the coaching behaviour they use with the group, rather than that used with one specific athlete. A more accurate collection of congruence in perceptions would be to use one coach and one athlete to compare; meaning the coach would be providing a reflection on their coaching with one athlete at the same time they are also asked to provide their viewpoint. The findings from Rocchi and Pelletier's (2018) study highlight the importance of investigating the differences between a coach over- or underreporting their behaviour and the association this may have with an athlete's psychological needs, motivation, or outcomes. Collecting data from both the coach's and athlete's perspective identified that not all coaches are accurate in how their behaviour is perceived by their athletes. This suggests that studies which have collected data from coaches alone may be subject to significant bias, with coaches reporting a better representation of their own behaviour. Alternatively, many studies have examined athletes' perceptions of coaching behaviours and their influences on different outcomes, however the understanding is less clear as to how when both athlete and coach are not congruent in their perceptions, this may impact adaptive, and even less well known, maladaptive outcomes (Matosic & Cox, 2014).

## **2.7 Summary and Programme of Research**

A coach's role in sport is vital to athletes thriving and reaching their potential; autonomy-supportive behaviours have been shown to promote positive outcomes. Gaining an understanding of why coaches still use controlling behaviours is of the utmost importance, as research has predominantly examined how coaches can promote the best outcomes for athletes, but not necessarily the factors associated with adopting specific behaviours. The literature reviewed provides evidence that research on the antecedents of coach behaviour in the sport context, along with the acknowledgement of profiles of combined coaching behaviours and their associations, is restricted in terms of acknowledging both the externally and internally controlling dimensions. Therefore, the key contributions this thesis will focus on are: 1) acknowledging the combination of autonomy-supportive, externally and internally controlling behaviours within profiles and how these may differ with regards to both coaches' and athletes' need experiences and motivation; 2) improving knowledge on the antecedents of these three coaching behaviours from the coach's perspective; 3) investigating from an athlete's perspective the relationships between these three behaviours and their enjoyment, subjective vitality, and fear of failure; and 4) examine the congruence between coach and

athlete perceptions of internally and externally controlling coach behaviours, and the relationship with athletes' fear of failure and competitive anxiety.

Three studies, grounded in Self-Determination Theory, were conducted in order to address these key contributions and the limitations highlighted within the preceding review of literature

Study 1 (Chapter 3) focused on coaches from university sport clubs who were coaching athletes participating in BUCS level competitions. This study aimed to identify the different types of behaviour profiles that existed from coaches' perspectives, including autonomy-support, external control and internal control as the aspects creating these profiles (Figure 2.1). These profiles were used to examine the differences in coaches' needs experiences and motivations across these profiles. Study 1 also explored the different potential antecedents of the three behaviours (Figure 2.2), including their coaching context (pressures from above) and their perceptions of their athlete's motivation (pressures from below).

Study 2 (Chapter 4) involved athletes from university sport clubs and were participating in BUCS level competitions. Coach behaviour profiles consisting of athletes' perceptions of their coach's autonomy-supportive, externally controlling and internally controlling behaviours were used to examine the differences in athlete's needs experiences and motivation (Figure 2.3). The three coaching behaviours were also examined in terms of their predictive utility of athletes' fear of failure, enjoyment, and subjective vitality (Figure 2.4).

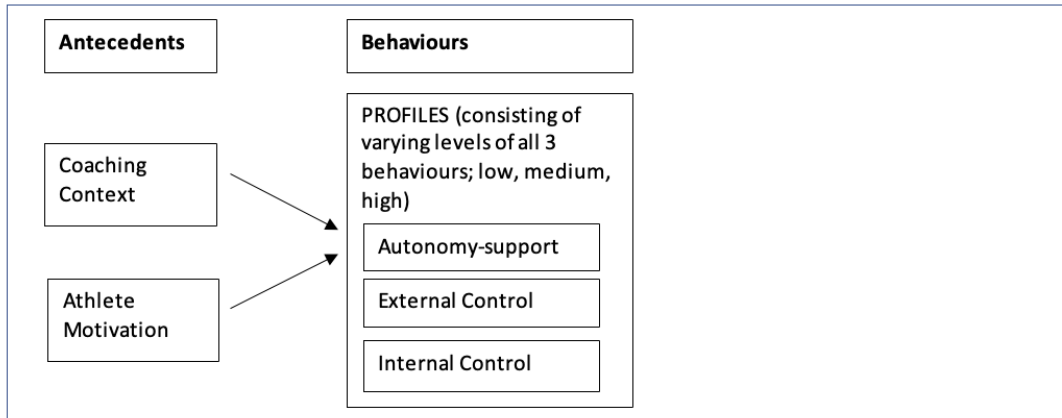
Study 3 (Chapter 5) focused explicitly on the darker side of the coaching environment, examining how the level of congruence in behaviour perceptions from athletes and coaches are associated with athlete outcomes. Coach-athlete dyads were created from partnerships existing between athletes and coaches used within study 1 and 2. Using the dyadic perceptions of internally and externally controlling coach behaviours, athletes' fear of failure and competitive anxiety were examined to identify if they varied depending on the level of incongruence or congruence in these perceptions (Figure 2.5).

Overall, the identification of coach behaviour profiles which emerge from the perceptions of both coaches and athletes will help to provide a deeper understanding of the coaching environment. This will enable coach education to train coaches to interpret different situations and perceptions in a manner that results in their own behaviour being positive and adaptive towards their athletes.

### 2.7.1 Schematic Overview of the Dimensions of Research Programme

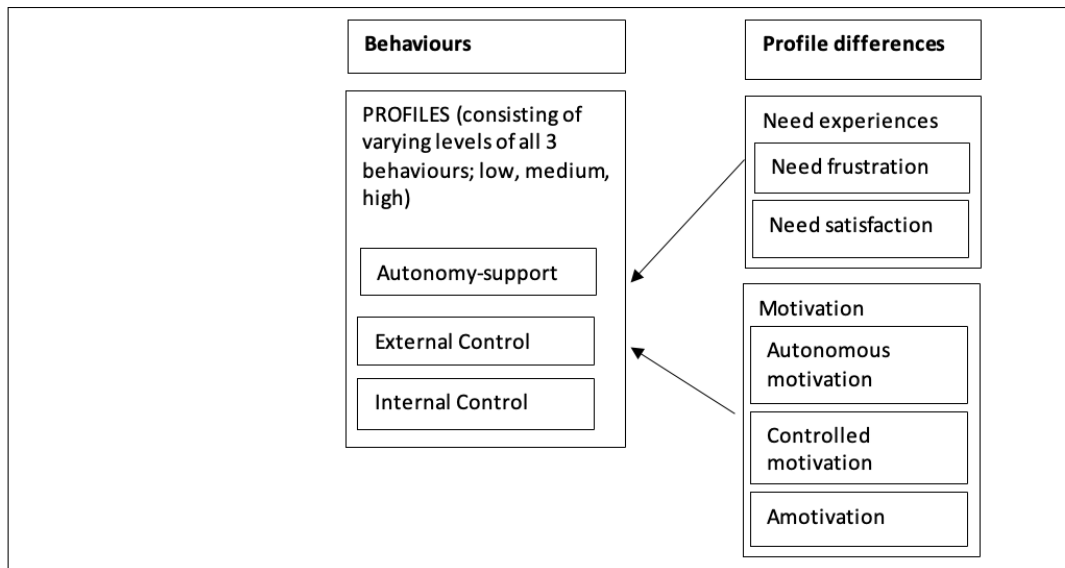
**Figure 2.1**

*Diagram of Person-Centred Analysis in Chapter 3 (Coach Sample)*

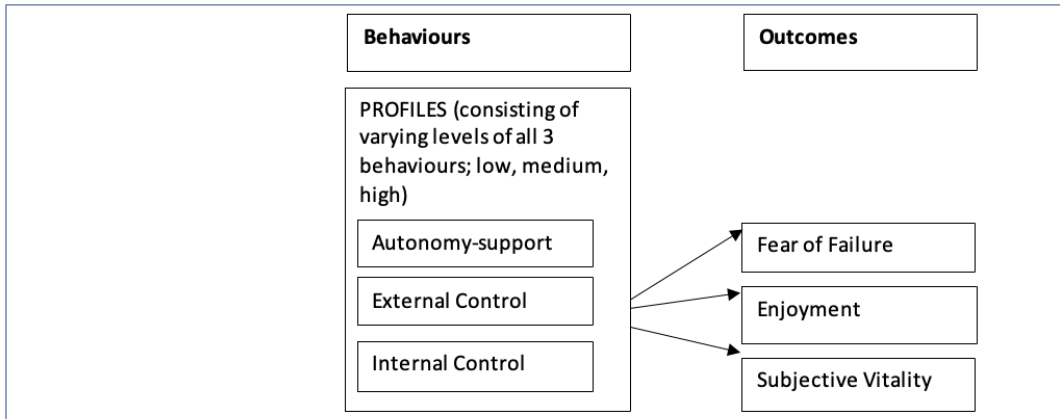


**Figure 2.2**

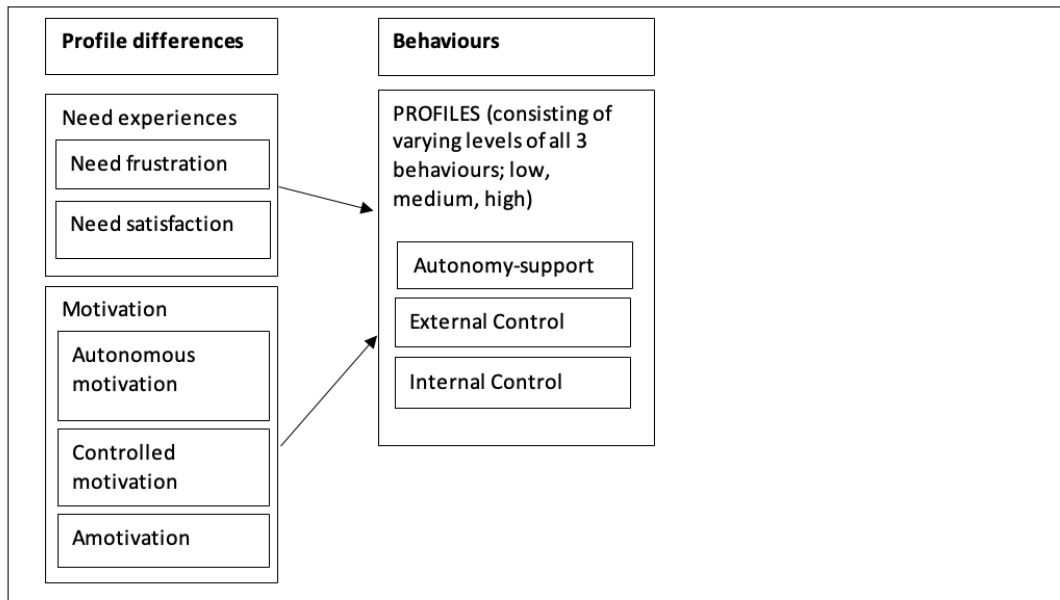
*Diagram of Variable-Centred Analysis in Chapter 3 (Coach Sample)*



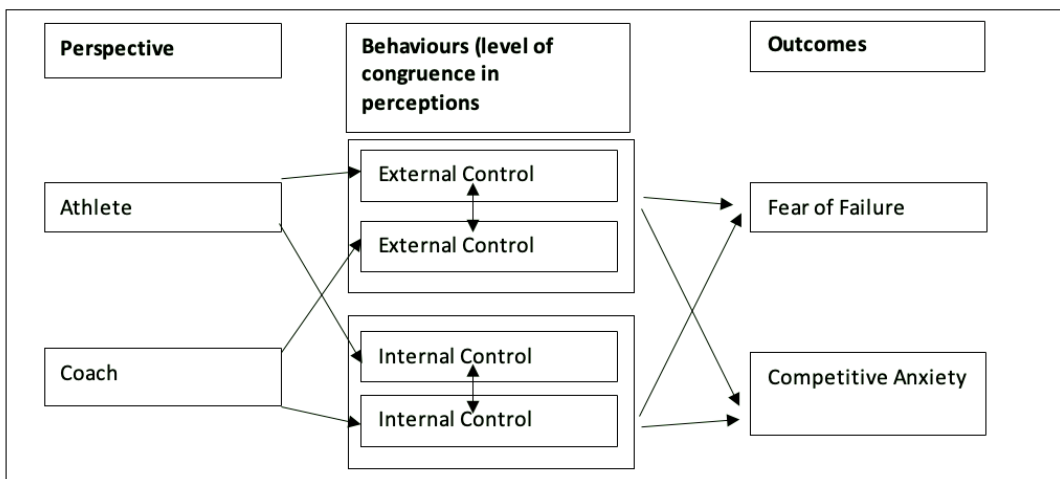
**Figure 2.3**  
*Diagram of Person-Centred Analysis in Chapter 4 (Athlete Sample)*



**Figure 2.4**  
*Diagram of Variable-Centred Analysis in Chapter 4 (Athlete Sample)*



**Figure 2.5**  
*Diagram of Response Surface Analysis in Chapter 5 (Coach-Athlete Dyad Sample)*



## Chapter 3

### **Coaches' Perceptions of their Autonomy-Supportive, Externally and Internally Controlling Behaviours: Exploring the Coaching Context and Athlete Motivation as Antecedents**

#### **3.1 Introduction**

Research examining coaching behaviour in sport has predominantly focused on the environments created and the positive effects these have on athletes, neglecting the understanding of the potential antecedents (Adie et al., 2012; Felton & Jowett, 2013). However, more recently the acknowledgement of controlling environments within Self-Determination Theory (SDT; Deci & Ryan, 1985, 2000) research, as such the 'darker side' of coaching, has developed following the awareness that it is unrealistic to assume that a coach will always be able to provide their athletes with a fully autonomy-supportive environment (Bartholomew et al., 2010; Haerens et al., 2018). Instead, it has been recognised that it is possible for a coach to use more than one type of behaviour when they are coaching. Thus, implying that controlling and autonomy-supportive behaviours must be distinct, rather than opposing constructs, which can co-exist. Studies focusing on the effect that coaching behaviours have on athletes have dominated the field, meaning our understanding of how coaches differ in relation to the behaviours they use, and the potential predictors of these behaviours, is limited (Matosic et al., 2016; Rocchi & Pelletier, 2017).

To gain a greater insight of coaching behaviours and their antecedents, research needs to examine the controlling aspect of this environment to build upon work originally brought to the field by Bartholomew et al. (2010). The subscales in the Controlling Coach Behaviours Scale (Bartholomew et al., 2010) include negative conditional regard, intimidation, the controlling use of rewards, and excessive personal control. These subscales have also been categorised into externally and internally controlling strategies, with the controlling use of rewards and excessive personal control as external, and intimidation and negative conditional regard as internal (Soenens & Vansteenkiste, 2010; Reeve, 2009; Vansteenkiste et al., 2005). Over the last decade, a select number of studies have begun to examine antecedents of coach behaviours (Rocchi & Pelletier, 2017; Stebbings et al., 2011, 2012). However, research is limited in that it has not explored if and how such antecedents differ between externally and internally controlling behaviours within a university sport environment. Whilst university coaches are somewhat similar to the categorisation of the typical sports coach, due to university prestige, the pressures are not the same as general club or elite level coaching.

Commonly, university coaches will also be contending with trying to excel at producing successful performances, whilst managing athletes who are exposed to their own academic stressors (e.g., transitioning to higher education, becoming more independent, and managing academic deadlines; Denovan & Macaskill, 2016). Through a greater understanding of differences in coaches' needs and motivation in this context, and which antecedents may be associated with coaches adopting these different controlling behaviours, coach education will be able to use SDT to raise awareness of the potential triggers and characteristics of these behaviours. This is an important development in coach education as it will provide the opportunity to inform coaches in a more holistic manner, more so than solely focusing on informing them on how their behaviour may affect their athletes.

### ***3.1.1 Coaching Behaviours: Establishing External and Internal Control***

Recent research has questioned whether autonomy-support and controlling behaviours lie along a single continuum and therefore, are antipodal (Amoura et al., 2015; Bartholomew et al., 2010; Haerens et al., 2018; Tessier et al., 2008). Instead, these studies suggest that the two behaviours are independent constructs as the use of autonomy-support does not automatically rule out the use of controlling behaviours (Liu et al., 2017; Mageau & Vallerand, 2003; Tessier et al., 2008). Wilson et al. (2009) have researched autonomy-supportive behaviours extensively within the sport domain. An example of the types of behaviours displayed by a coach would include athletes being encouraged to use their own initiative in training sessions, offering the chance to make decisions, providing boundaries to have some choice, and acknowledging their perspective.

The influence of the use of autonomy-supportive behaviours has been found to predict need satisfaction of autonomy, competence, and relatedness (Ntoumanis, 2012; Ryan & Deci, 2000). However, it has been acknowledged that coaches may believe the use of autonomy-support can lead to feelings of being unable to maintain complete control of the environment, potentially leading to unsuccessful performances by athletes (Lyle, 2002; Stebbings et al., 2011; Su & Reeve, 2011). As a result of identifying that coaches were using behaviours that were more than just high or low in autonomy-support, Bartholomew et al.'s (2010) research brought about the darker side of the coaching environment; control. A coach can be considered as controlling in their behaviour when they pressurise their athletes in an authoritarian manner to think, feel and behave in a specific way, disregarding the athlete's perspectives (Bartholomew et al., 2009; Reeve, 2009).

Controlling behaviours have been presented as two separate dimensions previously within the parenting and teaching contexts; externally controlling and internally controlling

(Assor et al., 2004, De Meyer et al., 2016; Soenens & Vansteenkiste, 2010); with scarce acknowledgement of these sub-dimensions in sport research. Importantly, research has suggested that some of these controlling behaviours can be more damaging than others, with intimidation and negative conditional regard having stronger negative relationships with athlete well-being, compared to controlling use of rewards (Bartholomew et al., 2009). This has been supported more recently by Hein et al. (2015) who found that both intimidation and negative conditional regard (internal control) were the most damaging behaviours to students' well-being when used by PE teachers. Within the physical education context, externally and internally controlling teaching behaviours have been related to maladaptive outcomes, with more evidence supporting the undermining effects of internally controlling behaviours (De Meyer et al., 2016).

Recently, the controlling use of rewards has been found to have a positive association with the use of autonomy-supportive coaching (Codina et al., 2018), highlighting that not all dimensions of controlling coaching may be used within a session with the intention of causing negative effects on athletes. Similarly, Matosic and Cox (2014), implied that moderate levels of controlling coaching behaviours, namely the controlling use of rewards, are motivationally adaptive when paired with high autonomy-support. Therefore, it is possible that the use of rewards in this manner is less damaging when they are related to the task in action whilst combined with the use of autonomy-support; due to helping to keep the athletes focused on their task. This is supported by findings which suggested that negative feedback given by coaches to athletes, but in an autonomy-supportive manner, resulted in positive experiences for the athletes and improved their performances (Mouratidis et al., 2010). In order to gain a greater understanding of these combinations, research needs to identify how autonomy-supportive, externally controlling and internally controlling behaviours are being used together by coaches within their sessions. Studies such as Haerens et al. (2018) and Bartholomew et al. (2011a) have found moderate negative correlations between autonomy-support and control, suggesting that if a coach is using one type of behaviour it does not mean that there is a complete absence of the other. Thus, supporting that a coach may need to use different behaviours dependent upon what happens within a training session (Haerens et al., 2018). This provides further reinforcement for the importance of investigating both externally and internally controlling behaviours from the coach's perspective, to help prevent the damaging effects that could be experienced by athletes. It is also imperative to consider that the use of a combination of these controlling behaviours on athletes could mean some are less harmful than others, particularly when used alongside autonomy-supportive behaviours

(Matosic & Cox, 2014). Further, if there are differences between the presence of external and internal control, it is vital that research gains an understanding of these and the potential aspects that may be associated with a greater dependence on using them over autonomy-support.

The results of a study conducted by Cheval et al. (2017) examining the four separate facets of control (suggested by Bartholomew et al., 2010) found that when coaches used more excessive personal control, athletes experienced greater autonomy frustration. Thus, implying that a coach was more likely to use external control when they have a lack of trust in their athlete, resulting in undermining their needs for competence and relatedness. A further insight into externally controlling behaviours from a coach's perspective would help to enlighten why this is being used. It is possible that if a coach has worked with their athletes for a longer period of time, the use of controlling behaviour may have become an accepted and normative element of the training environment. Therefore, making this accepted within the coach's and athlete's experience, helping to buffer the negative effects of controlling behaviour. Cheval et al. (2017) suggest the accommodation of this controlling behaviour could be due to the athletes considering it being part of an elite culture within sport, highlighting the importance of research investigating why coaches may still be using controlling behaviours (Stirling & Kerr, 2013). When an athlete has been repetitively exposed to controlling behaviours, this may result in a decrease in the negative association with their basic needs and motivation due to becoming accustomed to the control; something particularly applicable to those training and competing at a higher-level of sport (Vveinhardt & Fominiene, 2020). It is therefore important to explore whether these two types of control can be combined in different ways with autonomy-support and associated with coaches' different needs experiences and motivation, as well as particular antecedents.

### **3.1.2 Coach Psychological Need Experiences and Motivation**

Within the literature, autonomy-supportive and controlling coaching behaviours have been more commonly explored in relation to the way in which they impact athletes, considering their psychological needs and motivation (Mageau & Vallerand, 2003). However, it is also important to examine the difference in coaches' need experiences and motivation, in relation to the behaviours they adopt. Basic Psychological Needs Theory (Deci & Ryan, 2000) proposes that individuals are growth-orientated and strive to be able to fulfil three psychological needs: autonomy, competence, and relatedness. However, it is also possible for the individuals to be exposed to defensive functioning when exposed to thwarting contexts (Vansteenkiste & Ryan, 2013). These basic psychological needs can be experienced in two



forms, either satisfied or frustrated. Need satisfaction occurs if an individual feels self-initiating when completing tasks (autonomy), experiences a sense of mastery (competence), and has feelings of acceptance and support from others (relatedness; Deci & Ryan, 2000; Chen et al., 2015). In contrast, feelings of frustration to these needs are considered to be distinct from being the absence of need satisfaction (Bartholomew et al., 2011a, Vansteenkiste & Ryan, 2013). Need frustration includes an individual feeling as though they are constricted in their choices and externally controlled (autonomy), have low self-efficacy and feelings of inadequacy (competence), and experiences rejection from others (relatedness; Bartholomew et al., 2011b; Chen et al., 2015). Studies have found that when an individual felt supported in their social context, they were more likely to experience need satisfaction, autonomous motivation, well-being, and optimal functioning (Adie et al., 2012; Deci & Ryan, 2000; Li et al., 2013). Whereas a context which thwarts these needs will ultimately lead to need frustration, controlled motivation, ill-being, and non-optimal functioning (Bartholomew et al., 2011a; Deci & Ryan, 2000). Further, research has highlighted that a coach's need frustration is associated with ill-being, predicting controlling behaviours, whereas a coach who experiences need satisfaction will experience well-being, predicting autonomy-supportive behaviours (Stebbing et al., 2011).

Motivation is a key element to consider with regards to how coaches may differ when reporting the types of coaching behaviour they use (Mageau & Vallerand, 2003). SDT posits that motivation lies on a continuum ranging from autonomous to controlled and amotivation (Organismic Integration Theory; OIT, Deci & Ryan, 2000). At one end, autonomous motivation involves an individual being motivated through a sense of fun and volition. A coach's autonomous motivation has been positively associated with the use of autonomy-supportive coaching behaviours in both coaching and teaching contexts (Rocchi et al., 2013). Further, Solstad et al. (2015) found that coaches' autonomous motivation was positively associated with their tendencies to provide autonomy-supportive coaching to their athletes, supporting previous research (Rocchi et al., 2013; Van den Berge et al., 2014). In contrast, when experiencing controlled motivation, a coach is more likely to use controlling forms of behaviour (Bartholomew et al., 2010; Van den Berghe et al., 2013). Alcaraz et al. (2015) found that coaches' motivation was a mediator of the relationships from relatedness need satisfaction and need frustration to psychological well-being. This provided evidence of the importance of investigating coach motivation when considering the behaviours used. Further, Alcaraz et al.'s (2015) findings outlined that the best conditions for a coach to experience optimal psychological well-being was to have high need satisfaction, low need frustration and

autonomous. One study found that teachers who reported greater autonomous motivation had the most optimal adaptive pattern of outcomes, in contrast, those high in amotivation presented the opposite results (Abós et al., 2018). Greater controlled motivation in teachers was found to result in engagement in their jobs, but presented an increased chance of burnout.

Associations between need satisfaction and need supportive behaviours are not always present, but need frustration has been indirectly linked via motivation, with controlling behaviours (Matosic & Cox, 2014). Although research has identified how needs and motivation can differ for coaches who tend to use either autonomy-support or control, there is no research which has examined whether a coach may have an alternate experience if they perceive a greater use of internal control when compared to another coach who perceives a greater use of external control. Thus, highlighting the importance of examining these two types of control distinctively when aiming to explore the association of coach behaviour profiles with these variables from an SDT perspective and their theoretical alignment. Aspects that may be associated with using more autonomy-supportive or controlling behaviours, social factors such as the coaching context and coaches' perceptions of their athlete's motivation can play a vital role; making it imperative to understand the differences in the potential antecedents of using adaptive or maladaptive coaching behaviours (Occhino et al., 2014; Rocchi et al., 2017). Despite initial research examining antecedents of coaching behaviour, there are no known studies on how these may differ in relation to both external and internal control, specifically within a university sport context (Iachini, 2013; Kim et al., 2019; Rocchi et al., 2013; Rocchi et al., 2017; Stebbings et al., 2011; Stebbings et al., 2012; Stebbings et al., 2015).

### ***3.1.3 Antecedents of Coaching Behaviour: Perceptions of the Coaching Context and Perceptions of Athlete Motivation***

The indication that controlling behaviours can be distinct in terms of being external or internal, suggests that they can be predicted by separate antecedents, warranting further investigation to help future coach education. A wealth of research has focused on the consequences of coaching behaviour on athletes, however in comparison it has neglected the understanding of why coaches behave the way they do and how such antecedents may be linked to utilising certain coaching behaviours more than others (Occhino et al., 2014; Rocchi & Pelletier, 2017). With regards to the environment, within the teaching context, Pelletier et al. (2002) suggested a teacher's behaviour can be affected by two contextual factors, pressures coming from above (school demands) and from below (student influences). Further

they found that a teacher's autonomous motivation was greatly reduced when they experienced more pressures from above and perceived their athletes as being more controlled in their motivation. There are various demands that are placed upon competitive level coaches when working; including expectations from their employers, handling both training and competition environments, and keeping their athletes motivated (Norris et al., 2017). Further, coaches who feel pressured to ensure their athletes perform well within their competition environment may resort to the use of a controlling behaviour in order to feel a sense of structure and in control when trying to achieve this goal (Cowan et al., 2012; Flett et al., 2013).

In terms of pressures from above, within the coaching context, Stebbings et al. (2012) found greater job security, lower work-life conflict, and on-going opportunities to develop as a coach, were all associated with greater need satisfaction, ultimately resulting in improved well-being and therefore a desire to use autonomy-supportive behaviours. In contrast, greater work-life conflict, and minimal offers to improve coaching development were associated with need frustration, ill-being, and the use of controlling behaviours. This research suggests that when coaches are given the chance to continue to develop their own coaching methods it may support their competence and autonomy, due to the feelings of greater knowledge and control over their own development. Coaches who are prevented from opportunities of professional development may feel isolated from others and restricted from learning new techniques and knowledge, affecting their relatedness and competence. Further, coaches who reported greater job security also had higher need satisfaction, psychological need satisfaction and were more likely to use autonomy-supportive behaviours. Work-life conflict was lower for those coaches who had high levels of need satisfaction, psychological well-being, and use of autonomy-supportive behaviours.

In contrast, coaches with greater work-life conflict had higher levels of need frustration, psychological ill-being and controlling behaviours. These findings suggest when a coach is unable to balance their life demands and coaching responsibilities, they may struggle to work well as a coach, affecting their relationships with their athletes, potentially resulting in being more likely to use controlling strategies. This may be due to feeling pressure from their employees to perform and produce a high standard of results from their athletes, requiring controlling behaviours to ensure these targets are met (Stebbing et al., 2011; Stebbings et al., 2012). Despite the controlling nature of coaching being considered as more normative or appropriate within the competitive setting, studies suggest this behaviour remains ineffective towards both the coach-athlete relationship and the performance and

motivation of the athletes (Bartholomew et al., 2011b; Van den Berghe et al., 2013). Further, in support of this, Cheon et al. (2015) found that coaches who were placed in the high-stakes environment in the London 2012 Paralympic Games, received this pressure, absorbed it, and delivered this in the same manner to their athletes. The pressure placed upon coaches to achieve good results in a competitive environment can therefore increase the likelihood of a coach feeling controlled in their own motivation (Rocchi et al., 2013).

Regarding pressures from below, Rocchi and Pelletier (2017) found that when a coach perceives their athletes to be autonomously motivated and supported by their coaching environment, they feel greater need satisfaction, increasing their own autonomous motivation. A study conducted by Taylor et al. (2008) found that teachers' perceptions of their student's motivation can indirectly through their needs, affect their behaviour. Very few studies have considered how these perceptions may link to the use of controlling behaviours and more specifically the different use of external or internal control. It is therefore important to examine these perceptions of athletes' motivation in order to gain a better understanding of this antecedent. Overall, it seems imperative to ensure that coaches are surrounded by athletes who are autonomously motivated and within a coaching context which supports their needs to result in the most adaptive coaching behaviour being used (Rocchi et al., 2013; Rocchi & Pelletier, 2017). When considering the coach's perception of their athlete's motivation, it is possible that internally controlling behaviours may be relied upon more so than externally controlling behaviours if a coach is looking to manipulate the bond with their athlete. In support of this, Bartholomew et al. (2010) suggested that when a coach perceives an athlete is unable to self-regulate their behaviour in sport, a coach is more likely to engage in intrusive behaviours. Exploring the use of control with students at university will help to provide an insight into the presence of these behaviours amongst this specific population. This approach to future research would help to enlighten the reasons surrounding why coaches have previously relied on using emotionally abusive behaviours to produce better performances and how relevant this is within the university sport environment, whilst others have deemed these as most effective in stressful competitive situations (Stirling, 2013). Therefore, through a deeper understanding from coaches on some of the potential reasons for adopting these behaviours, the greater our knowledge will become to build future intervention methods that can be specifically designed for coaches and athletes involved in sport at university.

Research examining manipulative coach behaviours, such as intimidation and negative conditional regard, from an athlete's perspective has shown that the ultimate

consequences are the undermining of their psychological needs and results in controlled motivation and negative outcomes such as burnout and ill-being (Bartholomew et al., 2010; Cheval et al., 2017; Deci & Ryan, 2000). Therefore, examining this scenario from the coach's perspective, it would be interesting to understand whether when perceiving their athlete as potentially controlled in their motivation, they have a greater tendency to adopt a more internal forms of control over external; believing they may be able to improve their athlete's motivation in this way. Teachers within a study conducted by Taylor et al. (2009) reported behaving differently depending on their students' motivation levels. Further, when poorly motivated students were identified within a class, the teachers showed a tendency to depend on controlling methods, rather than using autonomy-support. Thus, resulting in a withdrawal of attention from those students who were the least motivated, increasing the controlled motivation or amotivation the student was already feeling. Overall, the current distance between research suggestions on the ideal use of autonomy-supportive behaviours and real-life coaching practice, support the importance of continuing to examine coaching behaviours in more detail.

#### ***3.1.4 Combining Person-Centred and Variable-Centred Approaches***

To gain an in-depth understanding of coaching behaviours, two methods of analysis can be employed within research; person-centred and variable-centred approaches which can complement each other (Collie et al., 2019). The combined use of these approaches adopts an analytical method which provides a comprehensive overview of the data being analysed. The use of person-centred analysis within research enables a greater investigation of a combination of behaviours to emerge from a sample in a more realistic manner. Cluster analysis has been used in previous studies to examine coaching and teaching behaviours (Amoura et al., 2015; Haerens et al., 2018; Matosic & Cox, 2014). Therefore, acknowledging the possibility of both behaviours being used simultaneously provides a theoretical challenge that the use of external and internal control, when combined with autonomy-supportive behaviours, may not be as damaging as controlling behaviours alone (Bartholomew et al., 2011a; Haerens et al., 2015; Liu et al., 2017). Other more recent studies conducted in both the sport coaching and teaching context have begun to support this notion, finding coaches and teachers to be high in autonomy-support and low in control, vice versa, or either high or low on the use of both behaviours (Amoura et al., 2015; Haerens et al., 2018; Matosic & Cox, 2014).

Within the coaching context, one of the profiles that emerged in Haerens et al.'s (2018) sample included 'high control and high autonomy-support', providing initial evidence

from the athlete's perspective that these coaching behaviours should not be placed along the same continuum. Haerens et al. (2018) highlight that acknowledging the existence of a combination of behaviours being used by a coach may begin to provide a greater understanding of how some controlling strategies are not used with the sole intention of causing harm or to have a negative effect, instead sometimes just as a pressuring move on athletes. It is however difficult to understand this possibility when SDT infers that controlling behaviours can only lead to negative outcomes, such as burnout (Bartholomew et al., 2014). The emerging research on the concept that behaviours are distinct co-occurring constructs in the teaching domain highlights the importance of further research within the coaching context using a person-centred focus (Tang et al., 2017); as just as teachers, coaches may need to use different behaviours when with their athletes. This is due to the practicality of using autonomy-supportive behaviours solely within a competitive environment not being realistic (Haerens et al., 2018). Delrue et al.'s (2019) research helps to support that not all coaching strategies are equal in their need support or need thwarting nature. It is therefore possible that the different strategies can target different needs more specifically, potentially increasing or lessening their impact on an individual. Delrue et al. (2019) imply that the usefulness of investigating these behaviours in combination can help to understand the ways that a coach may use different strategies to work for both the athlete and the situation they are in. In contrast to using person-centred analyses, variable-centred analyses allow a different type of investigation of the data which can address the relationships existing between variables. This provides an overview of the sample as a whole, on average; compared to person-centred analyses which identifies groups of participants who have similar scores of study variables. It is assumed that the main point of interest lies on the processes that are believed to be existing to the same amount in all individuals within a group when using variable-centred analysis.

Therefore, both approaches can be adopted together when appropriate, as they can provide a more comprehensive understanding of coach behaviour in competitive sport settings. The use of person-centred analysis recognises that the entire sample is not homogeneous with regards to how variables can impact each other, and groups individuals categorised by similar patterns of associations with variables. In terms of examining different research questions, variable-centred analyses can be used to identify antecedents or correlations with outcomes from group memberships which have emerged from person-centred analysis; showing how these two approaches can benefit each other to provide a greater insight into research findings (Laursen & Hoff, 2006).

### **3.1.5 The Present Study**

The awareness that there are differences in controlling behaviours has begun to emerge from a few studies and the effect these can have on individuals such as students (De Meyer et al., 2016; Soenens & Vansteenkiste, 2010). However, there is no detailed investigation into the antecedents of externally and internally controlling behaviours themselves, or how they may co-exist, alongside autonomy-supportive behaviour. Drawn from the research review, this study sought to examine; which combinations of autonomy-supportive, externally controlling and internally controlling behaviours exist among university sports club coaches; how these differ in terms of a coach's basic psychological needs and motivation; and whether different antecedents predicted the use of each of these behaviours. Continuing to explore the two dimensions of control will increase the knowledge behind educating coaches on how to produce the most adaptive and positive environment for their athletes, through being more aware of their own behaviour (Matosic et al., 2016). Based upon the emerging literature that indicates the independence of autonomy-support and control, several hypotheses were tested in this study. It was expected that support would be found for the distinctive but co-occurring nature of autonomy-support and the two types of controlling behaviours, through the emergence of more than just two profiles which would be opposite to one another; high in control and low in autonomy-support, in contrast to low in control and high in autonomy-support. It was expected that the number of profiles would replicate research that has used cluster analysis with athletes, predicting either three or four profile combinations to emerge. However, due to the use of three variables, the labelling was expected to be more specific to these in order to understand the exact differences in each profile. Furthermore, it was expected that profiles higher in controlling behaviours would contain coaches with greater need frustration and controlled motivation, whereas those with higher autonomy-support would contain coaches with greater need satisfaction and autonomous motivation.

Finally, with regards to the antecedents, it was anticipated that negative perceptions of the athlete's motivation and coaching context would be associated with a greater use of control, whereas more positive perceptions would link to autonomy-supportive behaviour. However, due to no previous research examining the different predictors for both external and internal control, hypotheses were limited. Using the literature as an indicator of potential findings, it was predicted that perceptions of athlete motivation would more likely lead to the use of internally controlling behaviours, due to the link these have with manipulating the coach-athlete bond (Bartholomew et al., 2009). The decision to use the person-centred

approach was to explore the differences existing among individuals, after identifying the different behavioural profiles they belong to. The expectation of using this approach was to enable an understanding of the different sub-groups that may exist outside of just a 'high autonomy-support - low control' or 'low autonomy-support – high control' group; highlighting a range of different combinations of these behaviours. In contrast, to examine how the behaviours are predicted by different antecedents, the variable-centred approach is more relevant. The majority of psychological research is variable-centred as most research questions examine variables and their relationships to or predictive ability on an outcome (Laursen & Hoff, 2006). As such this is the reason a variable-centred approach is also required to explore the predictive nature of different antecedents on the three behaviours.

## **3.2 Method**

### ***3.2.1 Participants***

The sample consisted of 223 coaches from university sports clubs who had finished within the top 15 places of the 2014-15 Midlands British Universities and Colleges Sport (BUCS) league. BUCS is the National Governing Body for Higher Education sport in the UK which provides the opportunity for all students to engage in sport. Coaches were 66.4% male and from 34 different sports (62.3% team sports). The average age of the sample was 29.9 years ( $SD = 10.04$ ) and 91.5% were of white ethnicity. Over half of the coaches (53.8%) held a level 2 or equivalent coaching qualification, 30.9% had a level 1 and 10.3% a level 3 qualification.

### ***3.2.2 Measures***

Participants were provided with an anonymous multi-section questionnaire to complete either in person or were emailed the link to the online survey, which was created using Survey Monkey. The questionnaire included the following measures.

**Personal information.** Data collected included; age, gender, ethnicity, type of sport, qualification level.

**Controlling coach behaviour.** The Controlling Coach Behaviour Scale (CCBS; Bartholomew et al., 2010) was used to assess the coach's perceptions of their use of controlling behaviours. The scale has 15 items, with four subscales rated on a 7-point Likert scale. The stem used was 'when coaching...' and required the coach to respond on a scale from strongly disagree (1) to strongly agree (7). The scale measured conditional regard (four items; e.g., I am less friendly with my athlete if they don't make the effort to see things my way), intimidation (four items; e.g., I shout at my athlete in front of others to make them do certain things), the controlling use of rewards (four items; e.g., I only use rewards so that my



athlete stays on tasks during training) and excessive personal control (three items; e.g., I try to control what my athlete does during their free time). Good factorial validity and internal consistency was reported by Cheval et al. (2017). The present study examined two dimensions of controlling behaviour; external and internal. Following distinctions made with regards to the subscales and dimensions of control by Bartholomew et al. (2010) items measuring negative conditional regard and intimidation were combined to provide an average score for coaches' self-reported use of internal control. Items from the subscales measuring the controlling use of rewards and excessive personal control were combined to provide an average score for external control.

**Autonomy-supportive coach behaviour.** The Interpersonal Supportiveness Scale-Coach (ISS-C; Wilson et al., 2009) was adapted to assess the coach's autonomy-supportive behaviour using the stem 'when coaching...'. The scale consisted of 18 items, which were answered on a 7-point Likert scale ranging from strongly disagree (1) to strongly agree (7). Six items measured each of the subscales; structure (e.g., I give my athlete activities to perform that are suitable to their level), autonomy-support (e.g., I provide my athlete with choices and options), and involvement (e.g., I spend a lot of time with my athlete). Initial factorial validity was provided for the scale (Wilson et al., 2009), with recent research suggesting the scale should be used as a unidimensional scale rather than multidimensional (Stenling, 2015).

**Coaching context.** The 12-item Coaching Environment Scale (Stebbing et al., 2012) was used to assess the coach's perception of their coaching context. The stem used was 'in my sport...' and items were rated on a 7-point Likert scale from strongly disagree (1) to strongly agree (7). Four items measured each aspect of the coaching context; professional development (e.g., I am strongly encouraged to develop my coaching skills), job security (e.g., I am satisfied with the way coaching provides steady employment) and work-life conflict (e.g., my career as a coach interferes with other aspects of my life). Good fit and internal consistency were reported by Stebbings et al. (2012).

**Athlete motivation.** The coach's perception of their athlete's motivation was measured using the Behavioural Regulation in Sport Questionnaire (BRSQ; Lonsdale et al., 2008). The scale was adapted for coaches and used the stem 'why does your athlete participate in sport...?' with items responded to on a 7-point Likert scale, from strongly disagree (1) to strongly agree (7). The 24 items assessed six forms of athlete motivation including; intrinsic motivation (four items; e.g., they think it's fun), integrated motivation (four items; e.g., it's part of who they are), identified motivation (four items; e.g., they value the benefits of their sport), introjected motivation (four items; e.g., they would feel ashamed if

they quit), extrinsic motivation (four items; e.g., they feel pressure from other people to do so), and amotivation (four items; e.g., the reasons why are not clear to them anymore). Studies have supported the psychometric properties of the scale, reporting both good construct validity and internal consistency (Lonsdale et al., 2008; Hodge & Lonsdale, 2011). However, when using the BRSQ to assess coaches' perceptions of their athlete's motivation, Shokri et al. (2014) found that coaches were able to perceive each autonomous regulation distinctively yet struggled with understanding the differences among the controlled regulations. Based on their findings and recommendations, this study chose to analyse the coaches' perception of their athlete's motivation as autonomous (intrinsic regulation, integrated regulation and identified regulation) and controlled (introjected regulation, external regulation and amotivation). Shokri et al. (2014) reported acceptable reliability and validity when measuring coach's perceptions of athlete motivation using the scale in this way.

**Need satisfaction.** The Basic Need Satisfaction at Work Scale (Deci et al., 2001), modified to suit the coaching context, was used to measure the coach's need satisfaction. Following Ntoumanis' (2005) suggestion, only the 12 positively worded items were used. The stem used for these items was 'In my sport...' requiring the coach to answer using a 7-point Likert scale which ranged from strongly disagree (1) to strongly agree (7). Competence was assessed using three items (e.g., people at my club tell me I am good at what I do), autonomy with four items (e.g., I am free to express my ideas and opinions when coaching), and relatedness with five items (e.g., I consider the people I coach with to be my friends). Adequate factorial validity and internal consistency has been previously reported for all three subscales (Ntoumanis, 2005).

**Need frustration.** The Psychological Need Thwarting Scale (Bartholomew et al., 2011b) was used to measure the coach's need frustration. The stem used was 'In my sport...' and required the coach to respond on a 7-point Likert scale, ranging from strongly disagree (1) to strongly agree (7). The scale included 12 items, with four assessing each type of need frustration; competence (e.g., there are situations where I am made to feel inadequate), autonomy (e.g., I feel forced to follow coaching decisions made for me) and relatedness (e.g., I feel others can be dismissive of me). The scale's internal consistency and factorial validity have been supported by Costa et al. (2014).

**Coach motivation.** The Coach Motivation Questionnaire (McLean et al., 2012) was used to measure the coach's motivation. This scale included 22 items which were answered on a 7-point Likert scale, ranging from strongly disagree (1) to strongly agree (7). The stem used for the items was 'why do you coach your sport?'. The scale measured the six subscales

of motivation; intrinsic motivation (four items; e.g., I find it stimulating), integrated motivation (three items; e.g., it's fundamental to who I am), identified motivation (three items; e.g., it is moving me toward my personal goals), introjected motivation (four items; e.g., I feel pressure on myself to win), extrinsic motivation (four items; e.g., to get recognition from others), and amotivation (four items; e.g., sometimes I don't know why I coach anymore). In accordance with scoring protocols used previously in sport and the autonomous versus controlled motivation categorisation (Deci & Ryan, 2008), the intrinsic, integrated, and identified subscales were combined to measure autonomous motivation, and the introjected and external subscales combined to measure controlled motivation (Hodge & Lonsdale, 2011; Balaguer et al., 2009). The internal consistency and factorial validity of the Coach Motivation Scale has been supported by McLean and Mallett (2012). One item was removed from the controlled motivation subscale which measured introjected motivation, and one item was removed from the amotivation subscale to improve the reliability score before further analysis<sup>2</sup>.

### **3.2.3 Procedure**

The study's procedure followed the ethical guidelines of the British Psychological Society and approval was given by the ethical advisory committee at the researcher's institution. Presidents from the university sports clubs were contacted via email (Appendix A) provided by their university student union or their club website and asked for their permission to communicate with their coaches. In order to ensure that all participants were fully aware of what the study involved and their contribution, the aim of the research was clearly explained to all coaches via an information sheet, with the opportunity to ask questions if required (Appendix B). Informed consent was gained from all participants before the study began, and they were given the right to withdraw from completing the questionnaire and the study if they requested to (Appendix C). Following coaches providing their consent, they were given either an online survey link via email or a paper copy of the questionnaire (Appendix D). Coaches were asked where applicable to focus sections of the questionnaire that they answered on an athlete who had been selected through being the first alphabetically within a list of athletes in their coaching group (using forename). The questionnaire took approximately 20 minutes to complete and 82.5% of the sample's data was collected via online survey. Coaches were debriefed by the researcher after the data had been collected to

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<sup>2</sup> The first item from the controlled motivation subscale (I don't want to let my athletes down), and the second item from the amotivation subscale (Sometimes I don't know why I coach anymore) were removed in order to improve subscale reliability.

remind them of the intention of the study and provide the chance to ask any questions about their participation. This debrief reinforced that the responses were anonymous and would not be shared with the athletes that coaches train, or their club contacts. Further, the importance of studying different coaching behaviours was re-iterated to comfort participants that their data will help to benefit future coach education, alongside coach and athlete understanding of the university sport environment. The researcher's contact details (as stated on the information sheet) remained available to participants to use after the study should the participants need to make communication about their data. Considering the nature of the study surrounding different types of controlling behaviour, contact details for support services were provided in the case that any coaches felt they needed any extra support following their participation in the study.

### ***3.2.4 Ethical Considerations***

Despite the sample within this study consisting solely of adults, when considering the sensitivity of exploring controlling behaviours within the sport context and potential negative associations, it highlights the importance of acknowledging the relevant ethical considerations and safeguarding measures that should be put in place. The study sought to explore the darker side of the coaching environment, but also prioritised always minimising the negative experience of any participants and the morality of the research process (Hallowell et al., 2005). It was further reiterated that confidentiality would be paramount in the reporting of the data: participants would not be identifiable.

**3.2.4.1 Informed Consent, Confidentiality, and Anonymity.** Informed consent was collected from all participants at the beginning of the study, to ensure that they understood their involvement in the research would not have any detrimental effects (Bos, 2020). Gaining informed consent from all individuals guarantees the safe participation of everyone within research. Within this study, informed consent notified the participants of: the goal of research (comprehensible for participants), research method, potential risks, conditions of anonymisation or pseudonymisation, storage, access and usage of data, complaint procedures, and rights of the participants (to withdraw, to review data, to be informed about the results). With regards to the use of confidentiality and anonymity, Whelan (2007) suggested that participants are aware of the difference between the two, understanding the varying levels of protection of their responses under both conditions. As such, whilst weaker confidentiality agreements could put participants off from contributing to research, evidence has shown that the confidential level included in studies has not reduced the reliability of results (Bjarnason & Adalbjarnardottie, 2000). Therefore, whilst anonymity could be

considered as more absolute (Lelkes et al., 2012), it may not be greater that the promise of confidentiality when ensuring participants have rights for their data to remain private and unidentifiable to themselves.

**3.2.4.2 Non-Maleficence within the Present Research Programme.** Coaches within this study were asked to reflect upon their own coaching practice, which had the potential to be recognised as ineffective (through elements of control). Therefore, considerations on how to ensure that participants had appropriate support following their inclusion in the study were provided in the case that coaches experienced a sense of understanding why their current coaching practice may not be beneficial for their athletes. As part of the debrief provided for coaches they were directed; to consider communication with their club's safeguarding officers to discuss their own coaching behaviour, to their National Governing Body to understand more adaptive ways of coaching in their sport, or local counselling services to consider with a professional their reasons for potentially adopting controlling behaviours and how to move away from this in future coaching. Further, participating in the study may have made the coach more aware of their relationship with and understanding of their athlete, for this reason, encouraging coaches to reflect on this and discuss their behaviour with their athletes was recommended if they felt comfortable doing so.

Coaches were reminded that their data would be anonymised meaning any information on their perceptions of the coaching context (for example the job pressures and security they perceive) would not be reported directly back to their institution. However, if participants felt as though they were more aware of the pressures they were facing in this context after participating in the study they were directed to the appropriate support pathway. Coaches were randomly assigned an athlete from their university sports club training group to remove the possibility of the coach answering the questionnaire based on an athlete they prefer. Whilst the items within the questionnaire which measure the different dimensions of controlling behaviour are not worded in terms of intentionally aiming to abuse athletes, it was taken into consideration that a coach could score highly in terms of their aims to externally control what their athlete does, as well as being intimidating and neglectful to an extreme.

### **3.2.5 Data Analysis**

Preliminary analyses were carried out using Statistical Package for the Social Sciences (SPSS) version 25.0 (IBM Corp.) to calculate descriptive statistics, including means, standard deviations, partial and bivariate correlations, and scale reliability. Screening revealed no missing values or outliers present. Partial correlations were performed on the data to

determine the relationship between the antecedents and the three coaching behaviours, whilst controlling for two out of the three each time. This method is particularly relevant in this analysis due to the expectation that the different behaviours will have an impact on each other due to their distinct nature.

**3.2.5.1 Person-Centred Analyses.** In order to identify the behaviour profiles existing within the dataset, a two-step cluster analysis approach was conducted. The variables used for the cluster analysis were autonomy-supportive behaviour, externally controlling behaviour and internally controlling behaviour. The two-step procedure involved a hierarchical cluster analysis followed by the non-hierarchical clustering k-means method (Gore, 2000; Haerens et al., 2018). Initially, the hierarchical clustering was conducted using Ward's method based on squared Euclidean distances on the whole sample to explore the potential number of profiles expected via an examination of the agglomeration schedule and dendrogram. Following this, the sample was randomly split in half, allowing a k-means clustering analysis to be carried out. This split-half of the data was compared for similarity in profiles existing within the overall sample. Finally, a k-means analysis was run on the whole sample, confirming the stability of the clusters which had emerged in the split sample. All variables were converted to z-scores before clustering, enabling the labelling criteria of a high, moderate, or low behaviour in a profile to be based upon z-scores of +/-0.5 respectively.

**3.2.5.2 Variable-Centred Analyses.** In order to determine the distinctiveness of each cluster, a Multivariate Analysis of Variance (MANOVA) was conducted with the clusters as the independent variable and the behaviour variables as dependent variables. To examine the differences between the clusters in relation to coaches, the mean scores for psychological need satisfaction, frustration and motivation were compared for each profile. Finally, multiple regression analyses were used to determine the predictors of the three coaching behaviours, using the coaches' perceptions of their athlete's autonomous and controlled motivation, and the coaching context, as the independent variables.

### **3.3 Results**

#### ***3.3.1 Preliminary Analyses and Descriptive Statistics***

The means, standard deviations and internal reliabilities of study variables are presented in Table 3.1. Results from the descriptive statistics show that all subscales had good internal reliability ranging from .68 to .88. Examination of the mean scores of the coaching behaviour subscales shows that the sample perceived themselves to be relatively high in using autonomy-supportive behaviours and low in their use of both externally and internally

**Table 3.1**  
*Descriptive Statistics*

	Scale	M.	SD.	$\alpha$
1. Autonomy-support	1-7	5.89	.55	.87
2. Externally controlling behaviour	1-7	1.91	.72	.86
3. Internally controlling behaviour	1-7	1.83	.75	.85
4. Need satisfaction	1-7	5.81	.48	.75
5. Need frustration	1-7	1.81	.55	.85
6. Coach autonomous motivation	1-7	6.03	.55	.80
7. Coach controlled motivation	1-7	3.20	.89	.73
8. Coach amotivation	1-7	2.36	1.15	.68
9. Coaching context	1-7	4.57	.65	.71
10. Athlete autonomous motivation	1-7	6.03	.80	.86
11. Athlete controlled motivation	1-7	1.60	.56	.86

controlling behaviours based on the mean scores being above or below the scale midpoint on a 7-point scale. On average, the coaches reported using a marginally greater use of externally controlling behaviours than internally controlling on the 7-point Likert Scale used for the coach behaviour scales, the range of scores for external control (1.13 to 4.79), internal control (1.00 to 4.75), and autonomy-support (4.61 to 6.67) were quite narrow. Mean scores for need satisfaction, coach autonomous motivation, need satisfaction, and perceptions of athletes' autonomous motivation were all above the midpoint of their scale. Whereas the remaining variables, need frustration, coach controlled motivation, coach amotivation and perceptions of athletes' controlled motivation, were all below.

Table 3.2 presents the bivariate correlations between the study variables. The correlations of autonomy-support with both externally and internally controlling coaching behaviours were negative and moderate to strong; both controlling behaviours had a positive association with each other. As expected, autonomy-supportive coaching behaviours were positively related to need satisfaction, coaches' autonomous motivation, coaching context, and perceptions of athletes' autonomous motivation. In contrast, the externally and internally controlling behaviour were both positively correlated with need frustration, coach controlled motivation, coach amotivation, and perceptions of athletes' controlled motivation.

### ***3.3.2 Person-Centred Analyses: Establishing Profiles of Controlling and Autonomy-Supportive Coaching Behaviours***

The agglomeration schedule and dendrogram from a hierarchical cluster analysis on the sample, suggested that alongside the plotting of the z-scores (Table 3.3), the most suitable number of existing clusters was four. To confirm the stability of these profiles a random split-half of the sample (N = 116) was used in a k-means cluster analysis, supporting the presence of the same four profiles. Finally, a k-means cluster analyses (shown in Table 3.4) of the whole

sample was used, finding that the results were similar to those presented in the hierarchical cluster and split-half k-means analysis; correctly classifying 92.9% when compared to the split-half. Therefore, the four-cluster solution was accepted as representing the most accurate grouping of participants within the sample. The clusters within the full sample represented: (1) an internally controlling profile ( $n = 102$ , 45.7%), consisting of 35.3% Females and the average age of 30.3 years ( $SD = 9.00$ ); (2) an autonomy-supportive profile ( $n = 112$ , 50.2%), this had 32.2% females and the average age was 28.9 ( $SD = 10.43$ ); (3) a controlling profile ( $n = 5$ , 2.2%), this had 40% females and the average age was 41 years ( $SD = 13.55$ ); and (4) an autonomy-supportive and externally controlling profile ( $n = 4$ , 1.8%), this had 23% females and the average age was 36 years ( $SD = 9.27$ ). Cluster descriptions were relative to one another in the sample.

The standardised and absolute scores of the coach behaviours for the k-means cluster analysis of the whole sample are presented in Table 3.4. A MANOVA was used to confirm that all the coach behaviour profiles differed significantly on at least one of the coach behaviours. The profiles differed significantly on all three coaching behaviours, with the exception of autonomy-support between the 'autonomy-supportive' and 'autonomy-supportive and externally controlling' profiles, and internal control between the 'internally controlling' and 'autonomy-supportive and externally controlling' profile (these were expected based on the absolute scores). The overall multivariate test was significant, Pillai's Trace = 1.55,  $F(9, 657) = 79.16$ ,  $p < .001$ ,  $\eta_p^2 = .52$ . With regards to the MANOVA results for perceptions of autonomy-support, the 'internally controlling' profile was lower than both the 'autonomy-supportive', and 'autonomy-supportive and externally controlling' profiles. In contrast, the 'internally controlling' profile was greater in autonomy-support than the 'controlling' profile.

Those within the 'controlling' profile had lower perceptions of autonomy-supportive behaviours than both the 'autonomy-supportive', and 'autonomy-supportive and externally controlling' profiles. For externally controlling behaviours, the 'internally controlling' profile had greater perceptions in comparison to the 'autonomy-supportive' profile, but lower perceptions than the other two profiles. The 'autonomy-supportive' profile had lower perceptions of externally controlling behaviours than both the 'controlling', and 'autonomy-supportive and externally controlling' profiles. Lastly, the 'controlling' profile had greater perceptions of externally controlling behaviours than the 'externally controlling and autonomy-supportive' profile. In terms of internally controlling behaviours, the 'autonomy-supportive' profile had lower perceptions than all other profiles. Whereas the 'controlling'



**Table 3.2***Bivariate Correlations of Study Variables*

	1.	2.	3.	4.	5.	6.	7.	8.	9.	10.
1. Autonomy-support	-									
2. Externally controlling behaviour	-.70*	-								
3. Internally controlling behaviour	-.86*	.85*	-							
4. Need satisfaction	.80*	-.64*	-.76*	-						
5. Need frustration	-.73*	.78*	.78*	-.84*	-					
6. Coach autonomous motivation	.73*	-.64*	-.69*	.70*	-.71*	-				
7. Coach controlled motivation	-.73*	.42*	.67*	-.80*	.61*	-.70*	-			
8. Coach amotivation	-.78*	.52*	.72*	-.69*	.64*	-.72*	.79*	-		
9. Coaching context	.59*	-.63*	-.67*	.59*	-.73*	.72*	-.57*	-.69*	-	
10. Athlete autonomous motivation	.55*	-.63*	-.68*	.41*	-.42*	.61*	-.50*	-.56*	.32*	-
11. Athlete controlled motivation	-.48*	.59*	.59*	-.67*	.80*	-.77*	.55*	.55*	-.72*	-.38*

**Table 3.3***Cluster Means, Standard Deviations, and Z-Scores for the Four-Cluster Solution of the Hierarchical Cluster Analyses (whole sample)*

Variables	Cluster 1 (N = 81) 'Internally controlling'			Cluster 2 (N = 112) 'Autonomy-supportive'			Cluster 3 (N = 5) 'Controlling'			Cluster 4 (N = 25) 'Autonomy-supportive and externally controlling'		
	Mean	SD	Z	Mean	SD	Z	Mean	SD	Z	Mean	SD	Z
1. Autonomy-Support	5.66	.33	-.42	6.32	.16	.78	4.69	.17	-2.20	4.95	.21	-1.72
2. External control	2.12	.46	.28	1.43	.19	-.68	4.57	.64	3.71	2.90	.27	1.38
3. Internal control	2.27	.16	.58	1.19	.19	-.85	4.45	.17	3.50	2.75	.27	1.24

**Table 3.4***Cluster Means, Standard Deviations, and Z-Scores for the Four-Cluster Solution of the K-Means Cluster Analyses (whole sample)*

	Cluster 1 (N = 102) 'Internally controlling'			Cluster 2 (N = 112) 'Autonomy-supportive'			Cluster 3 (N = 5) 'Controlling'			Cluster 4 (N = 4) 'Autonomy-supportive and externally controlling'		
	Mean	SD	Z	Mean	SD	Z	Mean	SD	Z	Mean	SD	Z
1. Autonomy-Support	5.46 <sub>a</sub>	.39	-.79	6.32 <sub>b</sub>	.16	.78	4.69 <sub>c</sub>	.17	-2.20	6.44 <sub>bd</sub>	.06	1.02
2. External control	2.24 <sub>a</sub>	.44	.46	1.43 <sub>b</sub>	.19	-.68	4.57 <sub>c</sub>	.64	3.71	3.89 <sub>d</sub>	.14	2.76
3. Internal control	2.39 <sub>a</sub>	.28	.75	1.19 <sub>b</sub>	.18	-.85	4.45 <sub>c</sub>	.17	3.50	2.13 <sub>ad</sub>	.23	.40
4. Need satisfaction	5.57 <sub>a</sub>	.27		6.09 <sub>b</sub>	.17		3.78 <sub>c</sub>	.82		6.48 <sub>d</sub>	.04	
5. Need frustration	2.03 <sub>a</sub>	.38		1.50 <sub>b</sub>	.28		4.08 <sub>c</sub>	.93		1.94 <sub>abd</sub>	.04	
6. Coach autonomous motivation	5.73 <sub>a</sub>	.41		6.37 <sub>b</sub>	.41		4.68 <sub>c</sub>	.40		5.90 <sub>abd</sub>	.00	
7. Coach controlled motivation	3.90 <sub>a</sub>	.63		2.53 <sub>b</sub>	.43		4.70 <sub>c</sub>	.30		2.50 <sub>bd</sub>	.00	
8. Coach amotivation	3.26 <sub>a</sub>	.86		1.50 <sub>b</sub>	.60		3.80 <sub>c</sub>	.45		1.67 <sub>bd</sub>	.00	

*Note.* Cluster descriptions are relative to one another in the sample. Different subscripts in the same row indicate significant statistical differences ( $p < 0.05$ , Bonferroni's test)

profile had greater perceptions than the 'autonomy-supportive and externally controlling' profile.

### ***3.3.3 Variable-Centred Analyses: Profile Differences in Coaches' Psychological Needs and Motivation***

Using the coaches' psychological needs and motivation as independent variables, a MANOVA (shown in Table 3.4) was conducted to examine the differences existing between the profiles, finding an overall significant multivariate effect, Pillai's Trace = 1.55,  $F(15, 651) = 42.93$   $p < .001$ ,  $\eta_p^2 = .50$ . Follow-up Bonferroni post hoc analyses were performed to examine the mean cluster differences. The MANOVA results found that need satisfaction was lower for the 'internally controlling' profile than both the 'autonomy-supportive' and 'autonomy-supportive and externally controlling' profiles. Coaches within the 'controlling' profile had lower need satisfaction than all other profiles. Whilst the 'autonomy-supportive and externally controlling' profile had greater levels of need satisfaction than the 'controlling' profile. Need frustration was greater for the 'internally controlling' profile than the 'autonomy-supportive' profile. Coaches in the 'controlling' profile were greater in need frustration than all other profiles.

Autonomous motivation was greater for coaches in the 'internally controlling' than those in the 'controlling' profile, but lower in comparison to the 'autonomy-supportive' profile. The 'controlling' profile had lower autonomous motivation than the 'autonomy-supportive' and 'autonomy-supportive and externally controlling' profiles. Those within the 'internally controlling' profile had greater controlled motivation in comparison to both the 'autonomy-supportive' and 'autonomy-supportive and externally controlling' profiles. The 'controlling' profile had greater levels of controlled motivation than all other profiles. Finally, amotivation was greater for the 'internally controlling' profile than both the 'autonomy-supportive' and 'autonomy-supportive and externally controlling' profiles. The 'controlling' profile had greater perceptions of amotivation than both the 'autonomy-supportive' and 'autonomy-supportive and externally controlling' profiles.

### ***3.3.4 Variable-Centred Analyses: Antecedents Predicting Coaching Behaviours***

The partial correlations (shown in Table 3.5) for autonomy-support with the antecedents, whilst controlling for both externally controlling and internally controlling behaviours were not significant; for the coaching context ( $r = -.09$ ,  $p > .05$ ), perceptions of athletes' autonomous motivation ( $r = .03$ ,  $p > .05$ ) or perceptions of athletes' controlled motivation ( $r = .03$ ,  $p > .05$ ). However, zero-order correlations showed that there was a statistically significant moderate positive correlation between autonomy-supportive

**Table 3.5**

*Partial Correlations of the Coaching Behaviours and Antecedents: Controlling for the Different Coaching Behaviours*

	Autonomy-support	External control	Internal control
1. Athlete autonomous motivation	-	-.14	-.23
2. Athlete controlled motivation	-	.20	.17
3. Coaching context	-	-.13	-.31

behaviour and perceptions of athletes' autonomous motivation and the coaching context, as well as a moderate negative correlation with perceptions of athletes' controlled motivation. Therefore, the partial correlation results suggest that the externally and internally controlling behaviours had a strong influence in controlling for the relationship between autonomy-supportive behaviours and the antecedents. For both external and internal control, the partial correlations were all significant but weaker than the zero-order correlations, again suggesting that controlling for the other behaviour variables is important as they have an effect by reducing the strength of the correlation.

A multiple linear regression was used to predict the coaches' reported use of autonomy-support, external control, and internal control, based on their perceptions of their athlete's motivation (autonomous and controlled) and the coaching context. The first multiple linear regression demonstrated that autonomy-supportive behaviours can be predicted by the three antecedents,  $F(3,219) = 69.29, p < .001; R^2 = .48$ . Perceptions of athletes' autonomous motivation ( $\beta = .45, p < .001$ ) and coaching context ( $\beta = .40, p < .001$ ) were significant positive predictors of this behaviour. Externally controlling behaviours produced a significant result,  $F(3,219) = 114.29, p < .001; R^2 = .61$ . Perceptions of athletes' autonomous motivation ( $\beta = -.37, p < .001$ ) and the coaching context ( $\beta = -.46, p < .001$ ) were significant negative predictors, whereas athletes' controlled motivation was a positive predictor ( $\beta = .15, p < .001$ ). Finally, the regression on internally controlling behaviours was significant,  $F(3,219) = 165.67, p < .001; R^2 = .69$ . Perceptions of athletes' autonomous motivation ( $\beta = -.47, p < .001$ ) and coaching context ( $\beta = -.51, p < .001$ ) were negative predictors. In summary, perceptions of athletes' autonomous motivation were found to be a negative predictor of both externally and internally controlling behaviours and a positive predictor of autonomy-support. Perceptions of athletes' controlled motivation were only a positive predictor of externally controlling behaviours. The coaching context was a positive predictor of autonomy-supportive behaviour, and a negative predictor of both externally and internally controlling behaviour.

### 3.4 Discussion

This study sought to identify combinations of autonomy-supportive, externally controlling and internally controlling coaching behaviours from a coach's perspective. These behaviours were examined in terms of their different associations with coaches' motivation and basic psychological needs in combination using these profiles and then studied independently via an exploration of the potential antecedents of each coaching behaviour. Evidence within the current literature supports the distinctiveness of autonomy-supportive and controlling behaviours (Matosic & Cox, 2014; Haerens et al., 2018), and that they can exist in combination, but is yet to examine both external and internal control as separate constructs. The results of the present study provided support for the co-occurring, but distinct, presence of autonomy-supportive, externally controlling and internally controlling behaviours within the competitive university sport environment. The evidence of more than two profiles existing within the sample, outside of a 'high autonomy-support and low external and internal control', or vice versa, highlighted how coaches can perceive their use of the different types of control in varying amounts alongside autonomy-support.

There were notable differences present in terms of the coaches' basic psychological needs and motivation across profiles. The 'autonomy-supportive' profile represented what would be considered as the most positive group of coaches, and the 'controlling' profile as the most negative. Further, a particularly important result was the difference in associations to needs and motivations between the 'internally controlling' and 'autonomy-supportive and externally controlling' profile, with the latter having significantly more positive relationships with need satisfaction and autonomous motivation. This result highlights that coach need satisfaction is still experienced when they use both high autonomy-support and external control, in comparison to profiles with lower autonomy-support. Moreover, perceptions of the use of externally controlling behaviours were found to still be high in profiles when controlled motivation was low, in contrast to internal control which only appeared to be adopted when a coach was experiencing high need frustration and controlled motivation. These results were prominent despite, in absolute terms, the average score for both externally and internally controlling behaviours being considered low, as they were below the midpoint of the scales used. These two findings are particularly important to acknowledge as they highlight the distinct associations which exist for these behaviours. Finally, the coaches' perceptions of their athlete's motivation and the coaching context were found to predict the three coaching behaviours differently. A particularly important finding related to the fact that

coaches' perceptions of athletes with controlled motivation only predicted the use of externally coaching behaviours and not internally controlling behaviours.

#### ***3.4.1 Person-Centred Analyses: Examining Profiles of Externally and Internally Controlling Behaviours with Autonomy-Support***

The present research has found support for the distinct and co-occurring nature of autonomy-supportive, externally controlling and internally controlling behaviours being used within the university sport environment. Two of the profiles presented significantly different perceptions of the use of external and internal control, which is interesting as it shows that these controlling behaviours are not always present equally or used to the same extent by coaches. Further, the presence of high autonomy-support appears to inhibit internally controlling behaviour more than externally controlling. This is an important result to explore as internal control was only high when autonomy-support was low. With internal control being perceived as having the most undermining effects on others (Assor et al., 2015; Hein et al., 2015), it is vital for research to understand why a coach might employ this strategy when coaching their athletes. These findings contrast with Matosic & Cox's (2014) findings, in which the participants perceived their coaches as having similar levels of three of the controlling behaviours (negative conditional regard, intimidation and excessive personal control), whilst the controlling use of rewards was independent.

The emergence of four profiles in the present study matches that of others, however as this was the first to examine perceptions of these behaviour profiles from a coach's perspective, it was not surprising that there was no 'low autonomy-support, low control profile'. It would have been problematic for a coach to rate their own coaching behaviour as neither autonomy-supportive nor externally or internally controlling as this would infer an absence of any effort whilst coaching. In contrast an athlete is more likely to report that a coach is potentially low in their use of all behaviours (Amoura et al., 2015; Haerens et al., 2018). As such, the emergence of the 'high autonomy-support and external control' profile, although small in numbers, was important to use for comparison with other 'low-high' or 'high-low' profiles. The current study's findings also provide support for the importance of examining coaches' behaviours, and the combinations of these, within the university sport context; during a key potential timepoint for dropout from sport to occur (Guzmán & Kingston, 2012). Whilst these coach-athlete relationships may not be as established as those at a club or elite level (due to the short length of time an athlete is at university), the results support the variation in perceptions of coaching behaviour that exist. Therefore, this gives strength to the field of research on the requirements of understanding why coaches in this

context may be more likely to adopt some controlling behaviours over the use of autonomy-support (Phipps, 2019).

### ***3.4.2 Variable-Centred Analyses: Profile Differences Between Coaches' Need Satisfaction, Need Frustration and Motivation***

This study has reinforced the importance of investigating control as both external and internal, by showing that a coach's needs and motivation can differ in relation to perceptions of their use. As expected, coaches within the 'controlling' profile perceived themselves as having the highest levels of need frustration and the lowest levels of need satisfaction, closely followed by the 'internally controlling' profile. These findings are consistent with research that has examined control and autonomy-support separately and may explain why a coach is more likely to place pressure and potential conditional investment on others (Matosic & Cox, 2014; Haerens et al., 2018). These findings also highlight that the 'controlling' profile is the least adaptive group of coaches who perceive a greater use of both controlling behaviours when their need frustration is higher. Secondly, the coaches in the 'high autonomy-support and external control' profile, who reported the greatest amount of need satisfaction, were those with the highest perceived use of autonomy-supportive behaviours. Interestingly, this profile was also greater in both types of controlling behaviours in comparison to the 'autonomy-supportive' profile, evidencing the distinctiveness of these behaviours further.

Based upon previous research, it was expected that the presence of greater controlling behaviours would result in lower reports of feelings of need satisfaction. However, these findings infer a protective effect from autonomy-support on need satisfaction, and more so when moderate control rather than low control is perceived. Thus, supporting that coaches who perceive themselves as using lower levels of internal control and high levels of autonomy-support, also reported greater need satisfaction. These findings can be explained by research that examined the dual-process model using students' perceptions of coaching behaviour in relation to their own needs and motivation (Liu et al., 2017). The study found that there was an indirect negative effect from perceptions of autonomy-support (bright pathway) to need frustration (dark pathway). For students, this meant that the use of more autonomy-support in the presence of greater controlling behaviours helped to buffer the negative effect on their needs. When applied to coaches in the current study, this could explain that when a coach perceives their autonomy-supportive behaviours to be high, and reports experiences of need satisfaction, they may also have some feelings of need frustration, potentially associated with their perceptions of the use of externally controlling

behaviours. In relation to the dual-process model, it would suggest that there could be an indirect effect across the pathways as in the presence of high need satisfaction, but moderate need frustration, this has prompted the use of external control. However, it appears the use of internal control has been prevented, potentially through a buffering effect of reports of high need satisfaction. This highlights the importance of a coach experiencing need satisfaction if it is associated with a decreased likelihood of the perceived use of internal control. This is a behaviour that increases significantly in the 'internally controlling' and 'controlling' profile, both of which have moderate to very high need frustration, rather than high need frustration. Furthermore, this illustrates that coaches appear to associate the more damaging form of control (internal) as being relied upon when also reporting on greater need frustration. The differences found between these controlling constructs identifies the importance of ensuring a coach experiences need satisfaction, opposed to need frustration; supported by previous research which inferred that when coaches' needs are frustrated, their motivation becomes controlled, resulting in a greater use of controlling behaviours (Rocchi & Pelletier, 2017).

When examining coaches' motivation in the present study, it was interesting that the coaches within the 'autonomy-supportive' profile had similar levels of coach autonomous motivation, controlled motivation, and amotivation as those in the 'high autonomy-support and external control' profile. The presence of external control in the latter profile would have been predicted to have seen greater controlled motivation and amotivation than those in the 'autonomy-supportive' profile. As research from the PE context has supported that teachers' controlled motivation was associated with the use of need thwarting behaviours (Van den Berghe et al., 2013). More specifically, within this PE context it was suggested that when a teacher perceived their own motivation to be controlled, they were increasingly likely to employ controlling uses of rewards with their students, and therefore being greater in their use of external control. In contrast to this, the coaches within the present study experienced similar motivation ratings regardless of their perceived levels of external control within the 'autonomy-supportive' and 'high autonomy-support and external control' profiles. This implies that controlled motivation may not always be strongly associated with the use of both externally and internally controlling behaviours. However, it may signify the importance of having a high presence of autonomous motivation and therefore a greater use of autonomy-supportive behaviours, as both profiles presented similar perceptions of autonomy-support. This is consistent with previous research which has identified that coaches' autonomous motivation for coaching was associated with the use of autonomy-supportive coaching



behaviours (Rocchi et al., 2013). These findings further highlight the potential buffering effect that perceptions of autonomous motivation and the use of autonomy-support can provide alongside the use of control, and specifically perceptions of external control.

Exploring the results on controlled motivation highlights that this may be associated more to the use of internal control than external control. Specifically, when comparing the 'controlling' profile with the 'high autonomy-support and external control' profile, the coaches in the former profile were significantly higher in their internal control and controlled motivation, but both profiles were high in external control. Coaches within the 'internally controlling' profile also had significantly higher autonomy-support than the 'controlling' profile whilst still having high levels of internal control. These two comparisons suggest that when coaches consider themselves to use autonomy-support alongside internal control, they also reported lower controlled motivation. Research has proposed that it is possible that coaches who perceived themselves as being low in controlled motivation, may have greater perceptions of their use of autonomy-support, mainly due to a greater perception of autonomous motivation acting as a buffer against controlling behaviours (Liu et al., 2017). However, this is not the case for the coaches within the 'high autonomy-support and external control' profile for whom despite having low controlled motivation, perceived their use of external control as being very high.

Therefore, it appears that when a coach is experiencing greater need frustration and controlled motivation or amotivation they will tend to rely upon the use of controlling behaviours more predominantly, and in this case, more so internal control. These findings suggest that moderate levels of controlling behaviours can still be associated with a coach having lower controlled motivation and need frustration when combined with the perceived use of high autonomy-support, or moderate autonomous motivation. This was shown by contrasting the 'high autonomy-support and externally control' with both the 'internally controlling' and 'controlling' profiles. The study's results suggest that when external control is dominant over internal control within a profile, it has greater positive associations with a coach's needs and motivation. This may be explained because internal control is seen as a more harmful controlling behaviour, due to its direct manipulation upon the coach-athlete relationship bond, over and above the external forces placed by strategies such as excessive personal control (Bartholomew et al., 2010; Matosic & Cox, 2014). Thus, inferring the use of such behaviour is more likely to be adopted when a coach experiences greater controlled motivation themselves, as they may want to manipulate the athletes they are coaching (Assor et al., 2004; Bartholomew et al., 2010; De Meyer et al., 2016). Overall, it is apparent that when

comparing coach motivation and needs across different behaviour profiles, a high presence of need satisfaction and autonomous motivation, ideally combined with lower levels of need frustration and controlled motivation, is associated with the most positive profile in relation to the behaviours coaches perceive themselves to use. The negative profiles with higher need frustration, controlled motivation and amotivation can be used to highlight that prevention strategies are needed in order to avoid coaches being categorised in such a profile. Through a better understanding of what may be leading a coach to using different behaviours, the easier it will be to educate them on how to interact in a more motivating and engaging manner (Abós et al., 2018; Cheon et al., 2015), ideally resulting in an improvement in their own needs and motivation.

Considering these findings explicitly with the university sport environment, it is interesting to note that the coaches within this sample have acknowledged a use of some of the controlling behaviours, and in some cases, higher levels of external control when combined with high autonomy-support. As such, it seems relevant to consider that when working with students who are participating in training and competing for sports events at university, potentially several times during a week, that the coach deems the integration of externally controlling behaviours as beneficial. As coaches are working with individuals who are facing a wide range of challenges when at university (e.g., academic deadlines, transitions in education, independence), they may consider that using an element of control within the sessions could benefit their athletes. For example, the excessive use of control (a sub-domain of the externally controlling dimension) could be employed by coaches in a direct attempt to help the student to organise their lifestyle more effectively so it has a reduced negative impact on their sporting performance. In addition, using controlling rewards to sustain the students' interest in competing for their sport's BUCS team (for example, agreeing to a rest night from training, replaced by a social event as their reward), could be deemed as appropriate within the university setting as students may require extra support from their coach outside of the sport itself. Both elements of controlling behaviour can also be employed with a reduced negative impact on the athlete by the inclusion of highly autonomy-supportive behaviours as well. Acknowledging the unique context of the university sport environment has also shown how coaches' feelings of need frustration and controlled motivation do not always associate with the perceived use of high levels of controlling behaviours. This is encouraging as it is possible that coaches within this context can manage their own feelings of motivation and the way they deliver their sessions, whilst taking into consideration the pressures their athletes may be experiencing within their university journey.

### **3.4.3 Variable-Centred Analyses: Antecedents of Coach Behaviours**

The findings of the present study indicate that both the coach's perceptions of their athlete's autonomous motivation and the coaching context were positive predictors of their perceived use of autonomy-supportive behaviours, and negative predictors of both external and internal control. Interestingly, the coaches' perceptions of their athlete's controlled motivation was the sole predictor of their perceived use of external control. These findings will be further discussed in the following section in order to understand the significant links emerging across these antecedents in relation to the behaviours adopted by coaches.

**3.4.3.1 Coaches' Perceptions of their Athlete's Motivation.** Coaches' perceptions of their athlete's autonomous motivation were found to be a dominant predictor of all three types of coaching behaviours; a negative predictor of both externally and internally controlling behaviours and a positive predictor of autonomy-supportive behaviour. This finding is interesting as it highlights that although this would be considered as a positive aspect for the coach, it is still able to influence more than just the use of autonomy-supportive behaviours. Therefore, suggesting that if an athlete is displaying low levels of autonomous motivation this will also impact the use of both external and internal control. This supports findings from within the coaching setting, which found that coaches' perceptions of their athlete motivation have been found to influence their use of autonomy-supportive behaviour (Rocchi et al., 2013). Further, within the teaching context, students who had teachers that perceived them as being able to work autonomously tended to be taught using autonomy-supportive behaviours (Sarrazin et al., 2005). A study conducted in higher education found that when they perceived students as displaying low need satisfaction, this lessened the academics' psychological needs (King & Bunce, 2019). This in turn led to most teachers feeling demotivated when teaching, with only a few feeling the desire to try and improve student motivation. The study by King and Bunce (2019) infers that academics, like coaches, should be given support to understand the most appropriate way to respond to pressures from below such as perceptions of their students', or athletes', motivation. Importantly, the findings from this study add to the literature on the influence of athletes' autonomous motivation on coaching behaviour, as it has identified that this perception of their environment also impacts their use of both external and internal control.

In contrast, perceptions of athletes' controlled motivation were found to only be a positive predictor of the use of externally controlling behaviours. This is an interesting finding, as in comparison to perceptions of athletes' autonomous motivation, it appears perceptions of controlled motivation have a more specific influence on the type of behaviour a coach

adopts. Although a coach is not choosing to use autonomy-supportive behaviours when they perceive their athlete to be controlled in their motivation, it is at least promising that the coaches in this study are reliant on this potentially less damaging type of control (Bartholomew et al., 2010; Matosic & Cox, 2014). It is important to explore why perceptions of athletes high in controlled motivation are more likely to predict an increase in externally controlling behaviours but do not predict autonomy-support or internal control. It is possible that coaches who perceive that their athlete is motivated by external factors, choose to employ the controlling use of rewards as they can visibly see how this can engage their athlete and get a response. However, they may be disregarding the introjected regulation of the athletes' controlled motivation as this is less visible. As such, they begin to overcompensate with their behaviour by becoming overly involved. Moreover, these findings align with those by Shokri et al. (2014) who identified that the coaches within their study struggled to distinguish between athletes' introjected regulation and amotivation, thus resulting in a conflict over the most appropriate behaviour to use to help motivate their athlete.

Teachers have also been found to have the tendency to use control when they perceived their students as being low in motivation or behaving inappropriately, in comparison to perceptions of highly motivated students (Melliti et al., 2016; Sarrazin et al., 2005). The use of externally controlling behaviours for athletes who are perceived as being controlled in their motivation may be due to the coach's belief that using incentives or commands could be a more effective way to encourage their athletes to cooperate. In contrast, enforcing more guilt or shame (internal control) on individuals who already feel like they are participating because their motivation is controlled, is unlikely to make them feel more motivated. In terms of studies which have examined controlling behaviours as a unidimensional behaviour, this has been supported by findings of high school coaches who perceived their athletes to be low in motivation, reporting using less autonomy-supportive behaviours in comparison to the athletes they saw as being autonomously motivated (Rocchi et al., 2013). Coaches reported using more autonomy-supportive strategies due to the knowledge that athletes already had enough positive autonomous motivation to work with (Rocchi et al., 2013).

The present study's findings further highlight that externally controlling behaviours are favoured over internally controlling behaviours for individuals who are controlled in their motivation within a competitive sport environment. More specifically, when researching the elements of externally controlling and internally controlling behaviours, Bartholomew et al. (2010) explained that a coach who uses rewards will undermine the autonomy, competence,

and relatedness of athletes, and may encourage the athlete to commit to achieving the goal the coach has set. Further suggesting that excessive personal control used with athletes who are perceived as having controlled motivation will result in a perceived lack of trust between athlete and coach and therefore diminishing self-determination in athletes, as they are prevented from choosing what they do (Bartholomew et al., 2010). An increase in an athlete's motivation when using such controlling strategies is likely to be linked to controlled forms of motivation being satisfied, which is not a sustainable or an ideal regulation to foster within athletes. Instead, research has identified that autonomous motivation is the most optimal as an athlete strives to take part in an activity due to the interest and enjoyment they will experience, opposed to reasons such as trying to avoid feelings of guilt (Standage et al., 2003). Should controlling behaviours initially prompt athletes to appear more motivated, the coach may believe these behaviours are appropriate in order to sustain the interest of their athlete, and therefore continuing to use these. When compared to studies conducted within the PE context, the explanations for coaches' behaviour may differ in terms of how realistic it is to expect a coach to fully embrace autonomy-supportive behaviours. Within Physical Education, the key focus is placed upon skill acquisition and learning, in contrast, within a competitive sport environment the priority is to achieve the best result possible, thus increasing the importance given to completing the activity successfully (Melliti et al., 2016). This study supports that the use of controlling strategies with athletes who have controlled motivation is not the most effective way to work within the coaching environment but appears to be the behaviour a coach relies upon. With research emphasising the importance of always using elements of need-supportive coaching with athletes who are high in controlled motivation and low in autonomous motivation, it is vital to use studies such as the present one to inform coach education. This should highlight that rather than relying upon external control to manage athletes who are controlled in their motivation, coaches instead employ autonomy-support in order to foster more autonomous forms of motivation.

**3.4.3.2 Perceptions of the Coaching Context.** Overall, the current findings imply that when examining the coaching context and coaching behaviours, those who considered a lack of professional development opportunities, high work-life conflict, and low job security, were more likely to resort to the use of both externally and internally controlling behaviours. In contrast, a more positive outlook on the coaching context predicted a greater use of autonomy-supportive behaviour. When coaches are working in a competitive environment that involves pressure on their own performance outcomes, potentially in terms of their reputation, it appears realistic to expect them to use externally and internally controlling

behaviours. This is because their own self-worth may be taking priority over and above their athlete's welfare (Deci & Ryan, 2000; Silva et al., 2017). In order to strive towards winning in a competitive environment, coaches may steer away from autonomy-supportive behaviours, and rely on using controlling behaviours instead due to believing the pressure to win will be achieved through taking control of the situation (Taylor et al., 2009). Cheon et al. (2015) found that social environments that were results-focused, resulted in deteriorated athlete motivation and engagement due to the coaches' use of controlling strategies, prompted by the negative context; these coaches also had lower need satisfaction and job satisfaction. This highlights the need for ongoing coach development following initial courses in order to continue to make coaches feel supported. Through the provision of support to help coaches deal with the contextual demands that arise, aside from working with an athlete, this should encourage a greater use of autonomy-supportive behaviours. Previous studies have demonstrated the effect the coaching context can have on a coach's behaviour, reporting that they believed others' perceptions of their success as a coach and their performances determined their future development opportunities, job security and their mental well-being (Lundkvist et al., 2012; Raedeke, 2004). The current study's findings align with those by Rocchi and Pelletier (2017), who found that when a coach perceives their coaching environment to be supportive, they feel greater need satisfaction, increasing their own autonomous motivation, ultimately encouraging autonomy-supportive behaviours over controlling ones. In contrast, the coaches who experienced controlled motivation due to a non-supportive environment and need frustration, were more likely to engage in controlling forms of behaviour. A similar study on exercise professionals found that when they were in a need thwarting environment, this strongly increased their use of controlling behaviours, yet when the individual experienced need satisfaction and used autonomy-supportive strategies, they felt a benefit themselves in return, reporting a greater personal accomplishment at their job (Silva et al., 2017).

With no previous study examining the differences between how the university coaching context can affect both external and internal control, this study has provided a useful contribution to the literature through its findings. It is of great importance that coach education strives to ensure that coaches are given the tools to be aware of how to manage their perceptions of the coaching context they work within in order to adapt where needed to avoid the negative effects of this on their chosen coaching behaviours (Rocchi & Pelletier, 2017; Sheldon, 2011). More specifically, when comparing the elements of a coaching context for a coach in university sport settings, to a local club, there are many more pressures present

(Denovan & Macaskill, 2016). However, coaches working in both contexts (university and club) are likely to have completed the same level of qualification. As such, not preparing them for the specific context, resulting in requiring their own initiative to expand their knowledge and experience of the athletes they are training. The pressures within the university context that come from both the workplace, and the perceptions of the athletes they are working with, would be positioned at a heightened level of pressure for the coach in contrast to athletes and coaches who attend regular club-level night training (Kim et al., 2016). For those coaches working with the elite national level athletes, the pressures from universities to perform and reach targets for potential future funding and prestige for the institution may interfere with individuals' capabilities to consider the behaviour they are using. However, at the more generic level of coaching for most students who are participating in BUCS matches, pressures align closer to ensuring participation is retained across the academic calendar (Duchesne et al., 2011; Jowett & Cockerill, 2003; Vallée & Bloom, 2005). Another example may involve a university sports coach who is aware of their contract renewal being reliant on a successful team performance within the BUCS league, and the maintenance of the same standard of athletes in future years. These pressures may override a coach's considerations of what the most beneficial coaching behaviour would be for their athlete. Instead, opting to embrace the use of whichever type of behaviour at least attempts to secure the desired outcomes of getting the athletes to perform well.

To address these potential problems with department expectations, university management and Human Resources can play a vital role at improving the inaccurate or negative perceptions of the coaching environment. For example, realistic discussions on the capabilities of the athlete or team and the coach, with regards to what can be achieved within the current year should be conducted, so that the coach does not feel like they are taking on a request to accomplish results which they know are not possible. Furthermore, often coaches who work with university sports clubs, will also be working in other environments, as previously highlighted these require different approaches and goals for the coach. Thus, inferring that it would be beneficial for future coach education to focus more on athlete-centred coaching and importantly after, self-reflection. Whilst current qualifications guide coaches towards considering how they can coach a skill or activity adapting to the individual needs of the athlete, the realistic nature of this is challenged when situated outside of the coach education scenario, with many other aspects interfering with the ideal solution to delivery (e.g., time constraints, athlete behaviour).

Therefore, the study's current findings infer that in the case where a coach is perceiving a negative coaching context (e.g., low perceptions of athlete motivation and low job security), these coaches need to have a procedure in place which allows them to process these pressures. Thus, enabling them to manage these efficiently, instead of relying on the transfer of these pressures straight onto athletes through the use of excessive control; with the original aim of just completing the task for the benefit of oneself. Expanding on this, universities should consider how they induct sports coaches into their institutional setting. A complete disclosure of how the environment operates and both department and students' expectations would provide coaches with greater clarity of where everyone is positioned in this set-up; acknowledging the additional aspects of the university sport environment such as students making time to participate in sport around their studies. A development model or workshop could be designed to outline some of the potential stressors experienced by students when at university to enhance the congruence in expectations and perceptions between coaches and athletes. Therefore, it is important to strive to provide university sport coaches with the information that can enhance their understanding of why elements of being at university may make participating in sport harder for a student living away from home, compared to those who continue with their normal routines. An ideal coach development module would include education on the transition period a student moves through when progressing from further education to university. With this supporting knowledge, if a coach was to recognise their own use of excessive control over what their athlete does during their week, they should identify that those students who have experienced routine changes recently and may feel uncomfortable in their newer university settings, will not respond well to be controlled by others. Instead, students in this scenario would benefit from supportive behaviours to assist with feelings of relatedness and relevant structure.

The present research suggests that coaches need to be educated in methods to handle the pressures placed upon them in highly competitive contexts, as such skills should assist them in reducing the use of controlling strategies to achieve the most successful outcomes whilst prioritising the welfare of athletes, supporting research from other domains (Stebbing et al., 2012; Rocchi et al., 2013). To help this, it is important that employers look to facilitate an adaptive working environment that offers development, job security, but does not overload a coach's life outside of work. In summary, the results from the present study have added to the research literature by building upon previous work conducted by Rocchi et al. (2017) and Stebbings et al. (2012), examining how different antecedents can influence autonomy-supportive behaviours, as well as examining the differences existing between those



promoting or not effecting both externally and internally controlling behaviours. As such, these findings have helped to increase the understanding of the antecedents that may influence the types of behaviours and strategies a coach will employ when working with their athletes.

#### ***3.4.4 Conclusion, Limitations and Future Research***

The present study provides a valuable insight into the existence of coach behaviour profiles, evidencing that autonomy-supportive, externally, and internally controlling behaviours can co-exist within the coaching environment. These combinations of behaviours were found to differ in terms of coaches' basic psychological needs and motivation. Further, it has investigated how antecedents can predict the coach using different behaviours that either support or manipulate the coach-athlete bond (internally controlling) or provide external pressures (externally controlling). Although previous studies have examined antecedents, they have not explored control by considering both internal and external aspects. This study used a different sample to previous research that has explored behaviour profiles, focusing on coaches who are part of different university sports clubs. Participants were a mix of genders and range of ages, increasing the generalisability of the findings, however it was still conducted with a specific target audience from a competitive environment.

Future research could include measures on coach outcomes, such as their enjoyment or stress experienced when coaching, as well exploring other antecedents such as personality traits. Further, it would be interesting to examine the individual regulations of athlete's motivation from a coach's perspective to see whether they can distinguish these and learn to adapt their behaviour accordingly. The present study supports findings that coaches' understanding on how to work with athletes they perceive as being extrinsically motivated are limited. It is possible that the coaches may be confusing higher levels of extrinsic regulation as similar to an absence of motivation and therefore relying on the use of controlling behaviours (Shokri et al., 2014). Therefore, to address this issue, a basic understanding of the different types of motivations individuals experience could be integrated into coaching workshops and professional development opportunities. These would not need to be restricted to just understanding athlete motivation, but also the coach's own. As acknowledged by Shokri et al. (2014), coaches' difficulties in identifying the different controlled motivational regulations can have a negative impact on their own motivation and potentially choice of behaviour. Supporting this from the teaching context, Taylor and Ntoumanis' (2007) findings show that teachers who perceived their PE students to be

autonomously motivated, had higher levels of autonomous motivation themselves. Subsequently, autonomous teachers try more to understand their students and offer them meaningful rationale, compared with controlling teachers (Taylor et al., 2008). Therefore, if this information is translated to National Governing Bodies designing coach education, it can be used to highlight the importance of providing coaches with the skills to interpret their athlete's motivation accurately, considering the impact this can have on their own motivation. In an ideal situation, all individuals attending sports club training and competitions would be autonomously motivated, however as athletes participate in sport for a wider range of reasons, this is not always the case. Workshops which acknowledge methods for engaging and motivating individuals to participate should be prioritised to avoid coaches from adopting controlling behaviours to try to push their athletes to be involved in activities and competitions.

Moreover, using a questionnaire lends itself to self-report bias and social desirability as the coaches reported on perceptions of their own behaviour, and may be less inclined to admit to negative or controlling behaviours. It does not appear to have been an issue within the current study as four different profiles of combined coaching combinations emerged, however it may be that some individuals will be uncomfortable with being completely honest about their behaviour if they are unfamiliar with reporting on it. It appears realistic to acknowledge that a coach who is working in a competitive environment such as university sport may depend on the use of controlling behaviours potentially due to viewing these as more acceptable within a high pressurised and goal focused context. Cheval et al. (2017) suggested that the more experienced an athlete is and the higher their level of competition, could mean the use of controlling behaviours will not be as harmful, with this level of experience potentially acting as a buffer due to it being seen as being a more acceptable environment for this behaviour. These findings suggest that examining autonomy-support, externally and internally controlling coaching behaviours from an athlete's perspective would also enable validation and further development of the understanding of these profiles, supporting the accuracy of the self-reported data used in the current study. This, in turn, would provide a greater insight as to how such behaviours are perceived and whether certain combinations of control are less harmful than others.

It would also be beneficial to gain a deeper insight into the coaching environment through the collection of data from both coach and athletes who are training together to enable a comparison of perceptions of behaviour from both. The cross-sectional nature of the data collection removes the identification of any causal effects and only examines a single

time-point in a coach's season. Therefore, conducting longitudinal research would allow the tracking of changes in perceptions of needs, motivation, behaviours, and antecedents across different time points, replicating and expanding the present study's findings. With different sport seasons being focused on varied times in the year, it would be of interest to compare how coaching behaviour is viewed in and out of key competition periods. To further explore coaching behaviours, future research could use newer instruments (e.g., Bhavsar et al., 2019) to measure need supportive and thwarting behaviours related to each of the three psychological needs.

The findings have recognised the importance of ensuring that coach education considers not only how the coach should behave when in the coaching environment but also educates them on what may play a role in their choice of behaviour. Improving awareness of the negative impact that the use of controlling behaviours can have on athletes should motivate coaches to become increasingly self-reflective. As such, this would encourage them to avoid engaging in these behaviours in the future, reducing the culture of controlling behaviour being accepted. Previous findings have indicated that coaches who are identified as belonging to a controlling profile are more likely to be associated with maladaptive outcomes, such as need frustration and controlled motivation. However, the results have shown that when a coach perceives themselves to use different levels of external and internal control, alongside autonomy-support, their needs and motivation may not be completely frustrated or controlled. Therefore, this study extends and supports recent findings by acknowledging that autonomy-support, external control, and internal control need to be examined concurrently as distinctive constructs due to the variations in associations with their needs and motivations, as well as antecedents (Amoura et al., 2015; Bartholomew et al., 2010; Haerens et al., 2018; Matosic & Cox, 2014; Rocchi & Pelletier, 2018).

## Chapter 4

### **Athletes' Perceptions of Coaches' Autonomy-Supportive, Externally and Internally Controlling Behaviours: Associations with Fear of Failure, Enjoyment and Subjective Vitality**

#### **4.1 Introduction**

Within the sporting context, coaching behaviours can be both direct and indirect towards athletes. Whilst autonomy-supportive coaching behaviours are desired by athletes, within the competitive environment the use of control is still prominent and associated with maladaptive athlete outcomes (Mageau & Vallerand, 2003; Saville et al., 2014). It has been highlighted that there is a dearth of research examining how athletes perceive coaching behaviours at elite or professional levels of sport, in which these interactions can lead to a pressurised environment (Arnold & Sarkar, 2015; Lyons et al., 2012), often doing more harm than good to the athlete (Bartholomew et al., 2011a; Mahoney et al., 2016). Within environments of competitive sport, there are often opportunities presented for coaches to be rewarded if their athlete performs well. As such, to assist their athlete to perform to their best, a coach may be tempted to rely on the use of controlling behaviours to achieve these rewards, often neglecting a more supportive behaviour, and therefore negatively affecting the athlete (Cheon et al., 2015; Rocchi et al., 2013; Ryan & Deci, 2017). Research has identified two dimensions of controlling behaviours, known as external in which external pressures are enforced on individuals, and internal in which these behaviours aim to have a more direct and intrusive effect (Bartholomew et al., 2010; Reeve, 2009; Vansteenkiste & Soenens, 2010).

A framework commonly referenced in relation to explaining these different behaviours used by coaches is Self-Determination Theory (SDT; Deci & Ryan, 1985; 2000; Vansteenkiste & Ryan, 2013). This framework proposes that athletes who have coaches that use autonomy-supportive behaviours can motivate themselves and are therefore provided with opportunities to develop through more freedom. Whereas athletes who experience controlling coaching behaviours must embrace a neglecting coach attitude and are pressured, humiliated, and have feelings of guilt enforced upon them (Bartholomew et al., 2010; Soenens & Vansteenkiste, 2010). Studies have begun to examine how both autonomy-supportive and controlling behaviours can co-exist within the coaching and teaching environment through acknowledging that coaches will often rely on a combination of these behaviours depending upon the situation during their training sessions or competitions (Amoura et al., 2015; Haerens et al., 2018; Matosic & Cox, 2014). However, there is no research that examines the

presence of controlling behaviours from an athlete's perspective in terms of the external and internal dimensions alongside autonomy-support, within a competitive sport environment. Therefore, it is important to gain a greater understanding of how athletes perceive their coach's behaviour, and in turn, how this can influence their sporting experience and outcomes.

Controlling behaviours have been recognised as consisting of two dimensions; externally and internally controlling. These behaviours have been suggested to influence different elements of the coach-athlete relationship, and therefore should exist independently and be associated with and predict athlete outcomes in a distinct way (Bartholomew et al., 2010; Soenens & Vansteenkiste, 2010). Within competitive environments, controlling conditions are often more likely to be relied upon by a coach, despite the known benefits of using autonomy-support. These behaviours can lead coaches to act as gatekeepers with powers over their athlete's future opportunities, potential rewards, and negative experiences; highlighting the importance of investigating controlling behaviours in greater depth from an athlete's perspective (Haraldsen et al., 2019; Lakes, 2005; Nash & Collins, 2006).

The importance of understanding the university coaching context in greater depth links to the vital stage of an individual's life where they may consider dropping out from participating in sport (Guzmán & Kingston, 2012). If research is to assume that irrespective of context, the same application of behaviour works in any domain, this is restrictive and fails to address how we can expect athletes to find certain behaviours more motivating and adaptive for them. Importantly, this also relates to assuming that generic coach education can effectively prepare coaches for training athletes who are faced with many additional challenges during their time at university. Research must consider the different external pressures (e.g., academic and lifestyle changes) placed upon athletes during their time at university and use this to better prepare and educate coaches to be able to provide a supportive and welcoming environment; to encourage adaptive and positive experiences for students participating in sport. Further, it should be considered that the use of these findings could be applied to help club athletes and coaches to prepare for their transition period to going to university, often leaving their local club, creating a new coach-athlete relationship, whilst also having to adjust to cope with the demands of university. The findings can also help to expand the generic educating of coaches which often assumes that one approach suits all.

Research has argued that the university sport environment requires greater academic research within the field (Phipps, 2019). Sport can be an element of a student's lifestyle in

which they are most likely to try new activities, whilst also adapting in their new context. University students may struggle to cope with the transition from workload at college or sixth form, compared to those which are more reliant on self-study and more regular deadlines. Further, this transition has been found as being associated with greater independence in terms of overall lifestyle and dietary habits, with students often at a greater risk of unhealthy lifestyles (Deasy et al., 2015; HESA, 2016). Therefore, it appears vital to gain a more holistic understanding of students who participate in sport competitively at university but are not considered elite 'student-athletes', as defined by Brown et al. (2015). Further, students involved in BUCS sports events are typically those who are at university and want to play competitively but do not meet the definition of a student-athlete (Brown et al., 2015). These students do not expect to make elite levels of competition and instead view sport participation as an avenue that enables them to manage stress from academia and often try something new. As such, more research must be conducted using this wider sample of participants within the university sport context. This would help to target the under-researched area of university sport involvement, linked towards developing and focusing closely on meeting the BUCS strategic aims. The acknowledgement of the various pressures a university student will be experiencing during their studies and transition from further education, plays a vital role in making this population different to that of which a coach may be used to working with in either a club or elite level environment.

#### ***4.1.1 Coaching Behaviours: Establishing External Control and Internal Control***

The context that athletes and coaches train and work in, particularly high-performance, involves competing demands and expectations from others, making this complex for a coach to try to use solely autonomy-supportive strategies (Occhino et al., 2014). Thus, often leading coaches to believe they need to control the athlete and elements of the environment to achieve the most success (Amorose, 2007; Su & Reeve, 2011). Research has suggested that autonomy-supportive and controlling behaviour are two independent constructs, rather than belonging either end of one continuum (Amoura et al., 2015; Bartholomew et al., 2010; Haerens et al., 2018).

SDT infers that a controlling behaviour can be delivered in two different ways; internally and externally (Ryan, 1982; Soenens & Vansteenkiste, 2010). The vast amount of previous research on internal and external control has been within the parenting domain (Assor et al., 2004; Gershoff, 2013). With internally controlling behaviours linking to children internalising problems such as anxiety and being more direct (Barber, 1996), whilst externally controlling behaviours have led to externalising problems such as aggression through indirect

methods (Gershoff et al., 2012). Within the sporting environment, these controlling strategies have been examined in terms of sub-dimensions which explore how these can either manipulate the coach-athlete bond through internal control, or place external pressures via external control, and as such highlight a distinction between the two within the sporting domain (Bartholomew et al., 2010; Bartholomew et al., 2011a). Exploring these behaviours in more depth, internally controlling behaviours aim to trigger internally pressurising forces by appealing to individuals' feelings of guilt and anxiety, and are presented in a covert and subtle manner. Research has found strong associations between the use of negative conditional regard and intimidation when examining internal control (Barcza-Renner et al., 2016). Negative conditional regard can be identified by the coach choosing to withhold attention and affection when their athletes fail to impress them or achieve set goals. Intimidation involves the coach trying to humiliate and embarrass their athlete verbally, with the use of threats and punishment. Externally controlling behaviours activate external obligation in an individual through overtly controlling strategies, such as the use of rewards and pressurising language through excessive personal control (e.g., 'you must'; Vansteenkiste et al., 2005). Bartholomew et al. (2011a) implied that the controlling use of rewards was the most prominent of the externally controlling behaviours, but coaches may also choose to exert excessive personal control through trying to dictate what their athletes are doing outside of the sport context. The dominance of the controlling use of rewards is supported by the findings in Matosic and Cox's (2014) research; demonstrating that this dimension of control tends to be more apparent due to the overt pressurising nature of trying to gain control through offering physical rewards. Whereas internally controlling behaviours are seen to be more discrete, using withdrawal of attention or an expression of disappointment, yet can still be verbalised. For this reason, the use of internal control has been perceived as the more damaging form of control due to the personalised direct impact of this behaviour and manipulation of the coach-athlete bond (Bartholomew et al., 2010).

A key study investigating the different dimensions of control within a teaching setting was conducted by De Meyer et al. (2016) examining how externally and internally controlling teaching behaviours associated with students' motivation in PE. The study included 925 students, from 92 different classes, which were taught by 22 different PE teachers. The use of both variable-centred and person-centred analysis was adopted to examine perceptions of controlling teaching behaviours and student motivation. The results provided support for the distinction between perceptions of both types of control, further finding that there were negative relationships with students' controlled motivation. Supporting the distinctiveness of

the dimensions, internally controlling behaviours were found to be the only predictor of poor quality and low quantity of motivation, with no significant result to externally controlling behaviours. The person-centred analysis found five profiles based on the two types of control; 1) low internally controlling, 2) low controlling, 3) predominantly externally controlling, 4) predominantly internally controlling, 5) high controlling. The emergence of these different profiles provided support for how teachers can use varying amounts of these two behaviours and enabled the examination of differences in relation to students' motivation.

The main findings implied that the use of internally controlling behaviours was likely to lead to the poorest quality of student motivation, and therefore maladaptive motivational outcomes. Students' perceptions of internally controlling teaching were related to higher controlled motivation and lower autonomous motivation, these results were evident despite the presence of internal control being reported as quite low. This provided further support that negative environments and maladaptive events, such as controlling teaching can evoke detrimental effects when they occur, even if sporadic in use (De Meyer et al., 2014; Kins et al., 2012). Overall, both the variable-centred and person-centred analysis inferred that associations between teaching behaviours and students' motivations were influenced predominantly by internally controlling teaching, and less so by externally controlling. Out of the five profiles within the study, the researchers were surprised to find that the most autonomous motivation from students was present in the profile dominated by externally controlling teaching. The findings that internally controlling behaviour was more detrimental towards students' motivation was considered as potentially being due to this behaviour being less normative within the PE context (Gershoff et al., 2010). In contrast externally controlling strategies may be perceived as less direct and often aimed at a class as a whole rather than a student alone, reducing the negative influence when compared to internal control which may induce feelings of personal rejection and disapproval. Moreover, students may perceive the use of externally controlling teaching as more appropriate and as such perceive the teacher to be putting greater effort and energy into their lesson. Finally, although the incidence of controlling teaching behaviour was infrequent, students' perceptions of such behaviours were still associated with their negative experiences, engagement, and motivation in PE.

Despite an increase in research which shows that autonomy-supportive behaviours are more adaptive for athletes than the use of control, there is no current research within the competitive sport environment which considers how different combinations of autonomy-support, and the two dimensions of control (external and internal) may exist and their association with athletes' needs experiences, motivation and positive or negative outcomes.



The findings by De Meyer et al. (2016) highlight the importance of understanding the impacts of controlling behaviour at every level, regardless of the amount of control perceived as being used. As such, even though the use of control may appear to be justified within the competitive sport environment, this should not result in the avoidance of investigating the differences in these behaviours. Research has found similar combinations of these behaviours within profiles, including; high autonomy-support and low control, low autonomy-support and high control, high on both behaviours, and low on both behaviours (Amoura et al., 2015; Haerens et al., 2018).

Further, one study examined control using the different subscales originally proposed by Bartholomew et al. (2010) to explore the profiles that may exist alongside autonomy-support (Matosic & Cox, 2014). The profiles in this study included; a controlled (low autonomy-support, high control), a supported (high autonomy-support, low control), and a supported and controlled by rewards (high autonomy-support, high controlling use of rewards with moderate use of other controlling behaviours). This study was the first to begin to acknowledge how some elements of control may not be as harmful as others, highlighting the importance of how a coach can use these in combination with autonomy-support to reduce the negative impact control can have on athletes. However, the study found that athletes' perceptions of the coaching behaviour were similar for negative conditional regard, intimidation, and excessive personal control, making it hard to understand the differences that may have existed between profiles in terms of athletes' basic psychological needs and motivation (Matosic & Cox, 2014). The findings from this study highlight the potential of examining the sub-dimensions of control as internal and external, alongside autonomy-support to see if this reveals any differences of potential conceptual distinctions. Despite the awareness of the positive impact of autonomy-supportive behaviours, it is still possible for controlling behaviours to be implemented by coaches who have their athlete's best interests at the forefront. Taking into consideration that coaches within these environments are still prone to using these controlling techniques which they may deem harmless, it is vital to educate them on how in combination with autonomy-support, these behaviours can influence their athlete. Considering this, it is important to examine how controlling behaviours may differ in terms of the external and internal dimensions and whether they provide unique contributions to our understanding of the coaching environment and athletes' experiences.

#### ***4.1.2 Athlete Motivation and Psychological Need Experiences: Associations with Coaching Behaviours***

A coach's interpersonal behaviour can have a strong impact on athletes' basic psychological needs experiences and motivation when participating in sport (Mageau & Vallerand, 2003). Previous studies have examined athletes' motivation and needs experiences as outcomes of their coach's behaviour (Haerens et al., 2018). However, individual differences in the amount of motivation and type that each athlete can have are important to consider in association with how they view their coach's behaviour. Recent research has highlighted that it may be possible that athletes who have a long-term experience with their coach and greater maturity are able to buffer some of the negative effects of the use of controlling behaviours by their coach; due to understanding that they are a normative element of a competitive sport environment (Cheval et al., 2017). This suggests that the amount of sport experience or the level of competition may act as the buffer for the harmful effects of controlling behaviours. Thus, warranting the need to study competitive athletes and their outcomes in relation to perceptions of their coach's behaviour.

**4.1.2.1 Motivation.** Within SDT research, it has been highlighted that athletes' motivation can vary in terms of its quantity, from motivation to amotivation and quality; autonomous and controlling (Vansteenkiste et al., 2010). Autonomous motivation involves an athlete participating in an activity due to finding it enjoyable and interesting or because they relate to it personally. In contrast, controlled motivation can be identified when pressures are being applied, making the athlete experience feelings of guilt, or punishments and rewards being used to get them to take part in an activity. Finally, if an athlete is perceived to have a complete absence of motivation, this is described as amotivation, and the belief that there are no benefits in participating (Deci & Ryan, 2000). Adaptive forms of motivation in athletes have been most commonly associated with autonomy-supportive behaviours (Adie et al., 2012; Amorose & Anderson-Butcher, 2007; Carpentier & Mageau, 2014; Haerens et al., 2018). In contrast, controlled motivation has been strongly related to the use of controlling behaviours (Bartholomew et al., 2011b; Isoard-Gauthier et al., 2012; Hein et al., 2015; Matosic et al., 2014).

More specifically, when considering the motivational differences that may exist in relation to external and internal control, one study found that students' perceptions of their teacher's use of externally controlling behaviours were associated with controlled motivation and negative emotions (Assor et al., 2005). Whereas another study found that even subtle forms of pressure using internally controlling strategies had a negative impact on young

adolescents' motivation, and therefore decreased their task involvement and achievement (Vansteenkiste et al., 2005). Further, Wijnia et al. (2014), compared internally and externally controlling teaching instructions, finding both undermined students' performance and motivation when completing problem-based learning tasks. Moreover, within the teaching environment, associations between perceived behaviour profiles and students' motivational outcomes have been driven mainly by internally controlling teaching and to a lesser extent by externally controlling teaching, with one study finding that students in the predominantly externally controlling cluster reported the highest levels of intrinsic motivation (De Meyer et al., 2016).

External control is said to be predictive of amotivation and external regulation, because if an individual is exposed to this sort of behaviour, they will feel externally motivated when pressured and therefore may lend themselves to experiencing a helpless orientation, as such, amotivation (De Meyer et al., 2016; Soenens & Vansteenkiste, 2010). This suggests that a stronger association exists between controlled motivation and external control, in contrast to internal control. However, one study which investigated the differences in students' perceptions of their teachers' internal and external control, found that internally controlling teaching behaviours were related not only to higher levels of controlled motivation, but also to lower levels of autonomous motivation (De Meyer et al., 2016). These associations were obtained even though the occurrence of internally controlling teaching behaviour was quite low, which as previously acknowledged by other studies, shows that the presence of a negative behaviour can be more influential than the absence of a good one, regardless of the strength (Baumeister et al., 2001; De Meyer et al., 2014; Haerens et al., 2015). However, few studies have addressed the differential effects of internally and externally controlling coaching simultaneously, and as such have not examined these behaviours combined within a profile alongside autonomy-support. Therefore, this highlights the importance of examining the role of the different dimensions of control to further explore all aspects of this negative, but still adopted, behaviour.

**4.1.2.2 Basic Psychological Needs.** Basic Psychological Need Theory is a sub-theory of SDT, which proposes that three basic psychological needs are required for an individual to experience human function and development (Deci & Ryan, 2000). These needs include autonomy, competence, and relatedness, which can be either satisfied or frustrated. SDT suggests that coaches need to be more autonomy-supportive in their behaviour for an increased likelihood of athletes experiencing need satisfaction (Haerens et al., 2018; Hein et al., 2015). This includes satisfying their need for autonomy by enabling an experience of

choice, competence by allowing a feeling of mastery, and relatedness by making the athlete feel connected (Ryan & Deci, 2017). On the other hand, need frustration involves; frustration of autonomy by increasing pressure of control over the athlete, competence by creating feelings of inadequacy, and relatedness by making the athlete feel rejected (Bartholomew et al., 2011b; Vansteenkiste & Ryan, 2013). Research examining controlling behaviours on individuals' needs experiences found a greater positive association with need frustration (Amoura et al., 2015; Bartholomew et al., 2018; Collie et al., 2019). Differences between the two behaviours have shown that diminished use of autonomy-support was more likely to result in a passive and indirect impact on need satisfaction, in contrast control was more active and direct in frustrating the needs (De Meyer et al., 2014; Haerens et al., 2015; Vansteenkiste & Ryan, 2013). In support of this, Delrue et al. (2019) showed that the use of autonomy-support predicted greater need satisfaction and more engagement, along with less need frustration and anger; relative to the use of control.

Previous research on behaviour profiles has identified a predominantly autonomy-supportive cluster, a mainly controlling cluster, as well as a cluster with high perceptions of both behaviours (Amoura et al., 2015; Matosic & Cox, 2014). These studies supported the predominantly high in autonomy-support profile as being the most adaptive in terms of its association with need satisfaction, whilst the more controlling profile associated closely with need frustration. Studying the combinations of behaviour in relation to need satisfaction, Matosic and Cox (2014) found the athletes in the 'high control' profile, perceived autonomy-support to be moderate and just below the scale midpoint, suggesting that when compared to the supportive profile, moderate levels of autonomy-support are not enough to counteract the effects of high control on negatively impacting need satisfaction. It was also evident in both studies that the 'high autonomy-support and high control' profile was as adaptive as the 'high in autonomy-support' alone profile in relation to need satisfaction and autonomous motivation (Amoura et al., 2015; Matosic & Cox, 2014). This suggests that when there is high control in the presence of high autonomy-support, it is less detrimental than when control is used alone. The findings of Matosic and Cox's (2014) study also implied that the 'supported and controlled by rewards' profile was just as adaptive as the 'supported' profile yet also had some similarities with the 'controlled' profile. This suggests that moderate levels of controlling coaching behaviours can be adaptive when paired with high autonomy-support (but not moderate autonomy-support as in the controlled profile), as this appears to have helped to protect the athletes' needs and motivation.

In a study on combinations of autonomy-supportive and controlling behaviours, the negative effects of perceiving a coach to be high on control were still present even when autonomy-support was high (Haerens et al., 2018). Athletes in the 'high-high' profile still reported lower need satisfaction and outcome scores in comparison to the 'high in autonomy-support' profile. The perceived presence of high autonomy-support in the 'high-high' profile did not buffer the effect of the high control in terms of need frustration, which reached similar levels to those in the 'high-control' profile. This may suggest that the high-high profile can lead to both a positive and negative outcome. Haerens et al. (2018) used an athlete and a student sample in their study, finding differences which suggested that it may be more normative for athletes who are in a competitive environment in comparison to a PE lesson, to engage in controlling practices, resulting in the impact of these being less harmful. Therefore, athletes may believe that the use of control is justified if they perceive the coach is trying to help them improve their performance or keep everyone focused on achieving well as a team, despite the negative influence on their needs. Research has also suggested that detrimental effects on need frustration can be present even when the amount of control being used is minimal or random in its exposure to the individual (Kins et al., 2012).

#### ***4.1.3 Coaching Behaviours as Predictors of Athletes' Fear of Failure, Subjective Vitality and Enjoyment***

The understanding of how both internal and external control may play a role of predicting outcomes differently is currently unclear and therefore requires investigation to help develop coach education. Research has been prone to examining positive outcomes in relation to autonomy-support, and negative outcomes in relation to controlling behaviours. As such, it is important for research to consider how both adaptive and maladaptive outcomes may relate to the three types of behaviours previously identified. Three important outcomes used in the literature in this area include; enjoyment and subjective vitality as positive outcomes, and fear of failure as a negative outcome, with the common expectation that autonomy-support is positively associated with enjoyment and subjective vitality, and control is negatively associated with fear of failure (Bartholomew et al., 2011a; Haerens et al., 2018). Participation in sport can offer individuals the chance to apply and develop transferable skills from other avenues of life; such as, teamwork, tolerance, and resilience. In contrast, recent research has also acknowledged how sport can result in harmful experiences and negative outcomes for athletes (Kerr & Stirling, 2019). For this reason, everyone involved in sport participation (e.g., athletes, coaches, clubs, National Governing Bodies, and universities) cannot assume that this will lead ultimately to positive experiences, and instead, research

should be challenging the assumptions that some controlling behaviours used within sport are to help grow an individual's character and self-esteem (Kerr & Stirling, 2019). Therefore, further investigation is warranted in relation to both external and internal control, in order to explore whether there is distinctiveness between the two in relation to different athlete outcomes.

**4.1.3.1 Fear of Failure.** Research has explored how positive relationships have been found between controlling coaching behaviours and athletes' fear of failure; with an increased exposure to this negative outcome within competitive environments where athletes experience greater pressures from coaches and significant others to perform well (Mesagno et al., 2012; Rumbold et al., 2012). Fear of failure within the sporting environment has been defined as individuals who associate consequences such as punishments or negative evaluations from others, with failure (Conroy et al., 2002; Correia et al., 2017; Smith & Smoll, 1997). An examination of controlling behaviours within the teaching environment has found that chronic exposure to these behaviours has been associated with greater fear of failure (Bartholomew et al., 2018). However, interestingly the study found that students' fear of failure lessened throughout the academic year, with the authors suggesting this was due to the students' challenge avoidance resulting in them accommodating the controlling behaviours and therefore protecting them from the negative influences as much. Overall, this implies that students' reduction in fear of failure may have been due to them avoiding challenging situations. Competitive athletes may acknowledge fear of failure less so than those who participate in sport on a casual basis or at an amateur level, due to being perceived as showing weakness (Sagar et al., 2007). Recent research which has studied elite junior athletes found that due to the way that sport dominates and forms such a key part of their lifestyle, the experience of negative evaluation and fear of failure can be incredibly damaging (Gustafsson et al., 2017). Examining the links between coaching behaviours that can enhance the likelihood of an athlete experiencing fear of failure, is important as the consequences can be so harmful for them. It is possible that athletes' responses to the use of either internal or external control from a coach may have a different influence on their fear of failure. For example, Moreno-Murcia et al. (2013) found that intimidation and punishment, and therefore internally controlling behaviours lead to a greater experience of this outcome. Findings such as these may suggest that when the coach uses behaviours which instead involve controlling rewards or external pressures there is less impact on their athlete's fear of failure as this is a less manipulative form of behaviour (external control).

It must be considered that athletes who are participating in sport at a competitive level will face failure, as they are not guaranteed to win every time they compete (Sagar et al., 2010). The implications of this means athletes who are participating in sport need to be able to accept that they may face disappointments when losing in competitions, but these can be overcome and used to develop moving forward (Carless & Douglas, 2012). Recent research has examined how athletes may learn to cope with the experience of failure when they are exposed to harsh behaviour from a person in a socially supporting role, such as a coach blaming them for their mistakes and poor performance (Cowden & Worthington, 2019). It has been suggested that if the athlete is able to self-forgive, this may act as an adaptive response, reducing the future fear of failure (Woodyatt & Wenzel, 2014). As such if the athlete takes responsibility for something going wrong and the coach choosing to use punishing behaviour, they may then affirm themselves of this and reconcile the shame. Wenzel et al. (2012) suggest that when there is failure in a competitive situation, if the athlete does not acknowledge any responsibility for this then no self-forgiveness can take place. Additionally, there is a difference between the athlete accepting that they have played a justifiable role in the competitive performance failure in comparison to an athlete being told they are a failure and being punished when it is not their fault.

Further, research highlights that when experiencing failure, the context the athlete is in may impact whether they feel able to forgive themselves for this (Woodyatt & Wenzel, 2014). For example, if a coach's job is dependent on the athlete performing well in a tournament, then making mistakes and failing may increase the athlete's guilt. Therefore, if the coach chooses to greet this mistake with hostility and rejection (internal control) the athlete is less likely to be able to self-forgive and increase their fear of failure (Woodyatt & Wenzel, 2014). However, Cowden and Worthington (2019) suggest that if the athlete can embrace the self-forgiveness process, then they can adopt an impartial analysis of their sporting mistakes in competitive situations and determine how they can improve and therefore recover easier after experiencing failure. This research suggests that if the coach can use autonomy-supportive behaviour and allow the athlete time to self-forgive when making mistakes this is less likely to lead to an increase in fear of failure. However, in the face of controlling coaching behaviours, it may be possible for athletes to lessen the negative effect themselves.

**4.1.3.2 Enjoyment.** Positive coach-athlete interactions within the coaching environment have been found to influence and improve athlete functioning, motivation, and positive responses such as feelings of enjoyment (Blanchard et al., 2009; Scanlan & Simons,

1992; Scanlan et al., 1993). Further, when considering the high pressure that competitive environments can create, it is vital for the athlete to still experience enjoyment in their participation, protecting against potential dropout (Butcher et al., 2002). Adaptive outcomes such as enjoyment have been fostered by autonomy-supportive coaching behaviours (Fenton et al., 2014). Another study found that athletes who were autonomously motivated from autonomy-supportive coaching behaviours, had greater enjoyment when exercising and more psychological well-being in response (Moreno-Murcia et al., 2017). Previous research has also shown that athletes' perceptions of an autonomy-supportive coach were a positive predictor of their own enjoyment (Adie et al., 2008; Alvarez et al., 2009).

In contrast, research has found that when athletes felt controlled by the amount of money they can earn from doing well in their sport, they reported experiencing less enjoyment (Ryan & Deci, 2002). However, when athletes perceived more controlling coach behaviours, this did not necessarily reduce athletes' enjoyment if the coach also employed behaviours which helped the athlete to feel autonomous in their motivation (Rottensteiner et al., 2013). Presently, there is no known research which has examined whether the use of either externally or internally controlling behaviours can have an impact on an athlete's enjoyment. As a vital experience for maintaining interest in sports participation, understanding the relationship between controlling behaviours which are present within competitive environments should be further investigated. Finally, it has been recently highlighted that most of the research which has examined athletes' enjoyment in sport has been conducted with young athletes, or those at school and competing at club level sport (Mosqueda et al., 2019). As such, this identifies an area for further research with elite or high-performance athletes.

**4.1.3.3 Subjective Vitality.** Sport is considered to be a naturally rewarding activity that helps to improve individual's psychological well-being and can have a variety of definitions. The hedonic element of well-being is focused on what can make an individual's experiences either pleasant or unpleasant; often related to the goal of achieving pleasure and satisfaction and as such has been considered as being a limited view (Stebbing et al., 2012). On the other hand, well-being can be defined as eudemonic, the psychological development of an individual through their continuous effort to feel they have a purpose that is meaningful and is more commonly used in studies that focus on SDT (Lubans et al., 2016). A significant indicator of the eudemonic aspect of well-being is subjective vitality, which has been defined as feeling energetic, and alive (Ryan & Frederick, 1997). This combined with enjoyment in sport, is vital to both athletes' psychological and physical functioning.



When examining teaching behaviours, students' needs and subjective vitality, Liu et al. (2017) found that PE students who experienced greater autonomy-support, reported more subjective vitality if their needs were satisfied, similar to findings within the sport context (Bartholomew et al., 2011b). In contrast, a study of changes in soccer players' perceptions of controlling coaching behaviours, found no significant results to suggest that these were related to subjective vitality (Balaguer et al., 2012). These findings were proposed as being in line with Bartholomew et al. (2010) who outlined that controlling behaviours were more likely to be more relevant to outcomes which related to ill-being and compromised health in athletes. Similarly, research in athletics and PE has not found support for any effects of controlling behaviours on subjective vitality via need frustration (Haerens et al., 2015). Despite this, considering the internal and external pressures that an athlete can experience from their coach whilst participating in a competitive and demanding sport environment should be further studied (Steffen et al., 2011). Research examining well-being in athletes has commonly focused on athletes who are not participating at competitive levels of sport (Lundqvist, 2011), and as such highlights the need for research to continue to study positive outcomes at different levels of sport.

#### ***4.1.4 Combining Person-Centred and Variable-Centred Approaches***

Combining the use of both variable- and person-centred approaches has recently been acknowledged by Collie et al. (2019), terming it as a complementary analytical method which provides a comprehensive overview of the data being analysed. The person-centred approach allows data to be placed into naturally formed groups according to their relative position on specific variables (chosen by the research; Henry et al., 2005). Research using profiles through person-centred methods can provide a greater insight into how interindividual differences or similarities may exist when investigating a combination of variables, as opposed to researching isolated variables (Franco et al., 2017; Haerens et al., 2010). The variable-centred approach allows the examination of associations across variables, where it is assumed that the main point of interest lies on the processes that are believed to be existing to the same amount in all individuals within a group. Each approach allows a different analysis of the data to help address different research questions or limitations within the literature; with both approaches being used in relation to behaviour research in SDT (Aelterman et al., 2019).

Studies using the person-centred approach to explore behaviour profiles have often found either three or four cluster solutions (Amoura et al., 2015; Haerens et al., 2018; Matosic & Cox, 2014). On the previous assumption that autonomy-support and control are opposite

ends of a continuum, it would be expected that only two clusters would appear; one with high autonomy-supportive scoring participants, and the other high in control. In contrast, as per more recent research, with these two behaviours not being seen in opposition, both behaviours can be presented across more than two clusters (Amoura et al., 2015; Pelletier et al., 2001; Reeve, 2009; Soenens et al., 2009). Collie et al. (2019) found similar profiles to both Amoura et al. (2015) and Haerens et al. (2018), all within the teaching context. Four distinct profiles emerging from their data; high autonomy-support and low control, high autonomy-support and high control, average in both autonomy-support and control, and low autonomy-support and high control.

#### ***4.1.5 The Present study***

Drawing from the literature reviewed, it is evident that there are two dimensions of coaches' controlling behaviour, external and internal, that are yet to be examined in-depth from a competitive athlete's perspective. At the same time, considering how these may exist in combination with autonomy-support will provide the opportunity to examine how athletes' perceptions may differ across such profiles. Therefore, this study sought to examine; which combinations of autonomy-supportive, externally controlling and internally controlling behaviours exist among university sports club coaches from their athletes' perspective; how these differ in terms of athletes' basic psychological needs and motivation; and whether the different behaviours are predictors of three athlete outcomes (fear of failure, enjoyment, and subjective vitality). Within the present study, the use of person-centred analysis will form part of the first phase in order to identify the behaviours profiles, using the three types of coach behaviours, allowing the examination of the differences in the athletes' needs experiences and motivation. The second phase will include the use of variable-centred analysis to identify how these three separate behaviours may or may not predict three different athlete outcomes.

In-line with previous research that has examined autonomy-support and control co-existing, it was hypothesised that four profiles would emerge using person-centred analysis (Amoura et al., 2015; Collie et al., 2019; Haerens et al., 2018). Further, it was expected that profiles that were greater in autonomy-support, over external and internal control, would have athletes who experienced greater need satisfaction and autonomous motivation. In contrast, profiles dominated by either external or internal control were predicted to have athletes who reported greater need frustration and controlled motivation. Finally, using a variable-approach it was hypothesised that autonomy-supportive behaviour would be a stronger predictor of the positive outcomes of enjoyment and subjective vitality, and

internally and externally controlling behaviour would be stronger predictors of the negative outcome of fear of failure. Further, with the two types of control being independent constructs, it was expected that the athlete outcomes would be predicted uniquely in some ways, potentially more so by one than the other. Due to the distinctions found in relation to motivation in previous research, it was anticipated that internally controlling behaviours would have a greater negative impact on athletes' fear of failure (De Meyer et al., 2016). Furthermore, this type of control has been identified as being more direct and appearing to cause greater harm than external control due to activating emotions such as fear, anxiety, and anger (Assor et al., 2005; Bartholomew et al., 2010).

Despite the recognised benefits of individuals pursuing sport and education at the same time as a dual-career, this can also create challenges; e.g., effectively managing time and coping with demands from both sport and academia (Aquilina, 2013; Cosh & Tully, 2014; Tekavc et al., 2015). These demands can result in individuals feeling pressure to compromise either the sport or educational aspect of their career (Vickers & Morris, 2021). An examination of the barriers faced to sport participation by all university students, found that there were both intrapersonal (perceived self-skill and stress) and interpersonal (peer influence and lack of friends) constraints for these individuals (Thomas et al., 2019). One person with significant influence on the student's sport experience is their coach (Bloom et al., 2014; Vallée & Bloom 2005). In previous research, Higher Education coaches' jobs have been shown to extend beyond simply improving the athletic performance of their athletes to include supporting matters outside of sport and promoting their academic and personal growth (Duchesne et al., 2011; Jowett & Cockerill, 2003; Vallée & Bloom, 2005). A qualitative study interviewing coaches who were working at universities reported that they believed one of their main purposes of their job was to ensure their athletes had the tools required to succeed in their lives both during and after university (Kim et al., 2016). This supports previous studies that have identified successful university sport programmes require holistic approaches to develop athletes who are able to adapt well to their new environment (Duchesne et al., 2011; Vallée & Bloom, 2005). An expanding body of literature has examined the dual-career student-athletes in order to assist in informing how Higher Education Institutions can continue to develop to effectively support these individuals (Sánchez-Pato et al., 2016). However, minimal attention has been given to understanding the level of sport that most students will train and compete for whilst at university, within the BUCS regional leagues. This absence of knowledge, surrounding both coach and athlete perceptions of this context level, identifies an important

missing link in understanding the experience of a dominant percentage of the student population.

Overall, it is vital that the significant absence of research conducted in this context, and more specifically on the use of external and internal controlling behaviour by sports coaches in general, requires greater insight in future studies. Therefore, the current review of literature for university sport coaches is predominantly related to the teaching context, where this has been explored by researchers such as De Meyer (2016) or parental research by Soenens and Vansteenkiste (2010). Presently the application of findings collected from physical education or typical sports settings may be difficult to apply to university sport coaches and athletes as they are operating in a very different situation. Research should inform BUCS policies based upon the specific target sample, instead of assuming elite sport, grass-roots sport, or school educational experiences can be applied and replicated effectively.

## **4.2 Method**

### **4.2.1 Participants**

The sample included 416 participants ( $M = 19.6$  years;  $SD = 1.45$ ) who were students from universities who placed within the top 15 positions in the 2014-15 Midlands British Universities and Colleges Sport (BUCS) league. The sample consisted of 52.4% females and 87% of participants were of White British ethnicity (4.3% White Irish, 3.4% Mixed/multiple White and Black Caribbean, 2.9% other White background and the remaining 2.4% from Mixed/Multiple/Asian background). The time athletes had spent training with their coach ranged from 3 months to 8 years ( $M = 1.41$ ;  $SD = .90$ ) and 65.6% were from individual sports.

### **4.2.2 Measures**

All participants were given an anonymous multi-section questionnaire to complete either in person on a paper copy or via an email link to the online version. The following measures were used within the questionnaire.

**Personal Information.** Participants provided their age, gender, ethnicity, sport, and the amount of time they had spent training with their current coach.

**Autonomy-Supportive Coach Behaviour.** Athletes' perceptions of their coach's autonomy-supportive behaviour were assessed using the Interpersonal Supportiveness Scale-Coach (ISS-C; Wilson et al., 2009). The 18-item scale used the stem 'My coach...' and measured autonomy-support (six items; e.g., provides me with choices and options), structure (six items; e.g., gives me activities to perform that are suitable to my level), and involvement (six items; e.g., listens to how I would like to do things). Athletes responded to each item on a 7-point

Likert scale, which ranged from strongly disagree (1) to strongly agree (7). Initial factorial validity and internal reliability was found for the scale (Wilson et al., 2009), with recent research suggesting the scale should be unidimensional rather than multidimensional (Stenling et al., 2015).

**Controlling Coach Behaviour.** The 15-item Controlling Coach Behaviours Scale (CCBS; Bartholomew et al., 2010) was used to assess athletes' perceptions of their coach's controlling behaviour and was scored on a Likert scale of strongly disagree (1) to strongly agree (7). This scale measured the four different controlling motivational strategies identified by Bartholomew et al. (2010) within the sport context. The stem for each item was 'My coach...' and measured; negative conditional regard (four items; e.g., pays me less attention if I have displeased him/her), intimidation (four items; e.g., threatens to punish me to keep me focused during training), the controlling use of rewards (four items; e.g., only uses rewards/praise to make me train harder), and excessive personal control (three items; e.g., tries to interfere in aspects of my life outside of my sport). Cheval et al. (2017) reported that the scale had good factorial validity and internal consistency. Following the distinctions made with regards to the subscales and dimensions of control by Bartholomew et al. (2010), items measuring negative conditional regard and intimidation were combined to provide an average score for coaches' self-reported use of internal control. Items from the subscales measuring the controlling use of rewards and excessive personal control were combined to provide an average score for external control. One item was removed from the externally controlling subscale which measured the controlling use of rewards to improve the reliability score before further analysis<sup>3</sup>.

**Psychological Need Satisfaction.** Fifteen items, which were derived from three previously validated questionnaires, were used to assess the degree to which the athletes experienced psychological need satisfaction. Responses were scored on a 7-point Likert scale which ranged from strongly disagree (1) to strongly agree (7). In order to assess the satisfaction of the need for autonomy, five items created by Standage et al. (2003) were used (e.g., I have some choice in what I want to do). The satisfaction of the need for competence was measured using five items from the competence subscale within the Intrinsic Motivation Inventory (IMI; McAuley et al., 1989; e.g., I think I do pretty well in comparison to other players/athletes). Finally, the satisfaction of the need for relatedness was assessed using the 5-item acceptance subscale of the Need for Relatedness Scale (Richer & Vallerand, 1998; e.g.,

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<sup>3</sup> The second item from the controlling use of rewards subscale was removed (My coach tries to motivate me by promising to reward me if I do well) in order to improve subscale reliability.

I feel valued). All subscales have demonstrated adequate factorial validity and satisfactory levels of internal reliability from previous research conducted within the sport domain (Reinboth & Duda., 2004; Standage et al., 2005).

**Psychological Need Frustration.** To assess the frustration of athletes' basic psychological needs the Psychological Need Thwarting Scale (PNTS; Bartholomew et al., 2011b) was used. The stem for each item was 'In my sport...' and required the athlete to respond on a 7-point Likert scale, ranging from strongly disagree (1) to strongly agree (7). The 12-item scale measured each basic psychological need; autonomy (four items; e.g., I feel prevented from making choices with regards to the way I train), competence (four items; e.g., situations occur in which I am made to feel incapable), and relatedness (four items; e.g., I feel other people dislike me). The scale has been found to have good factorial validity and internal consistency (Costa et al., 2014).

**Athlete Motivation.** The Behavioural Regulations in Sport Questionnaire (Lonsdale et al., 2008) was used to assess athletes' motivation. The stem for each item was 'I participate in my sport...' and required the athlete to respond on a 7-point Likert scale, ranging from strongly disagree (1) to strongly agree (7). The scale included 24 items assessing each of the six forms of athlete motivation; intrinsic motivation (four items; e.g., because I enjoy it), integrated motivation (four items; e.g., because it's a part of who I am), identified motivation (four items, e.g., because the benefits of sport are important to me), introjected motivation (four items; e.g., because I would feel ashamed if I quit), external motivation (four items; e.g., because if I don't other people will not be pleased with me) and amotivation (four items; e.g., but I wonder what's the point). In accordance with scoring protocols used previously in sport and the autonomous versus controlled motivation categorisation (Deci & Ryan, 2008), the intrinsic, integrated, and identified subscales were combined to measure autonomous motivation, and the introjected and external subscales combined to measure controlled motivation (Hodge & Lonsdale, 2011; Balaguer et al., 2009). Construct validity and adequate internal consistency has been found for this scale (Hodge & Lonsdale, 2011).

**Fear of Failure.** The Performance Failure Appraisal Inventory (short-form; Conroy, 2002) was used to measure athletes' fear of failure. The scale included five items, scored on a 5-point Likert scale, ranging from do not believe at all (1) to believe 100% of the time (5). An example item was 'when I am failing, important others are disappointed'. Good internal consistency has been found for this subscale (Gomez-Lopez et al., 2020).

**Enjoyment.** The Interest/Enjoyment 7-item subscale from the Intrinsic Motivation Inventory (IMI; Ryan, 1982) was used to assess the athletes' enjoyment within the sport

context. Items were scored on a 7-point Likert scale, from strongly disagree (1) to strongly agree (7) and an example item was 'my sport is fun to do'. Reinboth and Duda (2006) found strong support for the IMI's validity and internal reliability.

**Subjective Vitality.** To assess the degree to which athletes felt positive energy most recently, a 5-item version of the Subjective Vitality Scale (SVS; Ryan & Frederick, 1997) was used. This measure was scored on a 7-point Likert scale, from strongly disagree (1) to strongly agree (7), with items following the stem 'most recently when doing my sport I have...'. An example item was 'felt alive and full of vitality'. The scale has been reported as having good internal reliability (Jackson & DiPlacido, 2019; Reinboth & Duda, 2004).

#### **4.2.3 Procedure**

Prior to collecting data, ethical approval was given from the researcher's University Ethics Committee in accordance with British Psychological Society ethical guidelines. Participants were recruited through the researcher attending training sessions, contacting the university sport unions via their websites and social media (Appendix A). All participants were given an information sheet to read (Appendix B) and a consent form to sign (Appendix C), and informed that they would be able to withdraw from the study at any point should they choose to. Upon agreeing to participate in the study participants were given either a paper copy of the questionnaire or sent a link to the online version (Appendix E). Athletes completed their questionnaires based on the coach they train with most frequently and considered as their main coach. Participants were asked to complete questionnaires after a training session with their identified coach. The questionnaire took on average 10 minutes to complete, 85.6% of the sample's data was collected via the online survey.

#### **4.2.4 Ethical Considerations.**

As highlighted in section 3.2.4, ethical considerations for conducting research surrounding a sensitive topic of research were acknowledged. Further, in relation to athlete participants, it was identified that by asking them to complete questionnaires about their coach's behaviours, which may highlight them to be predominantly controlling rather than supportive, this could amplify possible negative experiences or feelings. To ensure that athletes had appropriate support should the completion of the questionnaires induce anxiety or worry, all participants were told they had the right to withdraw at any time during the study, but were also offered information on services to provide expert support should this be required; e.g., student services, local counselling services for referral or National Governing Body safeguarding contact details. Similarly, to the potential safeguarding issues identified for coaches in Chapter 3, coaches from sports clubs were made aware their athletes may have

been completing a questionnaire that related to some aspects of their behaviour. In addition, athletes were also reminded that they did not have to tell anyone that they were part of the study. All study participants' details were confidential, and their data were only linked to a participant 1, participant 2 etc. label, with no other information kept following this process to ensure all participants were unidentifiable.

#### **4.2.5 Data Analysis**

Data analysis was conducted using Statistical Package for the Social Sciences (SPSS) version 25.0 (IBM Corp.) to produce descriptive statistics, including means, standard deviations, scale internal reliabilities, and partial and bivariate correlations. Both missing data and outliers were screened for. The use of partial correlations was to acknowledge the association between the three coaching behaviours in relation to each of the athlete outcomes, controlling for two out of the three behaviours for each correlation.

**4.2.5.1 Person-Centred Analyses.** The coach behaviour profiles were formed from the athletes' perceptions of their coach's autonomy-supportive, externally controlling, and internal controlling behaviours. A two-step procedure involving a hierarchical cluster analysis followed by the non-hierarchical clustering k-means method (Gore, 2000; Haerens et al., 2018) was used to identify the number of profiles within the dataset. The initial step involved a hierarchical cluster analysis using Ward's method of linkage, with the squared Euclidian distance measure. This provided an agglomeration schedule and dendrogram to examine in order to identify potential clusters. Once an indication was given from the initial hierarchical regression, the dataset was randomly split in half in order to test whether similar profiles were still present using a k-means cluster analysis. Finally, using the whole sample, the second step involved a k-means analysis to identify the predicted number of clusters existed when compared to the findings from the split-half clusters. The behaviour variables were converted to z-scores prior to being used in the cluster analysis; providing the categorisation of each type of behaviour and profile name as either low ( $< -0.5$ ), moderate ( $-0.5$  to  $0.5$ ) or high ( $>0.5$ ).

**4.2.5.2 Variable-Centred Analyses.** To check that each cluster differed significantly on at least one of the perceptions of coach behaviour, a Multivariate Analysis of Variance (MANOVA) including follow-up Bonferroni post-hoc analyses were used to further identify the mean cluster differences was conducted, with the clusters as the independent variable and the behaviours as the dependent variable. Following this, another MANOVA examined whether the clusters (independent variable) differed in terms of the athletes' needs and motivation (dependent variables). Finally, to explore how athletes' perceptions of their coach's behaviour could potentially predict different athlete outcomes, multiple regression



analyses were used, with the behaviours as the independent variables and fear of failure, enjoyment, and subjective vitality as the dependent variables.

### 4.3 Results

#### 4.3.1 Preliminary Analyses and Descriptive Statistics

Descriptive statistics are presented in Table 4.1, including means, standard deviations, and internal reliabilities; no missing data or outliers were found. The results show that on average, the athletes perceived their coaches as high in autonomy-supportive behaviours. The average scores for both external and internal control were lower, with athletes perceiving a greater use of external control than internal control from their coaches.

The sample were high in both need satisfaction and autonomous motivation, and lower in need frustration, controlled motivation and very low in amotivation. With regards to the outcomes, the athletes scored very high for their enjoyment, high for subjective vitality and moderately for fear of failure.

The bivariate correlations of the study variables are presented in Table 4.2. The correlations between athletes' perceptions of their coach's autonomy-supportive with both externally and internally controlling behaviours were negative, and moderate to strong. The correlation between both controlling behaviours was strong and positive, suggesting the athletes perceived their coaches to be very similar in their use of these behaviours. Associations between autonomy-support with both need satisfaction and autonomous motivation were positive, and negative with need frustration and amotivation. External and internal control had positive associations with need frustration and amotivation, and a negative relationship with need satisfaction and autonomous motivation. Weak associations existed between the behaviours and controlled motivation, with only external control being significant and positive. Perceptions of coaches' autonomy-support with enjoyment and

**Table 4.1**  
*Descriptive Statistics*

	Scale	M	SD	$\alpha$
1. Autonomy-support	1-7	5.57	.93	.95
2. Internal control	1-7	2.18	1.21	.92
3. External control	1-7	2.34	1.24	.90
4. Need satisfaction	1-7	5.30	.60	.85
5. Need frustration	1-7	2.54	1.01	.91
6. Autonomous motivation	1-7	6.34	.62	.92
7. Controlled motivation	1-7	2.57	1.07	.88
8. Amotivation	1-7	1.53	.68	.89
9. Enjoyment	1-7	6.61	.53	.88
10. Subjective vitality	1-7	5.83	1.00	.89
11. Fear of failure	1-5	2.88	.84	.81

subjective vitality were positive and moderate, with fear of failure negative and moderate. Correlations from both perceptions of coaches' external and internal control with enjoyment and subjective vitality were negative and moderate, and positive and moderate for fear of failure.

#### ***4.3.2 Person-Centred Analyses: Establishing Profiles of Controlling and Autonomy-Supportive Coaching Behaviours***

A hierarchical cluster analysis was conducted on the data (Table 4.3), providing a dendrogram and agglomeration schedule to examine. Alongside the plotting of the z-scores, the most appropriate number of clusters amongst the participants based upon the emerging data, was five. In order to check the stability of this, a random split-half of the sample ( $N = 219$ ) was used in a k-means cluster analysis; further providing support for five similar clusters. Lastly, a k-means cluster analysis of the whole sample was conducted, with five profiles emerging as similar to both the hierarchical and split-half result: correctly classifying 93.5% in comparison to the split-half. From this, the five-cluster solution was selected to represent the most accurate placing of athletes within the sample across clusters. The clusters within the full sample represented: (1) an autonomy-supportive profile ( $n = 59$ , 14.2%), consisting of 50.9% females and an average age of 19.6 years ( $SD = 1.30$ ); (2) an autonomy-supportive and low controlling profile ( $n = 209$ , 50.2%), consisting of 54.6% females and an average age of 19.6 years ( $SD = 1.56$ ); (3) an internally controlling profile ( $n = 40$ , 9.6%), consisting of 47.5% Females and an average age of 19.3 years ( $SD = 1.25$ ); (4) a low autonomy-supportive profile ( $n = 67$ , 16.1%), consisting of 49.3% females and an average age of 19.6 years ( $SD = 1.07$ ); and (5) a very controlling profile ( $n = 41$ , 9.9%), consisting of 53.7% females and the average age of 19.6 ( $SD = 1.07$ ). Cluster descriptions were relative to one another in the sample.

#### ***4.3.3 Variable-Centred Analyses: Profile Differences in Behaviours, Athletes' Psychological Need Experiences and Motivation***

The standardised and absolute scores of the athletes' perceptions of their coach's behaviours from the k-means cluster analysis from the entire sample are presented in Table 4.4. Significant differences were found between the perceptions of all three coaching behaviours across the profiles using a MANOVA and follow-up Bonferroni post-hoc analyses, except for autonomy-support between the 'autonomy-supportive' profile and the 'autonomy-supportive, low controlling' profile. The overall multivariate test was significant, Pillai's Trace = 1.72,  $F(12, 1233) = 138.04$ ,  $p < .001$ ,  $\eta_p^2 = .57$ . The MANOVA results found that the 'autonomy-supportive' profile was higher in autonomy-support than all other profiles, except

**Table 4.2***Bivariate Correlations of Study Variables*

	1.	2.	3.	4.	5.	6.	7.	8.	9.	10.
1. Autonomy-Support	-									
2. Internal Control	-.84**	-								
3. External Control	-.77**	.90**	-							
4. Need Satisfaction	.75**	-.71**	-.61**	-						
5. Need Frustration	-.74**	.72**	.66**	-.68**	-					
6. Autonomous Motivation	.72**	-.78**	-.80**	.68**	-.50**	-				
7. Controlled Motivation	-.10	-.02	.12*	.08	.29**	.01	-			
8. Amotivation	-.22**	.10*	.12*	-.39**	.30**	-.36**	.26**	-		
9. Enjoyment	.52**	-.52**	-.53**	.56**	-.46**	.69**	-.11*	-.62**	-	
10. Subjective Vitality	.51**	-.47**	-.43**	.37**	-.28**	.61**	-.04	-.41**	.76**	-
11. Fear of Failure	-.58**	.51**	.53**	-.51**	.85**	-.34**	.41**	.34**	-.33**	-.21**

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

**Table 4.3***Cluster Means, Standard Deviations, and Z-Scores for the Four-Cluster Solution of the Hierarchical Cluster Analyses (whole sample)*

Variables	Cluster 1 (N = 44) 'Autonomy-supportive'			Cluster 2 (N = 224) 'Autonomy-supportive, low controlling'			Cluster 3 (N = 40) 'Internally controlling'			Cluster 4 (N = 67) 'Low autonomy-supportive'			Cluster 5 (N = 41) 'Very controlling'		
	Mean	SD	Z	Mean	SD	Z	Mean	SD	Z	Mean	SD	Z	Mean	SD	Z
1. Autonomy-Support	6.29	.11	.78	6.12	.36	.59	4.36	.64	-1.30	5.08	.43	-.53	3.76	.18	-1.95
2. External control	2.99	.51	.52	1.43	2.99	-.74	3.41	.34	.86	2.59	.33	.19	5.21	.16	2.31
3. Internal control	1.93	.34	-.20	1.40	.34	-.64	3.89	.43	1.42	2.21	.25	.03	4.93	.19	2.27

from the 'autonomy-supportive and low controlling' athletes. In contrast the 'very controlling profile' was lower on autonomy-support than all other profiles. The 'autonomy-supportive and low controlling' profile was higher than both the 'internally controlling' and 'low autonomy-supportive' profiles. Finally, the 'internally controlling' profile was lower in autonomy-support than the 'low autonomy-supportive' profile. For external control, the 'autonomy-supportive and low controlling' profile was lower than all other profiles, whilst the 'very controlling' profile was higher than all the others. The 'low autonomy-supportive' profile was lower than both the 'autonomy-supportive' and 'internally controlling' profiles. The 'internally controlling' profile reported greater external control than the 'autonomy-supportive' profile. Finally, when examining internal control, the 'autonomy-supportive' profile was lower than all other profiles except the 'autonomy-supportive and low controlling' profile, which itself was lower than all other profiles. The 'low autonomy-supportive' profile was lower than both the 'internally controlling' and 'very controlling' profiles. Finally, the 'internally controlling' profile reported lower internal control than the 'very controlling' profile.

A MANOVA examined the differences between athletes' need experiences and motivations across the profiles (Table 4.4). A significant multivariate effect was found, Pillai's Trace = 1.72,  $F(20, 1640) = 61.65$ ,  $p < .001$ ,  $\eta_p^2 = .43$ , and follow-up Bonferroni post-hoc analyses were used to further identify the mean cluster differences. With regards to athletes who were in the 'autonomy-supportive', 'autonomy-supportive and low controlling' and the 'low autonomy-supportive' profiles, their need satisfaction was higher than both those who were in the 'internally controlling' and 'very controlling' profiles. The 'low autonomy-supportive' profile had higher need satisfaction than both the 'internally controlling' and 'very controlling' profiles.

In terms of need frustration, the 'autonomy-supportive' profile was lower than all other profiles, whilst the 'autonomy-supportive and low controlling' profile was also lower than all other profiles except the 'autonomy-supportive' profile. The 'internally controlling' profile was lower in need frustration than the 'very controlling profile', whilst the 'low autonomy-supportive' profile was lower than both the 'internally controlling' and 'very controlling' profiles.

Autonomous motivation also differed across the profiles, with the 'autonomy-supportive and low controlling' profile reporting higher levels than all other profiles. The 'internally controlling' profile was lower than both the 'autonomy-supportive' and 'low

**Table 4.4***Cluster Means, Standard Deviations, and Z Scores for the Four-Cluster Solution of the K-Means Cluster Analysis (whole sample)*

	Cluster 1 (N = 59) 'Autonomy-supportive'			Cluster 2 (N = 209) 'Autonomy-supportive, low controlling'			Cluster 3 (N = 40) 'Internally controlling'			Cluster 4 (N = 67) 'Low autonomy- supportive'			Cluster 5 (N = 41) 'Controlling'		
	Mean	SD	Z	Mean	SD	Z	Mean	SD	Z	Mean	SD	Z	Mean	SD	Z
1. Autonomy-Support	6.18 <sub>a</sub>	.24	.65	6.15 <sub>a</sub>	.34	.63	4.36 <sub>b</sub>	.64	-1.30	5.05 <sub>c</sub>	.41	-.56	3.76 <sub>d</sub>	.18	-1.95
2. External control	2.89 <sub>a</sub>	.54	.44	1.38 <sub>b</sub>	.29	-.77	3.41 <sub>c</sub>	.34	.86	2.47 <sub>d</sub>	.35	.10	5.21 <sub>e</sub>	.16	2.31
3. Internal control	1.95 <sub>a</sub>	.33	-.19	1.36 <sub>b</sub>	.28	-.67	3.89 <sub>c</sub>	.43	1.42	2.22 <sub>d</sub>	.28	.03	4.93 <sub>e</sub>	.19	2.27
4. Need satisfaction	5.63 <sub>a</sub>	.38		5.51 <sub>a</sub>	.36		4.47 <sub>b</sub>	.50		5.43 <sub>a</sub>	.50		4.31 <sub>b</sub>	.39	
5. Need frustration	1.54 <sub>a</sub>	.66		2.11 <sub>b</sub>	.62		3.48 <sub>c</sub>	.38		3.11 <sub>d</sub>	.65		4.31 <sub>e</sub>	.26	
6. Autonomous motivation	6.24 <sub>a</sub>	.32		6.68 <sub>b</sub>	.31		5.96 <sub>c</sub>	.26		6.42 <sub>a</sub>	.41		5.01 <sub>d</sub>	.63	
7. Controlled motivation	2.79 <sub>a</sub>	.78		2.29 <sub>b</sub>	1.00		2.15 <sub>b</sub>	.58		3.68 <sub>c</sub>	1.24		2.31 <sub>b</sub>	.43	
8. Amotivation	1.29 <sub>a</sub>	.56		1.62 <sub>b</sub>	.72		1.41 <sub>ab</sub>	.32		1.25 <sub>a</sub>	.73		1.98 <sub>c</sub>	.39	

*Note.* Cluster descriptions are relative to one another in the sample. Different subscripts in the same row indicate significant statistical differences ( $p < .05$ , Bonferroni's test)

autonomy-supportive' profiles. Finally, the 'very controlling' profile was lower than every profile.

For controlled motivation, the athletes in the 'autonomy-supportive' profile were greater than those in the 'autonomy-supportive and low controlling' and the 'internally controlling' profiles. The athletes in the 'low autonomy-supportive' profile reported the greatest controlled motivation in comparison to all other profiles. Lastly, amotivation was greater for the 'autonomy-supportive and low controlling' profile than the 'autonomy-supportive' and the 'low autonomy-supportive' profiles. The 'very controlling' profile was greater in amotivation than all other profiles.

#### 4.3.4 Variable-Centred Analyses: Coaching Behaviours Predicting Athlete Outcomes

The partial correlations (Table 4.5) provide support that all three behaviours must be taken into consideration when examining the correlations with athlete outcomes. For example, these show that when controlling for external control and autonomy-support, and measuring the relationships between internal control and fear of failure, the relationship is negative. This is different to the zero-order correlation which was positive. For all three behaviours, the partial correlations were weaker when compared to the zero-order correlations, suggesting that controlling for the other behaviours when examining the association with athlete outcomes is important as their presence reduces the strength of the relationships.

Multiple linear regressions were used to predict the athletes' perceptions of their coach's behaviour on fear of failure, enjoyment, and subjective vitality. The results demonstrated that perceptions of coaching behaviours can predict fear of failure,  $F(3,412) = 77.84, p < .001; R^2 = .36$ . Athletes' perceptions of their coach's externally controlling behaviour ( $\beta = .35, p < .001$ ) was a positive predictor of fear of failure, whilst perceptions of their coach's internally controlling ( $\beta = -.24, p < .05$ ) and autonomy-supportive behaviours ( $\beta = -.51, p < .001$ ) were negative predictors.

A significant regression equation was also found for enjoyment,  $F(3,412) = 60.81, p < .001; R^2 = .31$ , with athletes' perceptions of their coach's autonomy-supportive behaviour ( $\beta$

**Table 4.5**  
*Partial Correlations of the Coaching Behaviours and Outcomes: Controlling for the Different Coaching Behaviours*

	Autonomy-support	External control	Internal control
1. Fear of failure	-.33**	.19**	-.11*
2. Enjoyment	.16*	-.15*	-.02
3. Subjective well-being	.23**	-	-

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

= .25,  $p < .01$ ) being a positive predictor of enjoyment, whilst perceptions of their coach's externally behaviour ( $\beta = -.29$ ,  $p < .01$ ) was a negative predictor.

Finally, a multiple linear regression was calculated to predict athletes' subjective vitality based on the three coaching behaviours. A significant regression was found,  $F(3,412) = 48.97$ ,  $p < .001$ ;  $R^2 = .26$ , however only athletes' perceptions of their coach's autonomy-supportive behaviour was a significant predictor ( $\beta = .38$ ,  $p < .001$ ).

In summary, differences existed between perceptions of externally and internally controlling behaviours when predicting both fear of failure and enjoyment. Fear of failure was predicted negatively by autonomy-supportive and internally controlling perceptions, and positively by externally controlling perceptions. Enjoyment was predicted by two of the behaviours; positively by autonomy-supportive perceptions and negatively by externally controlling perceptions. Subjective vitality was only found to be predicted by autonomy-supportive perceptions of behaviour.

#### **4.4 Discussion**

This study found emerging profiles of autonomy-supportive, externally controlling and internally controlling coaching behaviours from an athlete's perspective and enabled the examination of the differences in athletes' reported needs experiences and motivation, considering why certain combinations of the behaviours resulted in stronger or weaker associations. This study is the first to examine autonomy-support and these two dimensions of control within a profile using athletes from a competitive sport environment. Thus, expanding on research which has previously investigated at the controlling dimensions singularly or as a whole (Haerens et al., 2018; Matosic & Cox, 2014). The differences amongst profiles for those that reported the same amount of autonomy-support, yet contrasting levels of both external and internal control, provides further support for the independent nature of autonomy-support and controlling behaviours. With more than two profiles emerging from the cluster analysis, this study highlighted how athletes can perceive that their coach can use different types of control alongside autonomy-support; with the prevalence of a profile dominant in internal control evidencing the distinct nature. Secondly, through the regression analysis, the results provided evidence on how external and internal control can uniquely predict different athlete outcomes, further supporting the unique influence of these dimensions.

An examination of the mean scores for externally and internally controlling behaviours shows that these behaviours were perceived similarly, with external behaviours averaging slightly higher. This contrasts with studies which examined the two types of control

in the teaching domain, where external control was the predominant form of control relied upon by PE teachers (De Meyer et al., 2016). It was inferred that the reliance on externally controlling behaviours over internally was linked to the possibility of teachers deeming it more acceptable for them to use behaviours which include excessive control or rewards in order to command and direct students (De Meyer et al., 2016). In contrast, the use of intimidation or choosing to ignore their students may be deemed as unacceptable, uncaring, and potentially dangerous when considering the responsibilities a teacher has within PE lessons. Within the coaching environment, the present study's results suggest that the presence of internally controlling behaviours can be just as prevalent as externally controlling behaviours from an athlete's perspective. In fact, when compared to the study by De Meyer et al. (2016), the present study's reports of both internal and external control were higher. This is an interesting finding to be able to compare different contexts and can be supported by research that has acknowledged that within high-pressurised sporting environments, controlling behaviours are deemed as being more acceptable and therefore normative for athletes to be exposed to. Moreover, the use of internally controlling behaviours, such as intimidation and negative conditional regard can be associated with coaching behaviours that athletes may be expected to tolerate if they are to train and compete at a higher level, not wishing to appear put off by not being able to handle this tougher environment. However, regardless of the acceptance that controlling behaviours may become more normative for athletes, this does not necessarily reduce the negative association with athletes' needs experiences, motivation, or outcomes. It is therefore important to acknowledge how these controlling behaviours combine with autonomy-support and associate with the athletes' needs experiences, motivation, and outcomes.

#### ***4.4.1 Profiles of Externally and Internally Controlling Behaviours with Autonomy-Support***

The present study found support, from an athlete's perspective, that autonomy-supportive, externally controlling and internally controlling behaviours are distinct and co-occurring within the university sport environment. In contrast to previous research that has used similar analyses to create behaviour profiles, this is the first study to find five, rather than four, distinct profiles (Amoura et al., 2015; Haerens et al., 2018; Matosic & Cox, 2014). These findings highlight the importance of the two dimensions of control being considered as distinct and provide an opportunity to examine how these can appear when measured alongside the use of autonomy-support. A comparison of the 'low autonomy-supportive' and 'autonomy-supportive' profiles show that both the internal and external controlling perceptions were moderate, but significantly higher in external control and lower in internal



control for the 'autonomy-supportive' profile. This suggests that the presence of moderate external control is more prominent when the perception of autonomy-support is much greater. It appears that a greater moderate use of internal control is perceived when there is low autonomy-support. As internal control is seen as the more harmful behaviour which appears to increase when autonomy-support is lower. Internally controlling behaviours can be viewed as more directed towards an individual and therefore result in personal feelings of rejection or failure, and the most adverse effects (Bartholomew et al., 2010; De Meyer et al., 2016; Soenens & Vansteenkiste, 2010). Therefore, it is important for coaches to focus on maximising their use of autonomy-support as much as possible. Additionally, some of the profiles presented differences in the use of external and internal control. This expands on previous research which has struggled to differentiate between three of the subscales of control (negative conditional regard, intimidation, and excessive personal control; Matosic & Cox, 2014), and therefore prevented the examination of differences related to athletes' needs experiences and motivations.

Encouraging results within this sample demonstrate that almost half of the athletes were in the 'autonomy-supportive, low controlling' profile, thus suggesting that even within a competitive environment it appears that coaches can still provide a supportive atmosphere. In contrast, those athletes who were categorised into the 'low autonomy-supportive' and 'very controlling' profiles identified the importance of examining control as the average behaviour scores were extremely low in the first profile and very high in control in the second profile. A comparison of the present study's profile results to previous studies illustrates the dominance of participants in the most adaptive profile (autonomy-supportive and low controlling) is similar to the results from Amoura et al.'s (2015) study on students. However, in both Amoura et al.'s (2015) and Haerens et al.'s (2018) study on athletes, the most dominant profile was one high in both behaviours measured. This was not a profile that emerged within the current study, with the closest being an 'autonomy-supportive' profile which included moderate control. This suggests that athletes perceive their coaches within this environment to be less reliant on the use of autonomy-support when focusing on external and internal control. Further it was encouraging that none of the athletes were in a profile identified as low in all three behaviours, in comparison to almost a quarter of the participants in both Amoura et al.'s (2015) and Haerens et al.'s (2018) studies. These results further signify how examining the two dimensions of control has allowed profiles to emerge that may be more appropriate to this particular sample. A profile represented as low in all three behaviours would be unlikely within a competitive sports environment where the athlete is

choosing to take part and the coach would be expected to be using some form of the three behaviours. As such, the present study's results provide a realistic outlook on the different types of combinations that exist within this specific environment.

#### **4.4.2 Profile Differences Between Athletes' Needs Experiences and Motivation**

This study has reinforced the importance of examining how an athlete's needs experiences and motivation may differ in relation to the combinations of autonomy-supportive, externally controlling and internally controlling behaviours they perceive their coach to be using.

**4.4.2.1 Associations with Athletes' Motivation.** The results of athletes' controlled motivation were in contrast to expected, with the 'low autonomy-supportive' profile presenting the athletes with the highest controlled motivation in comparison to all other profiles. Taking into consideration that the levels of both internal and external control were reported as moderate for this profile, the higher score of controlled motivation compared to both the 'internally controlling' and 'very controlling' profiles is surprising. However, when also acknowledging the results of the athletes' amotivation, the unexpected findings may be explained by considering the more maladaptive profile, 'very controlling', as being associated with the greatest amotivation in athletes, rather than controlled motivation. Despite the 'low autonomy-supportive' profile not being the most maladaptive, the findings suggested that the athletes who perceive their coaches as lower in autonomy-support but with a moderate use of both types of control, begin to feel greater controlled motivation. This is in comparison to those who experience minimal autonomy-support, and more control, which appears to result in the greatest amount of amotivation. Therefore, in the absence of autonomy-support, the associations between controlling behaviours and controlled motivation diminishes in favour of a stronger relationship with athletes' amotivation. Previous research has suggested that the use of both external and internal control has been related to controlled forms of motivation (De Meyer et al., 2016; Soenens & Vansteenkiste, 2010), however when examining these behaviours combined with autonomy-support, the present findings have expanded the understanding of how an individual's controlled motivation and amotivation can be associated differently.

A further unexpected finding came from the 'autonomy-supportive' profile having lower amotivation than the 'autonomy-supportive, low controlling' profile; it would have been expected that with the accompanying moderate levels of control in this profile this would have had athletes with the most dominant amotivation out of the two. It is therefore worth considering the concept of what athletes deem acceptable in terms of their coach's

behaviour, or instead what has become normative for them in this environment (Cheval et al., 2017). These findings may be the result of believing that a certain amount of control used by their coach should be expected, and in contrast, if there is no presence of control, this may instead lead to an athlete feeling as though their coach cares less or is not as impressed with their performance. In relation to this, research conducted within the teaching environment suggested that students might consider the use of externally controlling behaviours as the teacher putting more effort into the delivery of their lessons, and as such becoming less associated with negative outcomes compared to the use of internal control (De Meyer et al., 2016). Further, Haerens et al. (2018) found that within the profile of students who were high in both behaviours, this presented the greatest controlled motivation, suggesting that regardless of the presence of high autonomy-support, control still has harmful consequences. It is possible that in the present study the results could relate to the amount of exposure athletes have had to these types of behaviour. For example, the longer they have been subjected to control, the less their amotivation increases, as they have may have chosen to continue in the sport as they still see some point in participating. Cheval et al. (2017) highlight that athletes who have long-term experiences with a coach using controlling behaviours may be able to buffer some of the negative effects due to understanding that they are part of a more competitive sport environment; implying that moderate uses of control could be deemed more acceptable. In order to explore this further, future research should examine athletes over a longer period of time, compared to the present research which focused on one specific time-point.

In contrast, the reported controlled motivation for those in the 'autonomy-supportive' profile was greater than those who were in the 'autonomy-supportive, low controlling' profile, aligning with SDT concepts that the presence of greater controlling behaviours is associated with greater controlled motivation (Bartholomew et al., 2010; De Meyer et al., 2016; Ryan & Deci, 2002). These results provide support for the distinctive nature of motivation and how even in the presence of high autonomy-support, the athletes who are exposed to more control can report more controlled motivation and yet less amotivation. Amotivation was greatest for those in the 'very controlling' profile, which would be expected with regards to previous research on increased levels of controlling behaviours and an absence of autonomy-support resulting in the worst form of motivation (Deci & Ryan, 2000; Soenens & Vansteenkiste, 2010). As anticipated, with regards to autonomous motivation, the 'very controlling' profile was lower than all other profiles, whilst the 'autonomy-supportive, low controlling' profile was higher than all other profiles. These findings are supported by

previous research which has shown that very low levels of perceived autonomy-support are associated positively with low autonomous motivation, and vice-versa when experiencing high autonomy-support (Adie et al., 2012; Fenton et al., 2014; Haerens et al., 2018).

**4.4.2.2 Associations with Athletes' Need Satisfaction and Frustration.** As expected, the 'autonomy-supportive' profile had the highest need satisfaction, however this was not significantly different to the 'autonomy-supportive, low controlling' profile. This demonstrates that regardless of the presence of more external and internal control, as long as athletes perceive high autonomy-supportive behaviours from their coach, this is not associated with lower need satisfaction. The 'low autonomy-supportive' profile was associated with higher need satisfaction than both the 'internally controlling' and 'very controlling' profiles, which is to be expected based on the higher mean score for autonomy-support and only moderate controlling behaviours in contrast to the other profiles. As such these findings support the independent nature of autonomy-support and different types of control, and how low autonomy-support is not the same or as harmful as using control (Bartholomew et al., 2011a; Vansteenkiste & Ryan, 2013). Further, research examining both types of behaviours in sport recently reported that autonomy-supportive coaching behaviours predicted more need satisfaction and less need frustration when compared to controlling behaviours (Cronin et al., 2019; Delrue et al., 2018).

In the present study, need frustration presented differences between all profiles, with the 'autonomy-supportive' profile reporting the lowest and the 'very controlling' profile the highest. It was surprising that the 'autonomy-supportive' profile, which had moderate control, reported lower need frustration than the 'autonomy-supportive, low controlling' profile, as greater reports of controlling behaviour has been associated with more need frustration (Balaguer et al., 2012; Bartholomew et al., 2011a). A possible explanation of this finding was that although the athletes in the 'autonomy-supportive' profile had a moderate amount of both internal and external control, due to this being neither absent (potentially unusual for a competitive sport environment), or high (more normative), this does not become associated with need frustration as much for athletes. Instead, for those athletes who are experiencing high autonomy-support, but low control, they may have slightly greater need frustration in comparison due to perceiving an absence in the coach's behaviour and effort (De Meyer et al., 2016). This is a similar result to that found for controlled motivation, suggesting that this sample of participants appear to report more negatively for coaches who they perceive to be lower in their use of both types of control, when compared to those using a moderate amount. In relation to this within the teaching context, one study reported that when teachers used

discipline techniques on students such as shouting at them, there were weak associations with negative outcomes due the students perceiving these behaviours as normal in lessons and therefore viewed their teacher instead as being more engaged rather than controlling (Gershoff et al., 2010). As such, it seems critical to explore in future research whether athletes may perceive controlling behaviours in competitive environments as coaches being more passionate. Finally, the 'internally controlling' profile reported lower need frustration than the 'very controlling' profile, highlighting how the use of both types of controlling behaviour is associated even more so to need frustration when combined. These findings are vital for educating coaches on how these behaviours can be combined, and through their independent associations can create a more or less adaptive environment for their athlete. It is evident from the different behaviour profiles that emerged within this sample that coaches are using various combinations of these behaviours, and therefore require the skills and knowledge on how these can influence their athlete's sporting experience, both positively and negatively.

#### ***4.4.3 Coaching Behaviours as Predictors of Athletes' Fear of Failure, Enjoyment and Subjective Vitality***

The present study's findings indicate that autonomy-supportive, externally controlling and internally controlling behaviours are predictors of athlete outcomes in unique ways. Fear of failure was the only athlete outcome that was significantly predicted by all three behaviours, whilst enjoyment was predicted by autonomy-support and external control, and subjective vitality only autonomy-support. This reinforces the importance of the findings and their application to coach education research on how the use of controlling behaviours in contrast to autonomy-support does not promote the most adaptive environment or positive outcomes for their athlete (Mageau & Vallerand, 2003). The research findings as a whole support previous studies which have highlighted how coaches' behaviours can improve or damage the psychological development and growth of an individual (Bartholomew et al., 2010; Haerens et al., 2018).

**4.4.3.1 Fear of failure.** The results of this study found that athletes' reported fear of failure was positively predicted by externally controlling perceptions of behaviour, and negatively predicted by autonomy-supportive and internally controlling perceptions of behaviour. The finding that fear of failure was negatively predicted by internal control was surprising, as research measuring fear of failure has previously reported positive associations with controlling behaviours (Bartholomew et al., 2018; Moreno-Murcia et al., 2019), therefore initially highlighting how the investigation of both dimensions of control can enable a greater understanding of how these can differ in their influence. It is possible that this may be

explained by considering the different atmosphere that competitive coach-athlete relationships can experience. As such, it may be that the duration of exposure to internally controlling behaviour may remove the effect of increasing fear in individuals; aligning with explanations of the association between profiles with moderate controlling behaviours and lower amotivation. More specifically, Cheval et al. (2017) reported that the sustained use of negative conditional regard may not result in a negative perception from the athlete of the coach if this has become an accustomed part of their relationship together. Furthermore, literature has suggested that individuals can be socialised to believe that sport and competition involve the acceptance of harmful practices, as performance outcomes are prioritised above everything else (Douglas & Carless, 2006). As such, this focus encourages athletes to strive for mental toughness and perseverance despite also having to accept harmful behaviours and avoid showing weakness as a result (Brackenridge, 2001; Coakley, 2015). Therefore, the findings from this chapter will help to support athletes to move beyond displaying submissive behaviours after being subjected to elements of controlling behaviour, and to not accept the coach's behaviour due to their position of authority (Brackenridge, 2001; Burke, 2001; Stirling & Kerr, 2013).

Speculatively, it is possible that with internal control being deemed as more damaging on an athlete when compared to external control (Assor et al., 2005; Bartholomew et al., 2010; De Meyer et al., 2016; Hein et al., 2015; Soenens & Vansteenkiste, 2010), this is likely to lead to an athlete feeling worthless and incompetent to the point where they may not experience any fear of failure. Instead, in the absence of internal control they feel lost and more concerned than when their coach is intimidating or withdrawing their attention from them. Acknowledging this when educating coaches working within a competitive environment must be managed carefully, as many may believe that by stopping the use of internally controlling behaviours, their athletes could become lazy and unfocused. In-line with this perspective, previous research has identified that some coaches may believe that in order to manage athletes' behaviour and maintain motivation, a controlling approach is more appropriate and more effective (Ng et al., 2012).

However, it is essential that coaches do not breach the standards of acceptable behaviour when working with athletes, as this may result in an unrecognised welfare issue arising. In the case where an athlete becomes accustomed to the use of internally controlling behaviours, this creates a volatile environment where coaches may abuse the boundaries of which behaviour they use to get results from their athletes (Bringer et al., 2001; Kerr & Dacyshyn, 2000). Taking into consideration the potential abuse of correct coaching practice

that may occur in this situation, athletes must be better informed on the manner in which a coach is able to provide support and effective coaching. Instead of believing that when their coach is emotionally harmful in their coaching behaviours, it is as a sign of them investing more time to help them improve; something that could be done using autonomy-supportive behaviours with more positive outcomes (Stirling & Kerr, 2014). However, whilst it is important to educate athletes on these behaviours, the coaches should be informed about the appropriate behaviours to adopt and their effects on encouraging athletes. Through the implementation of an effective process in place to help coaches recognise inappropriate behaviour, this can enable the bringing together of clubs, coaches, and athletes to create a positive and adaptive environment for all.

Another possibility with regards to this finding is that athletes working within a competitive environment may be able to process internally controlling behaviours, such as intimidation from their coach, by viewing it as a way of receiving constructive feedback. Should a coach make an athlete believe that they must take on all of their feedback, potentially through being shouted at or ignored after getting a skill wrong, it may lead the athlete to want to find a solution to why the coach is behaving in this way and improve their confidence by becoming better at their sport. Bandura and Wood (1989) showed that confident individuals remain task-diagnostic by focusing on process solutions to problems in the face of obstacles; in this case the athlete may deem the feedback or behaviour as the obstacle. Whereas less confident individuals are more likely to become self-diagnostic and focus on perceived inadequacies. Ultimately, through the athletes being more confident, they are able to believe that the coach is using these behaviours to motivate them away from being fearful in competition or training. Recent research supports this potential explanation through finding that young athletes were able to differentiate unconditional negative social influence (dysfunction) from conditional negative social influence (punishment for mistakes or poor performance), understanding that punishment could have an adaptive role on them when it is perceived as constructive feedback (Chan et al., 2018). Further, Cresswell and Hodge (2004) found that athletes who possess a strong belief in their ability reported being able to peak under pressure and cope successfully with adverse situations during competition. High confidence could therefore act as a buffer when interpreting a coach shouting at the athlete through being internally controlling. Hays et al. (2009) also implied that confidence does have an impact on the coping resources of athletes and those who possess a strong belief in their ability to perform successfully might be more able to perform optimally under pressure.

Future research should aim to collect data on these variables to explore their potentially protective effect in this environment.

With regards to externally controlling behaviours being a positive predictor for fear of failure, this aligns with previous research which reported that the continued use of external incentives and threats of punishment, can strengthen athletes' fear of failure through need frustration and lack of well-being (Castillo et al., 2012; Moreno-Murcia et al., 2013). Importantly, the current study also supports how vital the use of autonomy-support is to reduce an athlete's fear of failure, further promoting the positive impact of this behaviour. Both autonomy-supportive and externally controlling behaviours are associated with fear of failure as predicted, providing further support for a direct relationship between behaviours and this negative outcome (Bartholomew et al., 2018). The findings that athletes who perceived their coaches to use more autonomy-supportive behaviours, predicted less fear of failure also aligns with previous research which found that when coaches provide athletes with the chance to make decisions and shape their own experience in their sport, it can lead to a reduction in their fear of failure (Moreno-Murcia et al., 2019). Thus, not only are these important for educating coaches that the use of autonomy-supportive behaviours promote positive outcomes for athletes, but can also decrease the experience of negative outcomes, such as fear of failure. The difference between the predictive nature of external and internal control from an athlete's perspective provides support for educating both coaches and athletes on different coaching behaviours that they can be exposed to, and the impact expected from their use.

**4.4.3.2 Enjoyment.** The prediction of enjoyment from the behaviours also provided further support for examining internally and externally controlling behaviours and their effects. The results that only externally controlling behaviours were a negative predictor and not internally controlling, supported the distinct nature of these behaviours. University athletes may be more commonly exposed to external stressors such as performance pressures, scholarships, and career pressures, ultimately leading to a negative impact on the athlete (Deci & Ryan, 1985). Therefore, it is possible that external control was a predictor as the less damaging form of control which does not impact the coach-athlete relationship as much as the use of internal control (Bartholomew et al., 2010; De Meyer et al., 2016; Soenens & Vansteenkiste, 2010). Instead, methods such as external pressures on the athlete may reduce the athlete's enjoyment when they are participating in their sport as they may be worried about how their coach may try to increase pressures or take more control. However, when compared to the influence of internal control, in which the athlete may find themselves



being intimidated or shouted at, this may be too intrusive and direct to create any association with enjoyment altogether for the athlete.

Further, the use of rewards in order to control the athlete may be perceived as being related to a temporary improvement in their enjoyment if they do succeed in their training or competition. Taking into consideration the nature of how sporting events work, when succeeding there is normally a reward for doing so, thus making the coach using rewards to control their athletes become more normative as they are already experiencing something similar. However, despite this perception, the present results suggest that an increase in this behaviour ultimately reduces the athlete's enjoyment. It should therefore be managed in terms of how much external pressure is placed upon an athlete. These findings also support previous research which found that when coaches were acknowledging and supporting their athletes through minimising the use of external control, the athlete's enjoyment increased (Stuntz & Spearance, 2010).

One final insight into external control within this competitive environment may link to congruence in perceptions between coaches and athletes on the behaviour being used. For example, it is possible that coaches are trying to use planned disruptions to help train their athletes. However, this behaviour could be considered as controlling by the athlete due to the increasing pressure to recreate the competition environment and implementing rewards. Other examples of planned disruptions include exposing athletes to changing demands under conditions that are controlled, which are artificial in order to provide effective development and learning opportunities (Collins & MacNamara, 2012). However, the use of this technique must be used in balance within autonomy-supportive behaviour to avoid an environment that is simply focused on applied pressure on the athlete (Savage et al., 2017). This provides more support for the benefits of always using autonomy-supportive behaviours, especially when feeling the need to use control. Therefore, the coach should be clear with their athlete the reasons behind the use of planned disruptions and manage the well-being of their athlete whilst aiming to improve their performance (Kegelaers et al., 2020; Sarkar & Fletcher, 2017). The benefits of this approach to coaching athlete can be understood when working in a competitive context, yet it must be made clear to all involved how this can be built in to help familiarise athletes with experiences they will face. This research provides a suitable explanation on why a use of external control, which may be perceived from planned disruptions, can result in a decrease in an athlete's enjoyment. External pressures placed on athletes such as extra pressure to focus their entire lifestyle on their sport and promising rewards if their performance improves is understandably going to link to less enjoyment being

experienced due to the seriousness of the environment increasing. This supports the importance of future research addressing the scarce number of studies to compare athlete and coach perceptions of behaviour. Finally, the present study provides support for previous research that has shown that the use of autonomy-supportive behaviours improves athletes' experience of enjoyment. Sheldon et al. (2011) found that autonomy-support was vital for athletes' experience of enjoyment and improved performance. Interestingly, they suggest that some coaches may fear that the use of autonomy-support may come across as being too casual and therefore lacking in control over their athletes (Deci & Ryan, 2000). However, by getting coaches to acknowledge that the use of autonomy-support can be perceived as being involved with their athletes, organised, and engaged in their coaching, this will result in the most positive outcomes for all (Sheldon et al., 2011).

**4.4.3.3 Subjective Vitality.** Subjective vitality was found to be predicted solely by autonomy-supportive perceptions of behaviour. This is an interesting finding when comparing it to enjoyment, as it continues to highlight that not all athlete outcomes are influenced by all coaching behaviours; supporting the distinctiveness of each behaviour. It is also encouraging that a positive athlete outcome appears to be unaffected from control and is instead only responsive to the use of autonomy-support; even in the presence of moderate control, as long as the coach is still employing autonomy-support. This supports the findings by You (2017), who reported that the relationship between controlling behaviours and subjective vitality was mediated by burnout for the athletes in their study. Thus, suggesting that there may be other variables that are associated with subjective vitality, but indirectly from controlling behaviours.

The positive effect of autonomy-support on athletes' subjective vitality is encouraging and supports previous studies that have found similar results when studying elite soccer athletes over two seasons (Adie et al., 2010). Further, numerous studies have found perceived coach autonomy-support was found to be more consistently associated to subjective vitality (Adie et al., 2012; Balaguer et al., 2012; Berntsen et al., 2019; Cheval et al., 2017). Overall, the present study highlights the importance of the use of autonomy-support in relation to both subjective vitality and enjoyment. Therefore, the coach should ensure that even within a competitive environment, it is crucial for the athlete to experience positive feelings that continue to sustain their well-being and interest in sport. The associations found between autonomy-support and all three outcomes measured highlights the importance of the use of this behaviour as much as possible by the coach.

#### ***4.4.4 Limitations and Future Research***

The present study develops previous research on autonomy-supportive and controlling behaviour profiles in the coaching environment, when examining these from the athlete's perspective.

In order to expand upon the present findings, future research should aim to use a longitudinal, rather than a cross-sectional design. This would enable an examination of how these behaviour profiles, and relationships between needs, motivations and outcomes may change over time; potentially also investigating before, during and after peak competition season. Research has identified how both the duration and intensity of a controlling experience must be considered when understanding how an individual may process this experience (Ryan et al., 2019). Thus, suggesting that momentary and mild experiences of control may encourage attempts to overcome this in the future and potentially strive to be better the next time. Alternatively, a more long-term exposure to this behaviour could be harmful to the individual or become ineffective. When considering how even at lower levels of reported internal and external control associations with outcomes were found, it would be interesting to examine whether athletes and coaches are perceiving such behaviours in a similar manner. If coaches are under the impression that they are not using controlling behaviours, they will be unaware of the influence they may be negatively having on their athlete. Finally, as this study only examined the autonomy-thwarting aspects of coaching behaviour, therefore future research would benefit from expanding the investigation by using newer instruments that have been developed since the time of data collection that acknowledge both need supportive and thwarting aspects of the three basic psychological needs (Bhavsar et al., 2019).

#### ***4.4.5 Conclusion***

The key findings support the existence of the two dimensions of control, their distinctive nature and that they can co-occur in different combinations with autonomy-support. This study provides greater insight into how autonomy-supportive, internally, and externally controlling coaching behaviours can co-exist within profiles as perceived by athletes; giving an insight into how athletes' psychological needs experiences and motivations can differ amongst these. Further, the predictive nature of these behaviours on both positive and negative athlete outcomes provides a clearer view of the distinct nature these can have and their respective links to fear of failure, enjoyment, and subjective vitality. The present study's results have also contributed to the identified issue by Lyle (2018) of the lack of connection existing between athlete outcomes and coaching behaviour. Further by examining

the way in which the environment created by a coach's behaviour, coach education can be designed to help coaches understand how their behaviour can influence their athletes, and consider how they can effectively prepare their athletes for competition through supportive training practices. Overall, the study provides support that coaches working with athletes in competitive environments should aim to support their athletes' psychological needs, avoiding control, regardless of the high-stakes atmosphere often experienced (Cheon et al., 2015).

Overall, the present study has acknowledged the importance of future coach education not only informing coaches how different types of their behaviour can influence an athlete's sporting experience, but also the combinations of these and how they may associate differently for an athlete. Education services should be tailored appropriately for athletes to increase their understanding of the differences between autonomy-support, internally controlling and externally controlling coaching behaviours. This in turn will mean that education programmes can inform athletes on how important their individual perception is with regards to them being the driving aspect to which a behaviour is seen as supportive or controlling. They should be encouraged to challenge whether this is appropriate, rather than being accepting of this because the coach views this as being normalised and unharmed.

The results provide an extension to previous research within the competitive sport environment, highlighting that both external and internal control can present distinctively and be used in a way that is less negative for the athletes' needs, motivation, and outcomes. However, the research also provided insight into how moderate control is not as harmful as initially expected, potentially due to the expected norms within the pressured environment, further supporting the importance of investigating this sample and building upon previous behaviour profiles research (Amoura et al., 2015; Haerens et al., 2018; Matosic & Cox, 2014). With regards to the normalisation of behaviours that are intimidating and sometimes abusive, within professional and competitive sport environments, these are often commonly seen but accepted (Kelly & Waddington, 2006). For this reason, the potential for the issues related to welfare and safeguarding incidents to occur is intensified as athletes are often expected to believe this behaviour is normal and part of the competitive process.

Worryingly, recent research has found that those individuals who would be in a role of responsibility for managing wrongdoing in sport, such as psychologists, still currently only possess an average and generic understanding of safeguarding policies and boundaries related to these (Kerr & Stirling, 2019). However, the exploration of controlling behaviours and the distinction between external and internal control dimensions, offers the opportunity to increase understanding of the best ways to improve safeguarding of athletes, to protect

them from negative experiences and welfare issues. Ultimately, it is essential that coach education provides coaches with the skills to find an optimal combination of behaviours. These should allow coaches to place sufficient pressure on athletes to ensure they complete their training sessions effectively, often within a replicated competition environment, and perform to their best ability, whilst the behaviour avoids negatively affecting their need experiences, motivation, and outcomes.

## Chapter 5

### Congruence and Incongruence in Coach-Athlete Dyads Perceptions of Internally and Externally Controlling Behaviours

#### 5.1 Introduction

The relationship between the coach and their athlete is characterised by mutual trust, making it a dyadic relationship (Jowett & Clark-Carter, 2006). Thus, if there are disagreements in aspects of this relationship, it is vital that both individuals can become aware of the issues of potential conflict that may need revising. Research has examined the different qualities of coach-athlete relationships when comparing coaches' and athletes' perceptions, finding that when these are similar there is greater relationship satisfaction (Jowett & Cockerill, 2003), whereas dissimilarities lead to conflict (Jowett, 2003). It is important to recognise that both significant others and the individual themselves, can offer their own specific insights into how they perceive someone else to behave (Vazire, 2010; Vazire & Mehl, 2008). When working together in a competitive sports environment, there is a high element of reliance and dependence upon both coach and athlete; the athlete needs to learn new skills and knowledge from the coach, whilst the coach needs to be able to provide this to the athlete, with the ultimate aim of a successful performance (Antonini & Seiler, 2006). The way in which athletes and coaches interact can directly or indirectly have an influence on outcomes such as enjoyment, motivation, and performance. This dyadic relationship may also impact upon the quality of coaching provided (Jowett & Poczwardowski, 2007). Athletes may differ in their perceptions of the coaching environment when compared to their coaches, especially when considering the negative elements of this context (Gjesdal et al., 2018; Smith et al., 2016). Disparities between coach and athlete perceptions are not commonly researched within the literature, despite studies often suggesting the possibility of inaccurate reports from questionnaire results due to self-bias. As such, the difference between a coach's perception and their athlete's perception is important to study with regards to the impact it may have on an athlete. Should a coach consider themselves to be acting in a supportive manner, they are likely to be unaware if their athlete perceives them to instead use a controlling behaviour, resulting in discrepancy and a subsequent negative outcome for the athlete.

Self-Determination Theory (SDT; Deci & Ryan, 2000) research has explored how coaches' autonomy-supportive and controlling behaviours predict athletes' basic needs, motivation, and outcomes such as well-being and burnout (Bartholomew et al., 2011b; Mageau & Vallerand, 2003). Commonly, this research has examined these behaviours in terms

of the impact on athletes based on how they perceive their coaches' behaviours (Delrue et al., 2019; Matosic & Cox, 2014) or has investigated how coaches view and report their own behaviour (Morbée et al., 2020; Rocchi & Pelletier, 2017; Stebbings et al., 2015). However, there is limited research, with the exception of work by Rocchi and Pelletier (2018), and Smith et al. (2016), that has included athletes and coaches who work together as participants, measuring both of their perceptions of coaching behaviour, and comparing these to see how the congruence or incongruence of these viewpoints may relate to athlete outcomes.

Further, with research often placing a greater focus on the autonomy-supportive behaviours that coaches should strive towards, controlling behaviours, in terms of the externally and internally controlling dimension, are overlooked in comparison. Although the benefits of using autonomy-supportive behaviours have been widely published and acknowledged (Occhino et al., 2014), it is possible that some coaches are still of the mindset that different situations with certain athletes may require a more controlling and pressurising approach in order to get the best outcome (Delrue et al., 2019). Research has recently acknowledged how SDT implies there is variability in influence of autonomy-supportive and controlling behaviours on an individual (Vansteenkiste et al., 2019). However, this does not mean that a controlling behaviour can be viewed as acceptable. Instead, it infers that the coach needs to be able to perceive the environment and their athlete's needs accurately, in order to adopt the most effective coaching behaviour for that moment and individual. Controlling coaching behaviours may be more prevalent, yet often dismissed within a competitive sport environment (Cheon et al., 2015). Given the detrimental effect such behaviours can have on athletes (Assor et al., 2005; Delrue et al., 2019; Hein et al., 2015), it seems vital that this element of coaching behaviour is investigated in more depth, particularly to examine how a coach perceives themselves compared to how their athlete perceives them, and whether any differences in these viewpoints are associated with negative athlete outcomes.

Coaches who use controlling behaviours tend to pressurise and intimidate their athletes (Bartholomew et al., 2010). These behaviours have been previously associated with need frustration (Curran et al., 2016), controlled motivation (Hodge et al., 2013) and burnout (Bartholomew et al., 2011b). Recently, studies within the teaching and parent contexts have highlighted how these controlling behaviours can be categorised and considered as being used with external and internal focuses (Assor et al., 2004, De Meyer et al., 2016; Soenens & Vansteenkiste, 2010). Externally controlling behaviours are those which place pressure on athletes through the use of extrinsic rewards and involve attempts to control what athletes

do outside of their sport. Internally controlling behaviours focus on intimidating athletes or withdrawing attention from them when they are not behaving as desired and are seen to be more intrusive, ultimately manipulating the coach-athlete bond, and are potentially more harmful than externally controlling behaviours (Cheon et al., 2015; De Meyer et al., 2016; Hein et al., 2015).

### ***5.1.1 Research on Self-Perceptions of Coaching Behaviour***

In order to gain a clearer holistic overview of coaching behaviours and the environment competitive athletes work with their coaches, it has been highlighted that gathering perspectives from more than one individual (e.g., either just the coach, or just the athlete) is needed to increase the understanding and reliability of such coaching dimensions (Potrac et al., 2000). It is possible that the dearth of research examining the coaching environment firstly from a coach's perspective and secondly from more than one viewpoint (e.g., both athlete and coach) is because researchers may be apprehensive about the reliability of the coach's report of their own behaviour; wanting to display their behaviours as more supportive than they may be.

Within the sport psychology literature, one conceptual model used to provide an insight into how coach-athlete partnerships interact successfully within a dyad is the 3 + 1Cs model by Jowett (2007). The 3 + 1Cs model suggests that athletes and coaches experience feelings, thoughts and behaviours which are interconnected (Jowett, 2007). There are three initial aspects of this model which acknowledge the vital attributes of interconnectedness existing within the coach-athlete relationship: closeness, commitment, and complementarity. The element of closeness takes into consideration the emotional connection within the relationships, alongside the presence of an affective bond with respect and trust being expressed between both coach and athlete (interpersonal feelings). The model infers that commitment is shown when both coach and athlete evidence their intentions to maintain the relationship over time (interpersonal thoughts). Finally, when both the coach and athlete interact effectively and cooperatively, this shows complementarity within the relationship. Responsive actions, feeling at ease, and friendliness indicate positive behaviours of complementarity between coach and athlete (interpersonal behaviours). A fourth element within Jowett's (2007) model, the 3+1 Cs, is co-orientation. Two separate perceptual levels exist from which athletes and coaches can view and assess the quality of their dyadic relationship; these can be either the direct perspective or meta-perspective. In terms of the direct perspective, this relates to one member of the dyad's personal thoughts and feelings for the other member (e.g., the coach's feelings towards their athlete; I am close to my



athlete). In contrast the meta-perspective is one member's attempt to perceive the relationships from the other member's point of view (e.g., the athlete's view of their coach's feelings; I think my coach feels close to me). Research examining the quality of coach-athlete relationships has found that co-orientation was an important aspect in relation to the longevity between coach and athlete (Jowett & Cockerill, 2003). Further, if athletes do not experience co-orientation with their coach, the relationship has an absence of mutual understanding, potentially leading to burnout in an athlete's career due to feelings of lack of support from their coach (Isoard-Gatheur et al., 2012). This model, and specifically the element of co-orientation acknowledges the importance of ensuring athletes and coaches can keep their perceptions of their relationship and the behaviour within this at a similar level; the ability to accurately understand one another allows for effective solving of conflict (Jowett, 2007).

The 3 + 1Cs model provides an opportunity to assess the quality of a coach-athlete relationship (Jowett, 2007). In a high-quality relationship, both athletes and coaches will take time to invest effort and energy to prioritise achieving the goals that have been set. However, those in a lower quality relationship are likely to experience an absence of commitment to working together to achieve goals, and instead experience feelings of unwillingness towards developing new skills. Coaching can benefit substantially from high-quality relationships as elements such as respect and trust are present and encourage positive influences and outcomes (Jowett, 2017). In contrast, when these elements are not present and there are no efforts to commit and co-operate with each other, the quality of the relationship is weaker, resulting in poor coaching techniques (Jowett, 2017). Athletes predominantly aim to acquire knowledge and skill from their coaches and transform this into successful performances (Antonini & Seiler, 2006), meaning the way in which coach and athlete interact can result in the shaping of the quality of the relationship (Jowett & Poczwardski, 2007). Research has supported the importance of examining how coaches and athletes understand one another in relation to the 3Cs + 1 model (Jowett & Cockerill, 2003; Jowett & Frost, 2007; Jowett & Meek, 2000). The key findings suggest that when coaches and athletes were able to perceive their ability similarly, as well as understanding each other, this proved to be a key element within experiencing a positive relationship. The interrelated constructs of the coach-athlete relationship have shown how the functions within this impact both the athlete (Isoard-Gatheur et al., 2016; Jowett et al., 2017; Stenling et al., 2017) and the coach (Solstad et al., 2018; Stebbings et al., 2016; Stebbings et al., 2017).

When examining self-other agreement, Fleenor et al. (2010) explain that ratings from an individual in a position of leadership and those from their subordinates can differ for several reasons. It is possible that a coach, in a position of leadership, will provide inflated scores of their behaviour in order to avoid negative perceptions from others and be prone to self-enhancement bias. However, this may not be reflective of the reality of how their behaviour affects their athletes (Judge & Piccolo, 2004; Ntoumanis, 2012). In contrast athletes, in the subordinate role, are more likely to provide an accurate view of their leader's behaviour as they have no need to protect the presence of control being used. Thus, providing results which could be biased due to the coaches reporting more positive perceptions of their use of control. As such, coach education may be constructed using potentially inaccurate findings, which when applied to real life situations reduces the validity of previous research findings. When researching athlete outcomes and how these may be influenced by the coaching behaviour adopted, it should be recognised that the athlete's perception is more important than the coach's; for the athlete to experience a positive outcome, they must perceive adaptive behaviours. Thus, this places the coach's perceptions as either being overrated or underrated, in comparison to the athlete's score, as this is considered to provide the most accurate perception (Blanchard et al., 2009; Hollembeak & Amorose, 2005; Rocchi & Pelletier, 2018).

Also examining dyad perceptions, Stebbings et al. (2016) outlined that there is a typical 'authority figure-subordinate' relationship between coach and athlete, in which one dyad participant (coach) provides advice and guidance to support the other dyad participant (athlete). This works on the assumption that the advising participant has greater experience, knowledge, and skills on specific relevant aspects in comparison to the other dyad participant. Thus, providing further support of the importance of examining the dynamic relationships that exist within these dyads and how the congruence of perceived coaching behaviours may associate with differing levels of outcomes (e.g., well-being or ill-being). Stebbings et al. (2016) investigated the processes of bi-directional well- and ill-being between coaches and athletes within a dyad, to understand whether coaching behaviours acted as a mediator of facilitating this experience. These relational changes have been defined as contagion effects where one individual's well- or ill-being can impact another's (Bakker & Xanthopoulou, 2009; Song et al., 2011; Stebbings et al., 2016). The findings of this dyadic study provided support for perceptions of coaching behaviours within training sessions encouraging a greater sense of positive affect or negative affect for athletes. As such, extending the contagion literature to show that the behaviours of the authority figure within the relationship is one of the key

mediators of the affect experienced (Radel et al., 2010; Stebbings et al., 2016). The study found unexpected results on athletes' perceptions of laissez-faire coaching styles. The results suggested that rather than this style being associated with feelings of burnout for athletes or negative affect, instead due to the absence of drive or encouragement from a coach, athletes experienced disappointment and unhappiness. These findings indicate that the examination of coaching behaviours, with particular focus on negative or more controlling forms, should be investigated further from a dyadic approach, to explore the existence of the contagion effect for negative outcomes with these behaviours.

Stebbing et al.'s (2016) research on these dyadic relationships has inferred that the coaches who provide their athletes with support, experience a contagion effect of being pleased with their behaviours. Whereas coaches who are controlling in their behaviours are more likely to reflect on the use of such behaviour negatively and potentially be frustrated with their actions. Whilst this research acknowledges how it is important to encourage the authority figure, the coach, to use supportive behaviours to experience positive contagion within the dyad, it does not consider how the direction of the perceptions (high or low) and level of congruence of these associates with well- or ill-being of the athlete. A greater understanding on athletes reports in relation to agreement between their coach and their own view of negative behaviour, would extend the understanding on why negative behaviours may not always influence athlete outcomes in the expected manner or extent. Furthermore, as there was no reciprocal contagion process of well- or ill-being found from athlete to coach during a training session, this indicates the importance of understanding what impacts a coach's use of particular behaviours if it is not solely their perceptions of their athlete during that session. Overall, indicating that authority figures should be supported in order for them to feel encouraged to create adaptive environments for their subordinates (Stebbing et al., 2016).

Another study which examined athletes', coaches', and observers' reports of the grass-roots coaching environment was conducted by Smith et al. (2016). The participants included 74 coaches, and 882 young athletes, who both completed self-report questionnaires based on empowering and disempowering coaching climates; in which two of the sections measured perceptions of the autonomy-supportive and controlling elements of coaching behaviour; athletes additionally reported on their motivation regulations. A video was recorded of the coaches and athletes during their training sessions and was rated by the observer in relation to the different elements mentioned in the questionnaire. The initial findings of this study showed that coaches reported more favourably on the positive

environment they created in comparison to athletes; with the authors suggesting that this may be because they wanted their performance to look better within the study. Perceptions of the negative coaching environment had no relationship between athletes' and observers' report, however there were moderate positive associations between athletes' and coaches' reports. The authors stated that this aligned with previous research which had suggested that coaches and athletes are more likely to have greater congruence when examining a negative environment (Curtis et al., 1979). This was explained due to research proposing that individuals become more aware of behaviours which include negative feedback and evaluations, potentially acknowledging these more so than autonomy-supportive behaviours (Graziano et al., 1980). Weaker and non-significant relationships were present between athletes' and coaches' perceptions of the positive elements of the coaching environment, suggesting the coaches were being overly positive about their reports in relation to this environment (Ntoumanis, 2012). A particularly interesting finding from this study were the positive associations between coach and observer on the negative environment. The authors identified how these results align with previous research which suggested that coaches appear more aware of their controlling environments potential due to such behaviours often being more direct and overt. Further, although the coaches are aware that the use of autonomy-support is important with the coaching environment, it is possible that when working with their athletes they become unaware of how much they are using autonomy-supportive and controlling behaviours (Partington & Cushion, 2011).

Several limitations were highlighted in this study, including not asking the coach and athlete to focus on one specific time point when completing their questionnaire, compared to the contextual level of 'over the past 3-4 weeks'. This meant that because the coach and athlete may have trained together multiple times during this period, but answered the questionnaire based on different sessions, these perceptions recorded may be on different time points. Considering coaches' specific behaviour in relation to a particular athlete will help to focus the accuracy of the behaviour they use (Mageau & Vallerand, 2003). The authors also identify the importance of assessing congruence in perceptions within a more elite environment, having found that controlled motivation and amotivation decreased with the age of the athletes. Finally, the authors suggested that focusing on individual sports may allow a closer relationship to be explored between coach and athlete perceptions, due to them being specifically targeted to each other and allowing the research to measure a more direct relationship.

These limitations provided a platform for research by Rocchi and Pelletier (2018) who compared athletes' and coaches' perceptions of coaching behaviours and their relationship with need satisfaction and frustration). This study used 53 coaches and 250 athletes to assess both need supportive and need thwarting perceptions of behaviour, and the consequences of congruence or incongruence of these on female athletes' psychological needs in sport. The use of the six interpersonal coaching behaviours (autonomy-support, competence-support, relatedness support, autonomy-thwarting, competence-thwarting, relatedness-thwarting) were examined and coach-athlete dyads were categorised based on the coach overrating (the coach reported higher support, or lower thwarting than the athlete), agreeing or underrating (reporting lower support, or higher thwarting than the athlete) the six interpersonal behaviours in comparison to their athlete. Previous research had identified that coaches are more likely to inflate their behaviour when using self-reporting and therefore, the study hypothesised that the coach-athlete dyads would be split across the three categories listed previously. Across the six interpersonal behaviours, the coaches and athletes were distributed close to even in each group; providing the initial support that over a third of coaches are overreporting their coaching behaviour by either inflating their report of the use of support, or downplaying the use of thwarting behaviours and underrating. As such, these findings supported that coaches appear to provide inaccurate self-reports, as previously highlighted in research by Ntoumanis (2012).

Once the study had confirmed that a range of coach-athlete dyads existed, the authors adopted the use of polynomial regressions with response surface analysis in order to examine if the level of agreement and disagreement in perceptions of coaching behaviours between coach and athlete, had any influence of the athlete's need satisfaction and frustration. Coaches and athletes who were in agreement, and rated high need supportive behaviours, were associated with higher need satisfaction. This was similar for the coaches and athletes who agreed and rated need thwarting behaviours as high, leading to higher need frustration. A non-linear relationship was also found for the need-supportive behaviours, in that when the coaches and athletes were in agreement and the coach was high in support, athletes reported additional need satisfaction. This finding suggested a boost in need satisfaction was related to the athlete perceiving autonomy-support themselves, but also being aware indirectly that their coach was adopting this behaviour. In terms of disagreements in perceptions, providing the athlete rated the coach as more need supportive or less need thwarting, in comparison to the coach, this resulted in higher need satisfaction when measuring need supportive behaviours, and decreased need frustration for the need

thwarting behaviours. These findings supported the importance of the athlete's perception of the behaviour taking priority over the coach's with regards to the most adaptive outcome for the athlete (Blanchard et al., 2009; Hollembeak & Amorose, 2005; Horn, 2002). A non-linear relationship was present for the thwarting of competence and relatedness, but not the need for autonomy. The authors proposed that the findings on competence and relatedness may be due to athletes perceiving high thwarting behaviours from their coach, yet if the coach is unaware as to how harmful this is, it can relate to an increased need frustration. The absence of pronounced autonomy need frustration may also be explained due to athletes being acclimatised to their coach using some elements of control in the sporting environment, therefore having a less negative effect on this need (Bartholomew et al., 2011b).

Rocchi and Pelletier's (2018) study was limited in terms of the use of only female athletes, making the results less generalisable, thus it would be interesting to examine both males and females in future studies. The variables focused upon were the different types of thwarting and supporting elements of coaching behaviours in relation to athletes' needs. Therefore, in order to continue to expand the understudied area of research on controlling behaviours, a greater insight into how both externally and internally controlling behaviours differ in terms of congruence and incongruence is needed. As the findings by Rocchi and Pelletier (2018) suggested that there was greater congruence in perceptions of thwarting behaviours, the examination of both controlling dimensions would provide further insight into the accuracy existing and potential differences between the two.

Previous research which has compared perceptions from athletes and coaches has predominantly examined the correlations between variables, thus not reporting the magnitude or direction of any differences present (Boyce et al., 2009). However, correlations have been found to be biased in terms of falsely supporting hypotheses (Edwards, 1994; 2001). Instead, Response Surface Analysis (RSA; Shanock et al., 2010) provides an alternative, more advanced option for overcoming this limitation and allows the results to provide more extensive effects to discuss. RSA is the estimation of a polynomial regression model and the graphical and statistical interpretation of its coefficients. RSA enables researchers to test hypotheses that are competing against each other (Humberg et al., 2019) and allows the investigation of all the conditions a congruence effect can have, rather than conducting one at a time (Edwards, 2002). RSA models are also able to show that a particular type of incongruent predictors can result in individuals having more positive outcomes than those which are congruent; potentially supporting the opposite to an expected hypothesis on congruent behaviours being best. Overall, research has implied that when an athlete has

greater perceptions of controlling coach behaviour, negative outcomes are also likely to increase. However, there is no research which has examined the impact of a difference in these perceptions on athletes' negative outcomes, from both coaches' and athletes' points of view. It is therefore important to examine whether there are differences in the relationship to these outcomes, dependent on whether the coach over- or under-rated both externally and internally controlling behaviour.

### ***5.1.2 Controlling Coaching Behaviours: Associations with Athletes' Fear of Failure and Competitive Anxiety***

Research on SDT highlights that the most important perception of coaching behaviour is the athlete's as this has the strongest impact on their outcomes (Horn, 2002). Thus, suggesting that this is more significant than the coach's perception of their own behaviour (Mageau & Vallerand, 2003). However, understanding how similar coaches' and athletes' perceptions of these behaviours are, and whether the outcomes differ depending on this, is important to understand the coach-athlete dyadic relationship. As such, less perceptual distance in perceptions of the coaching behaviours should result in the coach being able to communicate more effectively with their athlete (Gjesdal et al., 2018). Research has previously identified that agreement in perceptions will lead to positive outcomes, and how need supportive and need-thwarting behaviours can impact an athlete's basic psychological needs (Rocchi & Pelletier, 2018). However, there is no research which has explored controlling coaching behaviours from an externally or internally controlling perspective and how disagreements in these perceptions between athletes and coaches relates to an athlete's negative outcomes.

With regards to research which has investigated coaching behaviour and athletes, a key focus by researchers has been to examine the link such behaviours have to athletes' basic psychological needs and motivation (Bartholomew et al., 2011b; Matosic & Cox, 2014; Smith et al., 2016). Findings have supported that the use of autonomy-supportive behaviours are advised due to their ability to satisfy athletes' needs, and therefore promote autonomous forms of motivation (Jõesaar et al., 2012). In contrast, controlling behaviours are to be avoided by coaches as they are associated with athlete need frustration and more controlled forms of motivation (Bartholomew et al., 2011b). Research examining the connection between coach behaviour and athlete outcomes such as enjoyment and fear of failure, rather than needs and motivation, is an area that has been highlighted as a weakness within coaching literature (Lyle, 2018; Nichol et al., 2019). Through exploring the links between coaching behaviour and

athlete outcomes, it will allow a greater understanding of how these are associated, thus improving future education, beyond knowledge about basic needs and motivation.

Participating in sport has shown to be associated with a range of outcomes for athletes which are positive such as autonomous motivation (Gould & Carson, 2008) and improved self-esteem and confidence (Beckman et al., 2017). Similarly, negative outcomes can present when participating in sport, such as burnout, injury, and ill-being (Cheval et al., 2017; Healy et al., 2014; Myer et al., 2015). However, this negative aspect can be moulded by social factors such as an athlete's coach (Horn, 2008). Previous studies have found significant relationships between athletes' perceptions of their coach's behaviour and their own anxiety (Baker et al., 2000, Smith et al., 2007; Weiss et al., 2009). Athletes who are regularly in competition with others can be exposed to excessive social comparison, resulting in success only being considered when one is able to perform better than others. Thus, leading to athletes to find competitive situations as stressful, increasing feelings such as anxiety and fear of failure (Pensgaard & Roberts, 2000). When athletes experience negative consequences such as these, it is likely to influence their performance, potentially leading to mistakes and negative perceptions from their teammates and coaches (Correia et al., 2017). Therefore, when considering both fear of failure and competitive anxiety, examining these in relation to externally and internally controlling perceptions would be of interest to understand whether there are differences in terms of congruence and incongruence. Although Rocchi and Pelletier (2018) found that there were some differences between thwarting behaviours on athletes' three basic needs, in order to investigate autonomy-thwarting further, perceptions of both internal and external control should be studied. Moreover, by investigating the relationship between perceptions of these two controlling behaviours and negative outcomes, it would provide a deeper insight into the implications of using these behaviours within a competitive environment.

**5.1.2.1 Fear of failure.** Fear of failure has been defined as the motive to avoid failure in evaluative achievement situations associated with anticipatory shame (Atkinson, 1957). It is suggested that individuals who associate failure with unpleasant consequences will relate this to being evaluated and feeling threatened in the sporting environment (Conroy et al., 2002, Correia et al., 2017). Therefore, fear of failure can be viewed as a function of one's interaction with others and as reflecting one's desire to avoid the lowering of one's evaluation by the self and by others. However, fear of failure may be reported less by elite athletes due to the belief that it could be viewed as a weak attribute (Sagar et al., 2007). When participating in a competitive sports environment at an elite or high level, many athletes are open to



evaluation by others, such as their coaches, based on their performances, with fear of failure being one of the most notable sources of stress in a competitive context (Smith & Smoll, 1997). Gustafsson et al. (2017) examined fear of failure in highly competitive junior athletes, finding that when competing at an elite level, if their performance is not as successful as they had hoped it can have severe consequences on their psychological stress, burnout, and a reduced sense of accomplishment. Other research has also considered that athletes may use fear of failure to act as a motivator, despite the chance of hindering their performance (Sagar et al., 2007). As such, from a coach's perspective, they may also believe that playing on an athlete's fear of failure may motivate them to succeed to avoid disappointment and further manipulation of the coach-athlete bond.

When a coach is unable to understand why an athlete is making mistakes, they may resort to the use of punishments to try to correct these, causing an athlete to experience increased fear of failure due to the pressures placed on them to perform well (Tsai & Chen, 2009). Fear of failure and coaches' behaviour has been examined in studies such as that by Moreno-Murcia et al. (2019), finding a significant positive relationship between athletes' fear of failure and the use of controlling coaching behaviours (Conroy et al., 2002). Further, when an athlete is involved in a competitive level of sport, they can be exposed to an increased likelihood of fear of failure and not meeting the expectations of others such as their coach (Mesagno et al., 2012; Rumbold et al., 2012). Conroy et al. (2002) infer that athletes become fearful of failure when they perceive it is more likely to occur and result in negative consequences. These expected consequences of failure lead the athlete to decrease in motivation and avoid placing themselves in situations that will expose them to any chance of failure; decreasing their feelings of competence (Ng & Jenkins, 2018). Research has provided support that when coaches use controlling behaviours such as intimidation and punishment, it leads to negative outcomes for athletes such as burnout, resulting in an increase in the athlete's fear of failure (Bartholomew et al., 2011b; Castillo et al., 2012; Moreno-Murcia & Silveira, 2013). Moreno-Murcia et al. (2019) highlight that few studies have examined perceptions of controlling coaching behaviours and fear of failure in athletes, which identifies that investigating this outcome when examining congruence between athlete and coach perceptions of the different types of controlling behaviours would be beneficial to further extend the literature.

**5.1.2.2 Competitive anxiety.** A vast amount of research on anxiety in sport has focused on high-level sport performance, as athletes within this context are usually exposed to greater stress and anxiety (Masaki et al., 2017). Competitive situations are designed to bring about

feelings of stress for athletes, by placing demands of athletes to perform successfully and commonly under high levels of stress. The result of such competitions holds significant value to the athlete and their relevant others such as their coach, making this a situation where athletes can experience extreme feelings of emotional stress. Stress can be viewed from a psychological perspective, which can have benefits to athletes participating in competitions, but also deleterious effects when the demands placed on the athlete are too much (McEwen, 2002). Sport anxiety is defined as a tendency to respond with state anxiety to performance situations where evaluation is likely (Smith et al., 2007). Although some may interpret anxiety as facilitative, the general notion is that high levels of anxiety in sport are negatively related to participation, health, and performance (Crocker et al., 2004). Competitive anxiety is seen as a context specific emotion that appears before or during competition and defined from an SDT perspective as a contextual ill-being indicator.

Expanding current knowledge on the level of anxiety athletes experience, in particular cognitive anxiety, will help to provide techniques for coaches and athletes to apply in order to take action on reducing this. Anxiety can to some degree be harmless, with individual athletes having their own anxiety zones, in which they will have an optimum performance level of anxiety (Raglin & Hanin, 2000). Ultimately, experiencing anxiety levels outside of this zone will result in the negative influence on an athlete's performance. Further, research has found that interactions between the intensity subcomponents of anxiety can result in cognitive anxiety either enhancing or impairing an individual's performance (Agaoğlu, 2016). A common phenomenon for athletes who are competing at a high level under a lot of pressure is to "choke" due to the anxiety from being placed in an important situation where they are unable to meet the demands (Cheng et al., 2009). This relates to the athlete experiencing a catastrophic choking moment, where they are over worrying, and their arousal goes beyond the optimal level. On the other hand, athletes who can channel this anxiety, in turn experiencing arousal, may produce their best performances, suggesting the impact of anxiety can be linked to individual differences (Raglin & Hanin, 2000). In relation to this, Wilson et al. (2002) highlight that anxiety can be either facilitative or debilitating on performance dependent on the interpreting approach taken; for example, optimistic individuals will often experience lower levels of debilitating anxiety. Ultimately, the way an athlete processes feelings of anxiety (either optimistically or pessimistically) can impact the effect that the anxiety will have on future performances (Hanton et al., 2003; Mellalieu et al., 2003). It is important to consider the aspect of potential buffering on negative effects of anxiety that coaching behaviours can have on athletes. Supportive social behaviours have shown evidence

of providing a stress buffer due to feeling supported and accepted within their environment (Slater et al., 2016). Moreover, when athletes have reported strong feelings of relatedness with their coach, alongside positive resource appraisals, they have ultimately performed better when completing a cognitive task (Slater et al., 2018).

Exploring anxiety more specifically through cognitive aspects, identifies how this has the capability to harm a person's well-being through increasing worry and self-doubt, creating a poor performance (Parnabas et al., 2014). Regardless of the level of sport performance and competition, anxiety is commonly experienced by athletes as the response to a perceived stressor when having to undertake a task surrounded by pressure (Pijpers et al., 2005). Bali (2015) acknowledges that often a smaller amount of anxiety can provide an initial push required to get going or address problems when training or competing, the moment that the anxiety becomes uncontrolled is when performances become damaged. The study of anxiety in relation to perceptions of coaching behaviours is therefore required in greater detail to consider how different levels of supportive or controlling behaviours can influence the levels of anxiety experience. When interpreting findings within the university context, it will be important to consider the differing levels of stress and therefore anxiety that a student who participates in sport is already exposed to (Denovan & Macaskill, 2016; Lowe & Cook, 2003).

Research has found that athletes' perceptions of controlling coaching behaviours were significantly associated with their competitive anxiety, however finding no relationship with autonomy-supportive behaviours (Cho et al., 2019). More specifically, Ramis et al. (2017) found that coaches' controlling behaviours can positively predict young athletes' perceived competitive anxiety. This is consistent with Baker et al.'s (2000) study, who found that negative coaching behaviours were the greatest predictor of an athlete's anxiety. This research found that the excessive personal control subscale had stronger relationships with anxiety compared to intimidation and negative conditional regard, suggesting that the more externally controlled the athletes felt by the coach, the greater their anxiety. Further, findings by Wang et al. (2004), suggest that the use of rewards, manipulation from their coach and audience presence all contribute towards an increase in the likelihood of an athlete choking as a result of their anxiety. In summary, considering the increased likelihood of these behaviours being used by coaches in a competitive environment, it is imperative that research aims to understand whether coaches and athletes perceive the use of these behaviours similarly, and if so, how does this influence negative outcomes. Further, if there are distinctions between external and internal control, research should be able to inform a coach

on how important it is that their perceptions are congruent with their athletes, highlighting whether incongruence is worse for one type of control over the other.

### ***5.1.3 The Present Research***

The aim of the current study was to examine how the congruence of perceptions of externally and internally controlling coaching behaviours between athletes and coaches related to negative athlete outcomes. The research focused on two outcomes, fear of failure and competitive anxiety, which have been associated with the darker side of the coaching environment and were therefore applicable when examining the relationship with the two identified forms of controlling behaviour (Cho et al., 2019; Gustafsson et al., 2017). It has been highlighted how these two outcomes are also considered to be important when examining the competitive sport environment, where athletes face assessment on their performance regularly, increasing the likelihood of experiencing both fear of failure and anxiety over this (Masaki et al., 2017; Mesagno et al., 2012). With only a few studies examining the perceptions of coaching behaviour from both the athlete and the coach, the present study aimed to investigate the congruence between perceptions of internally and externally controlling behaviours and their association to negative athlete outcomes, using coach-athlete singular dyads to examine a more specific relationship and context of the coach behaviour. The first objective of the study was to determine the rate at which coaches underrated their controlling behaviour (reported their own behaviour more positively and scored lower than their athlete), overrated (reported their own behaviour more negatively and scored higher than their athlete), or were in agreement with their athletes about their reported behaviours. Secondly, the study examined the relationship between congruence or incongruence of these perceptions and the athlete's fear of failure and competitive anxiety.

Based upon theoretical propositions of SDT and previous research examining congruence and incongruence in the coaching environment, the study's hypotheses were as follows. Firstly, it was predicted that the sample would be categorised into 3 different levels of agreement or disagreement (e.g., coach overrates, agreement, coach underrated; Rocchi & Pelletier, 2018). Secondly, when both the coach and their athlete perceive the controlling behaviour as high, it was predicted that both fear of failure and competitive anxiety would be at their highest. In contrast, if both coach and athlete perceive control to be low, levels of these negative outcomes were also expected to be low. Thirdly, it was expected that fear of failure and competitive anxiety would not become more pronounced if the coach and athlete both perceive the use of control to be high, as this congruence would suggest they are both aware of the behaviour being used but have been continuing to work together regardless. As

such, the athlete may be more accommodating to the use of control in the competitive context, therefore meaning that even when both athlete and coach rate these behaviours highly, the level of congruence protects from higher levels of these negative outcomes. Fourthly, in terms of the disagreement between perceptions, it was expected that it would be most detrimental for the athlete when they perceive greater levels of control than their coach (underrated incongruence). In comparison to a coach perceiving greater levels over the athlete (overrated incongruence), as the athlete's perception is dominant over the coach's and therefore perceived as accurate. Finally, a key objective of the study was to answer whether differences existed in relation to the outcomes based on dyad perceptions of internal and external control; examining whether the levels of agreement have a more negative effect for internal control over external control. Based upon the more direct impact of the use of internally controlling behaviours, it would be expected that underrated incongruence of this compared to external control would have a stronger relationship with athletes' fear of failure and competitive anxiety. Taking into consideration the competitive environment and potential acceptance in the presence of controlling behaviours, it was expected that high congruence in perceptions of the controlling behaviours may result in weaker relationships with the two outcomes for external control compared to internal control (with athletes being more accommodating of external control).

## 5.2 Method

### 5.2.1 Participants

The sample included 189 coach-athlete dyads, who were recruited from universities within the Midlands BUCS league top 15 finishers in 2014-15.<sup>4</sup> Athletes had an average age of 19.68 years ( $SD = 1.54$ ) and 50.3% were female. Athletes were from a range of sports; 33.3% were individual sports. Coaches were an average age of 29.54 years ( $SD = 9.87$ ) and 66.7% were male. The time the coach-athlete dyads reported working together as a partnership was on average 1.42 years ( $SD = .94$ ). All athletes participating in the study had either competed in a BUCS level event whilst at university or intended to in the upcoming season. All coaches participating in the study had at least a Level 1 (or equivalent) qualification in their sport.

### 5.2.2 Measures

The following measures were used in both the coach and athlete questionnaire.

**Personal information.** The questionnaire gathered information from the coach and athlete including; age, gender, sport, time spent working together as a partnership.

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<sup>4</sup> The participants in this study consisted of a sub-set of athletes and coaches from study 1 and 2.

**Controlling coaching behaviour.** The Controlling Coach Behaviours Scale (CCBS; Bartholomew et al., 2010) was used to measure both athletes' and coaches' perceptions of externally and internally controlling coach behaviours. The scale was adapted for coaches to include the stem 'when I coach my athlete', whereas the stem for the athlete was 'my coach'. The scale has 15 items, which measure four subscales; negative conditional regard (e.g., "my coach is less accepting of me if I have disappointed them", 4 items), intimidation (e.g., "my coach threatens to punish me to keep me in line during training", 4 items), controlling use of rewards (e.g., "my coach only uses rewards and praise so that I complete all the tasks they set in training", 4 items), and excessive personal control (e.g., "my coach tries to interfere in aspects of my life outside of my sport", 3 items). The negative conditional regard and intimidation subscales were combined to measure internally controlling perceptions, whilst the controlling use of rewards and excessive personal control subscales were combined to measure externally controlling perceptions. Responses were on a 7-point Likert scale which ranged from 1 (strongly disagree) to 7 (strongly agree). Internal consistency and good factorial validity have been found for this scale across different genders and sports (Bartholomew et al., 2010).

Additionally, the athlete questionnaire included two other measures: fear of failure and competitive anxiety.

**Fear of Failure.** The 5-item short form Performance Failure Appraisal Inventory (Conroy et al., 2002) was used to measure athletes' fear of failure. The measure uses a 5-point Likert scale which ranged from 0 (do not believe at all) to 5 (believe 100% of the time). The stem used for this scale was 'in my sport...'. An example item is 'When I am failing, I am afraid that I might not have enough talent'. Good internal consistency has been found for this subscale (Gomez-Lopez et al., 2020).

**Competitive Anxiety.** To measure athletes' competitive anxiety before a competition, a 5-item subscale from the Revised Competitive State Anxiety Inventory 2 (Cox et al., 2003) questionnaire was used which focused on the cognitive anxiety experienced. The decision to focus on cognitive anxiety, and not somatic, was related to exploring the relation between perceptions of coaching behaviour and the cognitive procedures rather than physiological ones. Cognitive anxiety has been found as being a stronger predictor of subsequent sporting performance than somatic anxiety; in relation to this study being situated within a competitive context, it was relevant to focus on this specifically (Mellalieu et al., 2003). The measure used a 4-point Likert scale, ranging from 1 (not at all) to 4 (very much so), and had the stem 'before participating in a competition...'. An example item is 'I am concerned that I may not do as well

as I could'. Good internal consistency and reliability coefficients have been found for the cognitive state anxiety subscale (Cox et al., 2003; Gomez-Lopez et al., 2020).

### **5.2.3 Procedure**

Prior to collecting data, ethical approval was given from the researcher's University Ethics Committee in accordance with British Psychological Society ethical guidelines.<sup>5</sup> With regards to the elements of confidentiality and anonymity outlined in section 3.2.4.1 (ethics) for the data collected in this study, to enable the pairing of coach and athlete dyads, coaches were labelled within the data set as C1 and matched with their athlete who was labelled A1, to remove any identifiable data. Once the substitution code had been allocated and the data checked for input, the identifying information collected could be removed to avoid reidentification of participants.

Participants were contacted through their university's student union or club chairperson to request interested individuals to consent to taking part (Appendix A). Both coaches and athletes were provided with an information sheet on of the study and right to withdraw (Appendix B), prior to providing their informed consent (Appendix C). Coaches were asked to complete their questionnaire responses based on one athlete whom they coach, who had expressed an interest in participating in the study (Appendix F). If the coach was responsible for more than one athlete in their training group, the athlete to focus on was randomly chosen by the researcher. The athlete was asked to complete their questionnaire focused on this coach solely (Appendix G). Both the athlete and coach were emailed a link to the questionnaire to complete online or given a paper copy, the coach questionnaire took on average 5 minutes to complete and the athletes' 10 minutes.

### **5.2.4 Data Analysis**

Descriptive statistics were gathered from the data and examined for any outliers. Within this study, each coach belonged to one specific athlete, meaning no nesting of the data needed to be accounted for. Using Statistical Package for the Social Sciences (SPSS) version 25.0 (IBM Corp.), the composite scores for externally and internally controlling behaviours were standardised for both coaches and athletes. Initially, to ensure the sample included a range of coach-athlete dyads that were in agreement or disagreement, athlete and coach perceptions of the controlling behaviours were examined to warrant further analysis of the relationship with athlete outcomes. This was checked for each type of controlling behaviour

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<sup>5</sup> Ethical considerations for both coaches and athletes participating in research focusing on coaching behaviours, and more specifically the darker side of this environment have been acknowledged previously in 3.2.4.1 and 4.2.4

separately; following the procedure suggested by Fleener et al. (1996) who recommended that at least 10% of disagreement, defined as above or below 0.5 SD of the standardised mean score on the two predictors is needed to support there being a significant difference across the dyads. In order to examine differences across the coach-athlete dyads, chi-square tests were conducted for internal and external control, in relation to the following categorical variables; gender, time spent as a dyad, and type of sport.

To examine how the level of congruence can influence athlete outcomes, the next stage in the analysis was to conduct a series of polynomial regressions and use Response Surface Analysis (RSA). The analyses procedure followed Shanock et al.'s (2010) advice, running the polynomial regression in SPSS and the RSA in a programme in Microsoft Excel. The analysis included examining the relationship between coach and athlete perceptions of both external and internal coaching behaviours on the athlete's fear of failure and competitive anxiety. Shanock et al. (2010) explain that polynomial regression analysis is able to address three different types of questions. Firstly, how the agreement between two variables is associated with an outcome variable. Secondly, how the degree of difference between these two predictor variables is associated with the outcome variable. Finally, how the direction of the discrepancy between two predictor variables is associated with the outcome variable. Polynomial regression analysis has a greater exploratory potential than using difference scores alone (Shanock et al., 2010). As this technique provides an extra analysis of the data over a basic interaction method such as difference scores, allowing the examination of the different types of congruence and incongruence. In order to conduct the polynomial regression, five predictor variables were required, these were computed using SPSS. To explain this method of analysis, perceptions of external control and fear of failure are used as an example.

To begin, both scores for coach ( $x_1$ ) and athlete ( $x_2$ ) perceptions of coach external control were centred to reduce any issues with multicollinearity (Aiken, West & Reno, 1991). These centred variables were used to assess the linear relationships between the perceptions and the athlete's fear of failure. These centred values were then squared ( $x_1^2$  and  $x_2^2$ ), in order to identify the non-linear relationships between both coaches' and athletes' perceptions of external control, and the athlete's fear of failure. The final predictor was the centred coaches' external control perception variable multiplied by the centred athlete's external control variable ( $x_1 \times x_2$ ), which examined the interactive relationships between these variables and the athlete's fear of failure. This provided five variables that were input within the polynomial regression analysis ( $x_1$ ,  $x_2$ ,  $x_1^2$ ,  $x_2^2$ , and  $x_1 \times x_2$ ).



With regards to the RSA, the unstandardised regression coefficients from the polynomial regression analyses were computed to estimate the four surface values. The first surface value ( $a_1$ ) presented the linear relationship between the amount of agreement between coaches' perceptions of their external control, and athletes' perceptions of this behaviour, as well as athletes' fear of failure. If a positive significant value is reported, this suggests that as the level of congruence between coaches' and athletes' perceptions of the behaviour increases, as does the athlete's fear of failure. A significant negative value suggests that as the level of congruence increases, athletes' fear of failure decreases. The second surface value ( $a_2$ ) highlights the nonlinear relationship between the level of congruence between coaches' and athletes' perceptions of external control, and athletes' fear of failure. A significant positive value suggests that the effect of congruence between coaches and athletes becomes greater at the higher levels of agreement. In contrast, a significant negative value indicates that more congruence has less of an effect on the athletes' fear of failure. The third surface value ( $a_3$ ) identifies the amount that the direction of the incongruence between coaches' and athletes' perceptions of external control is associated with athletes' fear of failure if the value is significantly positive, this suggests that the coach reports higher external control in comparison to their athlete, fear of failure is higher. Alternatively, a significant negative value indicates that when an athlete has higher perceptions than their coach, this is associated with a greater fear of failure. The fourth surface value ( $a_4$ ) identifies how the degree of incongruence between coaches' and athletes' perceptions is associated with athlete's fear of failure. When the value is significantly positive, it suggests that coaches who perceive greater external control compared to athletes, will be related to higher scores of athlete fear of failure. When there is a significant negative surface value, coaches' perceptions are lower than the athletes', suggesting a greater negative incongruence and therefore lower athlete fear of failure.

## **5.3 Results**

### ***5.3.1 Assessing the Accuracy of Reported Coach Behaviour***

To begin, the data were analysed for outliers and missing data, with no missing values present. Composite scores were created for both the athletes' and coaches' perceptions of the coach's externally and internally controlling behaviours, alongside this, composite scores were calculated for the athlete's fear of failure and competitive anxiety variables. Table 5.1 displays the descriptive statistics and correlation matrix for the study variables. As shown by

**Table 5.1***Descriptive Statistics and Bivariate Correlations of Study Variables*

	M	SD	Range	$\alpha$	1.	2.	3.	4.	5.
1. Coach Externally controlling behaviour	1.84	.61	1-7	.83	-				
2. Coach Internally controlling behaviour	1.74	.63	1-7	.82	.79*	-			
3. Athlete Externally controlling behaviour	2.30	1.38	1-7	.93	.01	.05	-		
4. Athlete Internally controlling behaviour	2.19	1.30	1-7	.94	.02	.08	.92*	-	
5. Fear of failure	2.82	.76	1-5	.80	-.08	-.03	.78*	.66*	-
6. Competitive anxiety	2.50	.76	1-4	.83	.03	.08	.57*	.49*	.42*

*Note: \* $p < .01$* 

the means, athletes had below average perceptions of both controlling behaviours in relation to the scale midpoint, but these were greater in comparison to the coaches' reported scores. The correlations between athlete and coach perceptions of the two controlling behaviours were weak and non-significant which provided an initial indication that differences in perceptions existed within the data. The athletes' perceptions of external and internal control were both positively correlated with fear of failure and competitive anxiety.

Before examining how the level of congruence in coach behaviour perceptions may be related to athlete outcomes, it was important to identify that the sample consisted of three different dyads; these are shown in Table 5.2. Percentages of the number of dyads in each category were calculated and labelled based on; agreement (congruence score =  $< -0.5$  and  $> 0.5$ ), coach underrating (coach scored lower than athlete = over 0.5) or coach overrating (coach scored higher than athlete, under 0.5). The results of the frequencies show that there is a balanced distribution of dyads within the sample, for both external and internal control. These findings infer that there are significant differences between how athletes and coaches view coaching behaviour, therefore warranting further analysis. A chi-square test of independence was performed to examine the relation between both external and internal control coach-athlete dyads with; gender, time spent as a coach-athlete dyad, and type of sport. The relations across all variables were found to be non-significant, suggesting that the categorical variables were not independent of each other, in either internally or externally controlling perceptions.

### **5.3.2 Examining Congruence and Incongruence of Perceptions of Coach Controlling Behaviour**

The results from the polynomial regression analyses conducted shown in Table 5.3, with all models being significant and explaining between 49% and 84% of the variance in

**Table 5.2**

*Frequencies of Athletes' Perceptions of Interpersonal Behaviours in Agreement and Disagreement (overrating and underrating) with Coaches' Self-Reports*

Dyad combinations	%	Mean coach	Mean athlete
External control			
- Underrate (coach < athlete)	30.7	1.58	3.82
- Agreement (coach = athlete)	37.6	1.56	1.65
- Overrate (coach > athlete)	31.7	2.45	1.51
Internal control			
- Underrate (coach < athlete)	37.0	1.42	3.26
- Agreement (coach = athlete)	27.5	1.35	1.56
- Overrate (coach > athlete)	35.4	2.38	1.55

*Note.*  $N = 189$

athletes' reported fear of failure and competitive anxiety. Using the parameter estimates from the polynomial regression (shown in Table 5.3), in the Response Surface Analysis (RSA), four response surface graphs were constructed using four surface test values to give a visual representation of the results for the different controlling behaviours and outcomes. In the surface plots which display the slope and curvature of the three-dimensional response (Shanock et al., 2014), the x-axis represents the coach perception, the y-axis represents the athlete perception, and the z-axis represents the outcome score (fear of failure or competitive anxiety). In the Response surface graphs, each corner reflects a different combination of coach and athlete congruence or incongruence in perceptions of controlling behaviour. Figure 5.1 displays the two models on fear of failure, and Figure 5.2 displays the two models on competitive anxiety, from the RSA.

In Figure 5.2, model A shows a significant positive linear ( $b = .67, SE = .12, p = .000$ ) relation between the coach and athlete perceptions of internal control and athletes' fear of failure. However, the curvature of this agreement was not found to be significant ( $b = -.25, SE = .19, p = .19$ ). The direction ( $b = -.84, SE = .12, p = .000$ ) of the discrepancy in the perceptions of internal control were significantly related to the athlete's fear of failure, yet the degree of this was non-significant ( $b = -.26, SE = .18, p = .141$ ). The negative direction of the coefficient suggests that when coaches' and athletes' perceptions were in disagreement, and the coach underrates their internally controlling behaviour, by scoring lower than the athlete did, this is associated with greater fear of failure for the athlete. The degree of disagreement was not significant, suggesting that when the level of disagreement increased, this did not automatically result in a pronounced increase in an athlete's fear of failure. An examination of model 1 implies that athletes' fear of failure is greater when both their coach and their own

**Table 5.3**

*Results of the Polynomial Regression Analyses and Surface Values Predicting Athletes' Fear of Failure and Competitive Anxiety*

Model	Variance $r^2$	Surface values				Unstandardised regression coefficients				
		$a_1$	$a_2$	$a_3$	$a_4$	Coach self-report ( $bx_1$ )	Athlete perception ( $bx_2$ )	Coach self-report squared ( $bx_3$ )	Athlete perception squared ( $bx_4$ )	Coach x athlete perception ( $bx_5$ )
1. Internal control on fear of failure	.49	.67* (.12)	-.25 (.19)	-.84* (.12)	-.26 (.18)	-.09 (.09) [-.25, .08]	.76 (.08) [.60, .91]	-.09 (.17) [-.42, .23]	-.16 (.04) [-.24, -.08]	.01 (.06) [-.12, .13]
2. External control on fear of failure	.84	.68* (.10)	-.28 (.15)	-.92* (.10)	-.06 (.10)	-.12 (.09) [-.30, .05]	.80 (.05) [.71, .89]	-.01 (.08) [-.16, .14]	-.16 (.02) [-.21, -.01]	-.11 (.05) [-.21, -.11]
3. Internal control on competitive anxiety	.50	.28* (.11)	.12 (.23)	-.24* (.11)	.11 (.11)	.02 (.08) [-.14, .19]	.26 (.08) [.11, .41]	.10 (.16) [-.22, .41]	.02 (.04) [-.06, .10]	.01 (.06) [-.12, .13]
4. External control on competitive anxiety	.57	.35* (.12)	.03 (.12)	-.39* (.12)	.03 (.11)	-.02 (.11) [-.23, .20]	.37 (.06) [.26, .48]	.06 (.09) [-.12, .25]	-.03 (.03) [-.09, .02]	.00 (.06) [-.13, .13]

Note. () = standard errors. [] = 95% confidence intervals. Surface values were calculated using the unstandardized coefficients from the polynomial regression analyses ( $x_1 = bx_1$ ,  $x_2 = bx_2$ ,  $x_1^2 = bx_3$ ,  $x_2^2 = bx_4$ , and  $x_1 \times x_2 = bx_5$ ).

$a_1$  ( $bx_1 = bx_2$ ) reflected the linear relationship between the degree of agreement between coaches' reports, athletes' perceptions, and athlete outcomes

$a_2$  ( $bx_3 + bx_4 + bx_5$ ) represents the nonlinear relationship between the degree of agreement between coaches' reports and athletes' perceptions, and athlete outcomes.

$a_3$  ( $bx_1 - bx_2$ ) estimates how much the direction of the disagreement between coaches' reported behaviour and athletes' perceptions is related to athletes' outcomes.

$a_4$  ( $bx_3 - bx_4 + bx_5$ ) reflects how the degree of differentiation between coaches' reports and athletes' perceptions is related to athletes' outcome

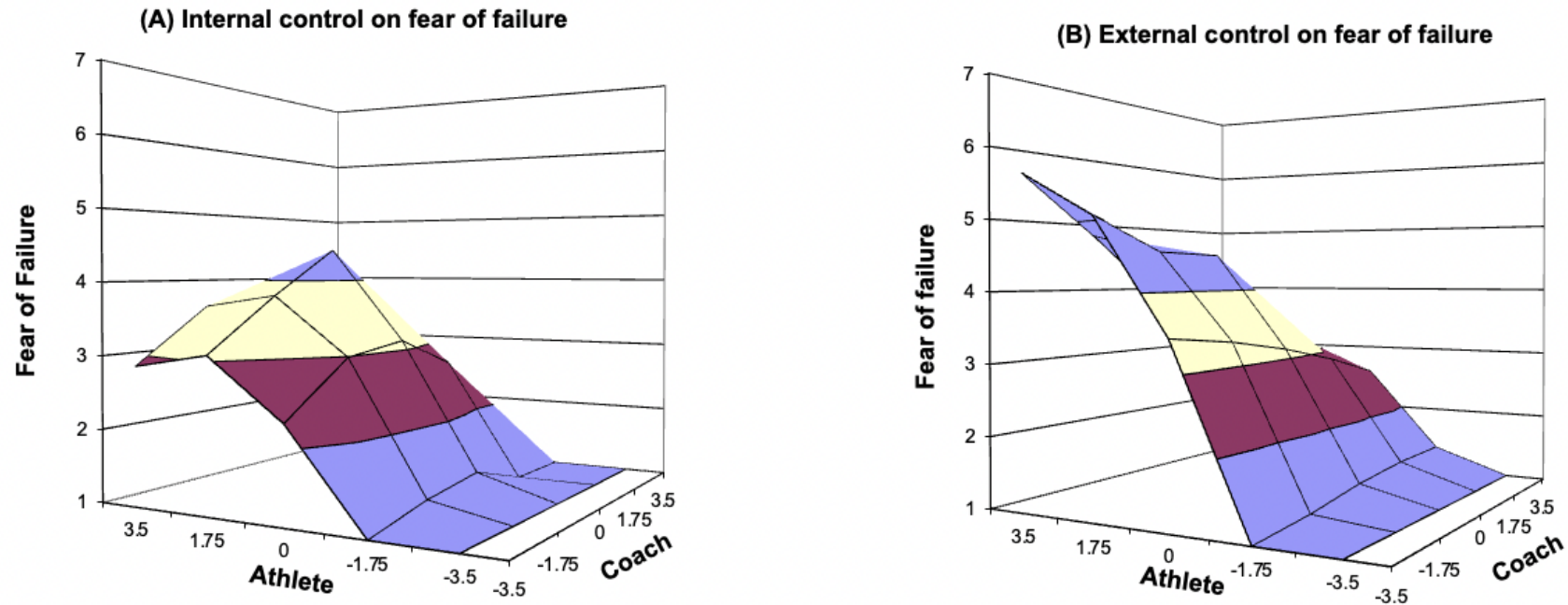
rating of internally controlling behaviours was high, in comparison to the athlete rating this behaviour high but the coach rating it low.

With regards to the surface plots for the interactions between athletes' and coaches' perceptions of externally controlling behaviour and athletes' fear of failure, in Figure 5.1 model B presents a significant positive linear ( $b = .68, SE = .10, p = .000$ ) relation between all variables. This relationship did not have a significant curvature ( $b = -.28, SE = .15, p = .07$ ), meaning that as these perceptions increased in agreement, this did not influence a pronounced effect of an increase in fear of failure, similar to perceptions of internal control. The negative direction of the disagreement in perceptions was significant ( $b = -.92, SE = .10, p = .000$ ), suggesting that when coaches underrated their behaviour by suggesting they used less externally controlling behaviour than their athlete reported, their athlete's fear of failure increased. However, no support was found for the degree of this disagreement being applicable to these perceptions and fear of failure ( $b = -.06, SE = .10, p = .22$ ). In contrast to model A, an examination of model B suggests that when athletes perceive their coach's externally controlling behaviours to be high, but the coach perceives them as low, fear of failure is greater when compared to both coach and athlete viewing these as high. Model A and model B also provide evidence that when there is a disagreement in perceptions, fear of failure appears to increase more for externally controlling underrating coach-athlete dyads, compared to internally controlling underrating coach-athlete dyads.

In Fig 5.2, model A displays a positive linear ( $b = .28, SE = .11, p = .013$ ) relation between athlete and coach perceptions of internally controlling behaviours and athletes' competitive anxiety. The curvature of this relationship was not found to be significant ( $b = .12, SE = .23, p = .61$ ). In terms of the direction of discrepancy for these perceptions ( $b = -.24, SE = .11, p = .038$ ), the significant negative result suggests that athletes' competitive anxiety was higher when they perceived a higher level of internal control compared to their coach. There was no significant finding of the curvature of this direction ( $b = .11, SE = .11, p = .315$ ). In Figure 5.2, model B presents the significant positive linear ( $b = .35, SE = .12, p = .004$ ) relationship between athlete and coach perceptions of externally controlling behaviours with athletes' competitive anxiety. There was no support for the curvature of this relationship being significant ( $b = .03, SE = .12, p = .803$ ). The significant negative direction ( $b = -.39, SE = .12, p = .002$ ) of the disagreement in perception was the same as the previous models, supporting

Figure 5.1

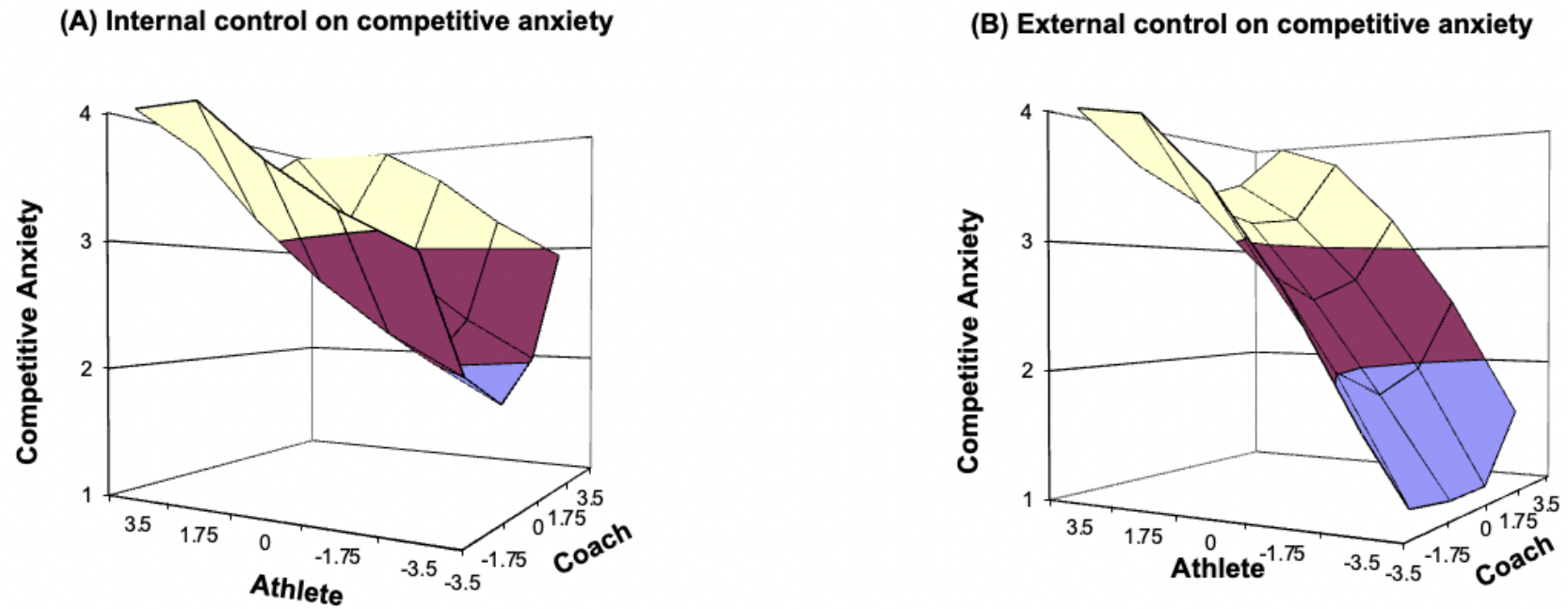
*Models Presenting Athletes' Fear of Failure as Predicted by Disagreement Between Coach Self-Reports and Athletes' Perceptions*



*Note.* Z axis = Athlete fear of failure; X axis = Coaches' self-report of behaviour (centred); Y axis = Athlete perceptions of coaches' behaviour (centred). Model A, Internal control on fear of failure; Model B, External control on fear of failure.

Figure 5.2

*Models Presenting Athletes' Competitive Anxiety as Predicted by Disagreement Between Coach Self-Reports and Athletes' Perceptions*



*Note.* Z axis = Athlete competitive anxiety; X axis = Coaches' self-report of behaviour (centred); Y axis = Athlete perceptions of coaches' behaviour (centred). Model A, Internal control on competitive anxiety; Model B, external control on competitive anxiety.

that when coaches were underrating their use of externally controlling behaviours, meaning they reported lower scores in comparison to their athlete, the athlete's competitive anxiety increased. There was no support for the degree of this relationship becoming more pronounced as the direction did ( $b = .03, SE = .11, p = .786$ ). An examination of model A shows that competitive anxiety was at its lowest for athletes when the coach perceived moderate levels of control, whilst the athlete perceived low levels; increasing when the coach perceived lower or higher internal control. When compared to the same outcome in relation to external control, this suggests that even very low levels of internal control are related to an increase in competitive anxiety, which can be influenced by differing coach perceptions of their own behaviour. When examining the impact on competitive anxiety, both model A displaying internally controlling perceptions, and model B displaying externally controlling perceptions, show that regardless of the coach's report of their controlling behaviour, when the athlete reports either behaviour as being high then their competitive anxiety is also high.

#### 5.4 Discussion

The present study examined the association between coach-athlete dyad perceptions of the coaches' internally and externally controlling behaviours, and their athlete's fear of failure and competitive anxiety, finding initial evidence that different relationships do exist. The surface testing analyses found that when the perceptions between coaches and athletes were congruent and high, there was a positive association with fear of failure and competitive anxiety. The results did not suggest that this became more pronounced in effect if athletes had rated their coaches as using high control. Importantly, the results also found that if the perceptions were incongruent, athletes experienced greater fear of failure and competitive anxiety if their coaches had underrated their controlling behaviours, in comparison to overrated. Similar to the congruent perceptions, none of the models inferred that as the degree of incongruence increased, neither fear of failure nor competitive anxiety became more pronounced. In terms of the present sample, it is important to acknowledge that even though on average the athletes and coaches rated the use of externally and internally controlling behaviours as low in relation to the scale midpoint, there were still differences present amongst the relationship of these perceptions and athlete negative outcomes. Thus, acknowledging that even at lower levels of these behaviours, such differences are apparent in this sample. This shows the importance of ensuring controlling behaviours are minimised in their use by coaches as they can impact an athlete negatively even at low levels. Overall, the study found support for all four hypotheses and was able to provide an initial interpretation of the research question posed. As such, in terms of examining



whether differences existed in the outcomes based on external or internal perceptions being measured, these will be examined throughout the discussion when considering how the hypotheses were answered.

#### ***5.4.1 Examining the Accuracy of Reported Coach Behaviour***

With regards to hypothesis 1, interestingly the coach-athlete dyads were spread across the three categories of incongruence and congruence, with the divisions of close to a third in each being similar to the findings in Rocchi and Pelletier's (2018) study. The present research included male and female participants from a wide range of sports, expanding on previous limited research, supporting the presence of their identified dyad combinations across genders and sports, increasing generalisability. This therefore supports that coaches within this university environment can be subject to under reporting their use of controlling behaviour and may tend to be more positive about their behaviour towards athletes (Ntoumanis, 2012; Smith et al., 2016). This is an important finding as the focus for this study was on the darker side of coaching behaviours, showing that coaches can be unaware of how negative (higher scoring in control) they may be appearing to their athletes. As highlighted previously, in the case of the coaching behaviours, this research supports that it is the athlete's perception of these that is most important (Blanchard et al., 2009; Hollembek and Amorose, 2005; Rocchi & Pelletier, 2018). Findings such as these help to support the need to encourage coaches to take into consideration the way in which their athlete may perceive their behaviour, rather than solely their own view. The present study also found a third of coach-athlete dyads were categorised as incongruent with the coach-overrating. Although this can be interpreted as a less harmful influence on an athlete due to the acknowledgment of their negative behaviour, it is still highlighting that coaches may not be providing the most accurate overview of their behaviour in self-report studies, meaning an impact on validity and reliability of such results (Bound et al., 2001; Rocchi & Pelletier, 2018). These findings support the importance of studying differences between coaches' and athletes' perceptions of controlling behaviours, in order to help coach education consider how to bring these to a greater level of similarity within the university sport environment.

The examination of these coaching behaviours within the university environment, has expanded the current knowledge on dyad and congruence findings by studying these using a different sample to previous research; e.g., Rocchi & Pelletier (2018) who focused specifically on basketball and figure skating coaches and athletes. Further, the present study on coach-athlete dyads which are formed when students are at university, provides a different context to explore based on the more restricted length of time that coaches and athletes may be

training together. When comparing this to local club contexts, or elite level, it is expected that on average a student will be at university for 3-5 years (HESA, 2019). Because of this, studying the congruence in perceptions identified between athlete and coach within the university context, can be beneficial for identifying how accurate these are, and whether education should be adapted to enable coaches to be identify their use of controlling behaviours when working with students who they may not have spent as much time with.

It is also important acknowledges the extra elements a student is having to face when at university (e.g., living independently, academic pressures), meaning that university coaches must be more aware of the way they behave towards these athletes, potentially compared to regular club athletes who will not be experiencing these additional pressures. Further, in relation to the pressures identified for a university coach, compared to a local club coach (e.g., needing the athletes to perform highly within the BUCS league tables to secure their job in the future, or further funding), means they may have a greater tendency to use control. However, the results from this study suggest they can perceive using less control than reported by their athletes. Due to coach education not focusing on the potential pressures that a coach may face within a university setting, their own awareness of recognising these is reduced, resulting in a greater chance of relying on controlling behaviours to manage. Further, alongside these pressures, the coach and athlete may be training together comparatively less than those coach and athletes in local club settings, due to university training structures often being less regular due to a restricted facility and coach availability, and free time available outside of academic study.

It is important to consider why no significant differences were present across any of the coach-athlete dyad groups for either internal or external control, for gender of athlete or coach, time spent in the coach-athlete dyad or type of sport (team or individual). Firstly, despite these results, it should be acknowledged that it does not appear to be more likely for males or females to be over- or under-raters of their behaviour. This highlights that coach education on perceptions of behaviour should continue being delivered in the same manner to both male and female coaches. It is possible that there were no differences between the groups based on time spent in the coach-athlete dyad relationship due to most relationships being less than three years; the average time spent at university. This contrasts with research by Jowett and Clark-Carter (2006) who found that newly developed relationships (varying between 6 months to 2 years), showed greater levels of empathic accuracy than those who had been in relationship for longer than 2 years. Thus, suggesting that the duration of a coach-athlete relationship may have been a more dominant factor when comparing dyads with

coaches and athletes who have worked together for a greater or less amount of time in a different context (Jowett & Nezlek, 2012). Finally, the absence of differences in terms of whether the athlete was from a team or individual sport is surprising as it would make sense that perceptions were more likely to be incongruent between coach-athlete dyads which were from team sports due to the relationship being less personal than in an individual sport; due to less direct interaction (Jowett et al., 2005; Rhind et al. 2012). As the present study randomly selected an athlete from team sports for the coach to answer their questionnaire on, this supports that this result of no differences to individual sports is not just because the coach had chosen an athlete they felt closer to out of their cohort. Alternatively, this also highlights that regardless of the one-on-one, or team nature, surrounding the coach-athlete dyad, it is still possible for incongruence to exist. Thus, suggesting that coach education across sports should focus on lessening the possibility of incongruence in perceptions happening through strengthening the coach's ability to recognise the behaviour they are using.

A potential starting point to address incongruence in perceptions would be to inform National Governing Bodies on the importance of including awareness of coaching behaviours within their qualifications. Whilst a coach may be able to identify the difference between using behaviours that are positive or negative within their training, the deeper breakdown of identified sub-dimensions of autonomy-support and control are not integrated into current education. By outlining these, a coach would find this much easier to recognise, initially it may be seen in others before a coach is able to recognise their own use of external or internal control. In terms of the need to have high levels of co-orientation within a coach-athlete relationship (Jowett & Cockerill, 2003), stronger emphasis should be placed on athletes communicating regularly with their coach through feedback and reviews of their training sessions and competitions. The use of such time can be used to grow the bond between coach and athlete, as well as encourage discussions surrounding elements in the relationship that potentially either the coach or athlete would like to improve. Moving the coach-athlete relationship beyond only being an authority figure teaching a less knowledgeable individual a sport related skill, helps to acknowledge the many aspects within the sport environment that can be improved to create adaptive outcomes and facilitate personal development (Banwell & Kerr, 2016).

#### ***5.4.2 Congruence and Incongruence in Perceptions: Relationships with Athlete Outcomes***

The second hypothesis was supported finding that both fear of failure and competitive anxiety were positive when athlete and coach perceptions of external and internal control were high. Further, the findings supported lower levels of both outcomes

when congruent perceptions on the controlling behaviours were also low. These findings show the importance of understanding the presence of interplay between both coach and athlete perceptions on the athlete's outcomes, in particular when examining the harmful effects of controlling behaviour. These findings align with SDT, in that perceptions of coaches using controlling behaviours will increase in athletes' experience of negative outcomes such as burnout (Bartholomew et al., 2010). The present study shows a development on previous research, as there has not been an examination of the influence of external and internal controlling behaviours from an athlete's and their coach's perspective on the athlete's negative outcomes. The differences found for both fear of failure and competitive anxiety for both internally and externally controlling behaviours will be examined in greater detail, in an attempt to explain why these findings emerged.

**5.4.2.1 Fear of Failure.** In comparison to the findings related to congruence in perceptions, the results of incongruence differed. Fear of failure was higher for externally controlling underrating dyads, when compared to overrating dyads, whereas it was higher for internally controlling overrating dyads for both their externally and internally controlling behaviours. This highlights that when coaches are less aware of their use of externally controlling behaviours, and underrate themselves, the athlete experiences much higher fear of failure, in comparison to the same dyad scenario with internal control. Based on previous research which has examined an element of externally controlling behaviours, when a coach uses controlling rewards, this can impact the athletes' feelings of competence and as such have a negative impact on athlete outcomes (Matosic et al., 2014). Another reason for the differences in perceptions, may be explained by a coach viewing the use of such externally controlling behaviours as being more acceptable in the competitive sport environment (Cheon et al., 2015). It is possible that by showing a lot of interest in their athlete's schedule outside of training (excessive personal control) and offering to reward them if they do well is viewed by the coach as motivating rather than controlling. The present study's findings highlight the importance of making coaches more aware of the different types of control they are using and the negative influence these have on athletes. It is important to note that just because it may seem an acceptable form of behaviour within the given context, that does not mean it is the best for the athlete. More specifically, the study by Matosic et al. (2014) focused on the use of scholarships, with those in receipt of the higher scholarship being associated with the strongest perceived controlling coach behaviours. This provides a realistic example of how a scholarship can be viewed as a positive reward to achieve, however, can also be negative for an athlete when it is being aimed for within a controlling environment (Deci et al., 1999).

In the case of it being perceived as normative for athletes to be exposed to controlling behaviours in this environment, it should not be assumed that they are expected to accept this at the risk of their own well-being (Lazarević et al., 2014). As such, whilst there are potential explanations for the unexpected findings within the present study, this does not indicate that athletes will experience the most adaptive environment. The acceptance of controlling behaviours being normal and required within competitive levels of sport should be addressed in greater detail in future research to identify why this appears to be tolerated. Qualitative inquiry with coaches to explore their reasons behind adopting controlling behaviours, or initially understand their knowledge on the different approaches used in their sessions, would help to expand the understanding on why this has become more common place. Moreover, the application of these findings within the university context is important when considering the additional pressures that students are facing during their studies (Denovan & Macaskill, 2016). As such, a student who is struggling with their academic deadlines and independence, who believes that to be part of a university sport team involves accepting internally or externally controlling behaviours from their sport coach, could become a very vulnerable individual. The responsibility in avoiding this situation from occurring should be placed more so upon both the coach, sports club itself and university, to avoid the athlete being positioned as the one expected to recognise inappropriate used of behaviour; especially when coaches are considered to hold a position of authority within the coach-athlete relationship (Jowett, 2005; Narwal, 2014). An inclusion of aspects on athlete welfare in relation to the use of controlling behaviours and abuse should be integrated into future coach education (in addition to standard safeguarding requirements and practices) to identify the damaging effects these behaviours can have. As such, irrespective of the environment coaches are working in (e.g., club, university, elite), it is vital to inform them that the reliance on the use of predominantly controlling coaching behaviours is not effective and can result in harm being placed upon the athlete.

An examination of the RSA graphs inferred that fear of failure was greater for athletes when the coach was underrating their use of external control, opposed to when they both agreed this behaviour was high. This is interesting as it is possible that this is because when the athlete views external rewards as being potentially unobtainable their fear of failure increases, with their coach being unaware of this behaviour creating a negative impact. Therefore, the use of excessive personal control may also not seem extreme to a coach, compared to their athlete. The effect that rewards can have on an athlete, can depend upon the extent to which they are used in a controlling manner by the coach (Ryan & Deci, 2002,

2007). Therefore, although the coach may believe they are offering rewards to their athlete to help motivate them, if they are unaware that they are doing so using controlling behaviours, they will not realise the negative impact this is having on their athlete. Research has found that athletes who were rewarded with a sport scholarship and perceived their coach as low in their use of controlling behaviours, reported a positive association between their competence and scholarship status (Matosic et al., 2014). Whereas when athletes perceived their coach to be more controlling, this showed that no association existed. This highlights the importance of the type of coaching environment in which rewards are presented to athletes. This research continues to provide support as to why coaches can use external control through the use of rewards, but alongside the use of autonomy-support, creating a supportive environment. Thus, resulting in a more positive experience for the athlete as the informational element of the reward is more likely to be salient; lessening fear of failure due to the reduced pressure (Quested & Duda, 2010).

The aforementioned results discussed on external control differ to those on internal control, finding that fear of failure was greater for the athlete when perceptions were equally high in internal control, in contrast to when the coaches were underrating, resulting in lower reports of fear of failure from athletes. Future research is required in order to explore whether this may be due to the athlete experiencing greater fear of failure when they know their coach is intentionally trying to use harmful behaviours, in comparison to when the coach may not appear to acknowledge the way they are behaving as internally controlling. If the athlete believes that the coach-athlete bond is being damaged and therefore could become worse if they lose a competition or perform badly, then it is understandable as to why their fear of failure is increasing. As the bond becomes manipulated and less trusting, the dyadic nature of the relationship is damaged, ultimately leading to a negative outcome for the athlete. An explanation of the athlete feeling less fear of failure when the coach rates their internally controlling behaviour as lower than the athlete, may be explained by the athlete acknowledging this behaviour, yet perceives the behaviour in a more positive manner due to the performance climate they are in, when the coach is unaware, the athlete may consider that they are not behaving controlling on purpose, reducing the negative impact when compared to having a coach who has the same perception (Miller et al., 2005).

These comparisons in external and internal control highlight that the use of external control can be more prevalent on an athlete's fear of failure if the coach underrates their behaviour by suggesting they are less externally controlling than the athlete perceives. With regards to the use of externally controlling behaviours, the present study's findings would

suggest that coach education needs to increase coaches' awareness of the use of behaviours such as the controlling use of rewards, or excessive personal control. Currently, it is possible that coaches may believe externally controlling behaviours are truly beneficial to their relationship with their athlete, as such not believing their external pressures are harmful. However, the findings of incongruence where a coach is underrating their use of external control, would suggest that they do not believe they are using rewards or control in a negative manner. Research has found that athletes who received feedback from their coaches in an autonomy-supportive manner, had positive experiences from this and improved their performance (Mouratidis et al., 2010). This suggests that although coaches need to provide their athletes with feedback, there are ways in which they should adopt to ensure this is not done so in a negative way, reducing the detrimental effect on their athlete. Instead, by providing the feedback more effectively, such negative feedback can be useful for the athlete's development and growth in their sport (Ryan & Deci, 2017). Further, research has found that when rewards are used, it is important that they are given to reward a behaviour rather than an outcome (Ryan & Brown, 2005; Ryan & Weinstein, 2009). Through rewarding an outcome, an athlete will be subject to using any manner to achieve the most positive result. Individuals are therefore likely to use the quickest method or easiest pathway in order to get to this outcome, which may increase their use of immoral behaviours (Ryan & Brown, 2005; Ryan & Moller, 2016). However, the use of rewards in a controlling manner, is likely to increase an athlete's fear of failure as they know that earning their reward depends on winning (the outcome), rather than trying to perform to their best (behaviour).

**5.4.2.2 Competitive Anxiety.** The present study's findings support how coaches' behaviours can have an influence of the anxiety an athlete experiences. This extends previous research which has suggested that an athlete's anxiety would increase when there is a negative relationship between the athlete and the coach (Baker et al., 2000). The findings that competitive anxiety was rated as high for athletes when they perceived both external and internal control as being high, regardless of the coach's perceptions is interesting because it shows the importance of understanding how the athlete perceives behaviour. These results show that whether or not the coach thinks they are being controlling, as long as the athlete perceives high control this will ultimately result in the harmful impact on their anxiety. The result that athletes' competitive anxiety was moderate even when they were in a dyad in which their perceptions of internal control were low, highlights the importance of the coach always avoiding these behaviours. This differs to perceptions of external control, in which as long as the athlete perceives this behaviour as low, competitive anxiety remains low. These

findings may be explained by research which found that excessive personal control had a stronger association with the trait anxiety aspects in comparison to intimidation and negative conditional regard (Cho et al., 2019). Thus, identifying why a clearer relationship is shown for external control and athletes' competitive anxiety. Controlling behaviours which use external rewards are likely to switch athletes' focus from being about doing well for their own enjoyment, to focusing on doing well for others, in the long-term leading to greater anxiety over competition due to the pressures to perform well for others (Ramis et al., 2019).

The study's results suggest that the athletes within this sample find their anxiety is reduced in the competitive environment when they perceive there is a moderate use of internally controlling behaviour and the coach perceives this as low, potentially due to seeing this as more normative within the context they train or compete in (Cheon et al., 2015). For athletes who are competing at high level, this can be interpreted by the understanding that athletes may expect their sporting experience to include some intimidation from their coach, or be more accustomed to the withdrawal of attention when mistakes are made. It is possible that athletes from a competitive environment find a moderate presence of this behaviour as more acceptable in relation to experiencing competitive anxiety, in comparison to none or an excessive amount. Therefore, a mild use of these behaviours may be interpreted by the athlete as the coach being interested in their performance, rather than controlling. Alternatively, some athletes may not process all anxiety as being a negative experience for them, depending on the levels of autonomy-support they perceive from their coach's behaviour (Cho et al., 2019). This would suggest, when an athlete rates the external control as low, different levels of this from the coach's perspective can influence the athlete's competitive anxiety still. In contrast, low external control or too much, may be deemed as intrusive or uncaring. Alternatively, athletes who are consistently exposed to internally controlling behaviours, where they are punished for mistakes and intimidated, may begin to rationalise that this is something which coaches do for the athletes they desire to do well (accepting the behaviour as normative; Cheon et al., 2015) and therefore will tolerate this behaviour so as not to appear as though they are unable to handle the pressure being placed upon them. Therefore, athletes competing at a more elite level, may believe this is how the best athletes are developed and recognise their exposure to anxiety is increased in this environment (Masaki et al., 2017). However, if an athlete was to show weaknesses to such internally controlling behaviours and suggest the way their coach is behaving is not working for them, it is possible that the coach may believe the athlete is taking things too personally, in order to guilt them into accepting this behaviour. The use of internal control is



psychologically damaging as it can include mental and emotional damage from the coach on the athlete. Due to this, it is likely that athletes who do not show physical damage from such behaviour, and instead are suffering from anxiety, accept that it is meant to be part of the elite culture and attempt to cope with the behaviour. In terms of the long-term impact such behaviour may be having on athletes, during an incredibly pressurised time at university, individuals such as those in the study should be subjected to a positive experience in their sport from their coach in order to promote and increase their sustained interest in their sport.

The present study's findings support the importance of acknowledging the link between controlling coach behaviours and potential athlete welfare concerns. The examination of athlete-coach dyads that were congruent in control, and scored lower in negative outcomes (due to there being an element of acceptance that this is the behaviour used in their coaching environment), are those which should be addressed for potential issues arising. As highlighted by Kavanagh et al. (2017), when an individual is exposed to ongoing deliberate non-contact behaviours, by someone in an important relationship role, this can result in harm to their well-being; affective, behaviour and cognitive aspects. Furthermore, the danger lies in athletes accepting this behaviour on the belief that this is a normal part of the competitive sport context (Stirling & Kerr, 2013). Therefore, the findings in this study identify a crucial element of the coaching context in which this type of behaviour is being accepted in part to get athletes to show that they are mentally tough enough to compete (Coakley, 2015). As such, future research should address the reasons why athletes are accepting of these controlling environments. It would be beneficial to approach this future direction using qualitative inquiry, to enable a deeper understanding of the reasons behind why athletes are comfortable training and competing in a potentially abusive context, which can only serve to harm their well-being and increase negative outcomes (Kerr & Stirling, 2017).

#### ***5.4.3 Limitations and Future Research***

The hostile and harmful outcomes created by a 'win at all costs' environment in sport, is more common in elite athletes (Nicholl & Price, 2017). Therefore, future research needs to be able to provide coaches with the skills and awareness to motivate their athletes to win without negatively impacting their experience. Competitive environments are pressurised and athletes who are serious about their sport will find themselves in these for a significant amount of time, therefore research should examine how to minimise the experiences of outcomes such as fear of failure and competitive anxiety. The present study was able to expand upon recent research which had examined the associations between general

perceptions of coaching behaviour and athletes' basic psychological needs (Rocchi & Pelletier, 2018) by focusing specifically on internally and externally perceptions and negative athlete outcomes.

The issues of controlling behaviour can be influenced by whether the elements of control are viewed from the athlete's or coach's perspective (similar to research within the bullying context; Kowalski, 2000). As shown by this chapter's findings, it is important to acknowledge that coaches will often perceive their behaviours to be more light-hearted and less controlling than their athletes do. Thus, supporting the requirements of ensuring coaches and athletes are given the opportunities to improve their levels of congruence, to increase the positive outcomes experienced by the athlete. As such, the practical applications from this chapter are useful to assist university club committees and personnel to become an integral part of ensuring athletes avoid being exposed to abusive practice from coaches. Future research should aim to explore safeguarding, welfare, and abuse protocols in place for identifying and managing controlling behaviours. The expansion of the network of individuals who can monitor the likelihood of negative behaviours being adopted within a sporting context would help to prevent negative outcomes from being experienced. Furthermore, having a robust system in place to manage this within a university sport club setting will be beneficial for consistency between a regularly changing committee.

However, there are some limitations that exist which could be addressed in future research. Firstly, the use of a cross-sectional design means that the data collected was limited in its application in terms of understanding how these behaviours may change during different times in the season of each sport. In order to address this, the use of a longitudinal design in the future would enable the tracking of how these relationships may develop across the sporting calendar. The study chose to focus solely on the autonomy-thwarting aspects of control and therefore the externally and internally controlling elements of control originally outlined by Bartholomew et al. (2010). However future research could examine similar negative outcomes by using coach and athlete perceptions of all three need thwarting behaviours as per Rocchi and Pelletier's (2018) study. Further, future research should aim to explore ways in which coaches self-reporting in surveys can be influenced less by self-bias and therefore more accurate and in line with their athlete's perceptions. A greater understanding of the reasons why most coaches are viewing their behaviour inaccurately compared to their athlete, would offer insight into incongruence in perceptions. Through helping coaches and athletes to understand the importance of being honest when participating in studies which

explore controlling environments within a competitive setting, will enable the most effective application of findings. The greater our understanding of why controlling and need-thwarting strategies are still used, regardless of the knowledge that need support is superior, can only strengthen the interpretation and impact such results can have on educating future coaches on behaviour within this environment.

## Chapter 6

### General Discussion

University sport is a competitive, and often pressurised environment for both coaches and athletes training and competing at the BUCS level. These pressures influence the way in which coaches and athletes interact, often resulting in the coach adopting controlling behaviours in order to manage the negative aspects in this environment (Morbée et al., 2020; Rocchi & Pelletier, 2017; Stebbings et al., 2012). Whilst the negative effects of using controlling behaviours are known, they are still commonly adopted by coaches and therefore a greater understanding of the dimensions of control are required to further extend the research literature. Coaches who have been reported to rely on placing excessive pressure on their athletes in order to be successful through their sporting achievements, have been found to decrease their athletes' enjoyment and commitment to their sport, as well as increasing burnout (Alcaraz et al., 2014; Cantu-Berrueto et al., 2012; Castillo et al., 2012). The overall aim of the present thesis was to examine the two dimensions of control in relation to autonomy-thwarting coaching behaviours, alongside the use of autonomy-support; examining the antecedents and differences among coaches; the differences among athletes and predictors of outcomes; and to understand congruence and incongruence in perceptions of behaviour and their relationship with negative athlete outcomes.

The theoretical framework used for this thesis was SDT, providing the opportunity to explore motivating behaviours, basic psychological needs, motivation regulations and both positive and negative outcomes. This discussion begins with an overview of the findings from each of the three studies which investigated: 1) profiles and antecedents of coaching behaviours, 2) athletes' perceptions of coach behaviour profiles and the prediction of athlete outcomes, and 3) coach-athlete dyads and associations with outcomes linked to congruence or incongruence in perceptions of coach behaviours. Following this, the theoretical and practical implications of the findings in this thesis will be presented, finally completing the discussion with considerations for future research and a conclusion. Overall, the results from this programme of research extend the theoretical and conceptual understanding of controlling coaching behaviours. Further, they complement existing research on coaching behaviours through contributing to the literature from both coaches' and athletes' perspectives, providing theoretical and practical significance of the findings. Therefore, this thesis provides a valuable insight for future researchers and coach educators to develop the way controlling behaviours are understood in terms of both their antecedents and impact; hopefully reducing the reliance on these within a competitive environment.

Research has predominantly relied on examining coaching behaviours from the athlete's perspective, whereas studies measured from a coach's perspective are commonly investigated in relation to athletes' performance or motivation, neglecting other coach outcomes (Lyle & Cushion, 2017; McLean & Mallet, 2012). The advantages of using autonomy-supportive behaviours from both an athlete's and coach's perspective are well documented, however the examination of this alongside dimensions of controlling behaviour within a competitive environment is limited. Within the last decade, more studies have begun to focus on this darker side of coaching, acknowledging the distinct nature this can have in comparison to autonomy-supportive behaviours (Bartholomew et al., 2011a; Matosic & Cox, 2014; Haerens et al., 2018). Despite the awareness that autonomy-supportive behaviours are the most adaptive, it is evident that within environments such as competitive sport, controlling behaviours are still relied upon (Cheon et al., 2015). For this reason, it was important to examine these behaviours in more depth in terms of the two dimensions of control and consider how these may work alongside but also be distinct, as well as considering the role autonomy-support plays.

The examination of coaches in high performance sport, in which the responsibility of a coach is to help their athletes push beyond their comfort zones, in order to achieve peak performance in their sport has commonly neglected investigation into the different dimensions of control (Cheon et al., 2015; Pelletier et al., 2002; Taylor et al., 2009). Thus, this elite environment can expose coaches to pressures to achieve results, manage different roles and responsibilities, as well as facing work-life conflict (Frey, 2007; Stebbings et al., 2015). Although athletes have been seen as the main performer within the competitive sporting environment, research has also acknowledged that the coach can also be considered as a performer who has to manage various difficult situations whilst trying to maintain positive psychological and motivational states (Gould et al., 2002). There has been some investigation into the differences between internal and external control within both the parenting and teaching contexts (De Meyer, 2016; Soenens & Vansteenkiste, 2010). However, within a competitive sport context, in which controlling behaviours may be deemed as more normal and acceptable, these behaviours can still have negative influences on athletes and the coach-athlete relationship (Bartholomew et al., 2011a; Van den Berge et al., 2013). Emotional abuse has been defined as non-contact behaviours, which appear in a deliberate pattern from a person within a critical relationship, in which there is a potential to harm the other within this relationship (Stirling & Kerr, 2008). Within the sport context, coaching behaviours such as humiliation, denial of attention, yelling or intimidation would all be categorised as emotional

abuse on athletes (Stirling & Kerr, 2008). Literature has termed some of these behaviours as being identified as controlling (Bartholomew et al., 2010). Aspects of emotional abuse and controlling behaviours have been under researched, and often misinterpreted due to these being normalised as a way in which talent, resilience and mental toughness can encourage the strongest athletes to make it to an elite level (Kerr & Stirling, 2017). As such, it was highlighted that the investigation of these within a competitive university coaching environment would further extend the knowledge on why coaches often default to using control, and how this may differ between external and internal dimensions. Overall, this thesis found consistent evidence across three separate studies to support that externally and internally controlling behaviours are distinct dimensions of control which can co-exist with autonomy-supportive behaviours.

## **6.1 Summary of Research Findings**

The following sections of this discussion will summarise the key findings from the three studies within this thesis.

### ***6.1.1 Aim: 1) Antecedents of coach behaviour profiles – examining combinations of autonomy-supportive, externally controlling and internally controlling behaviours, their associations with coaches' needs and motivation, and their antecedents***

The first study in this thesis aimed to identify the different types of behaviour profiles that existed from coaches' perspectives, including autonomy-support, external control and internal control as the aspects creating these profiles. Contributions to the existing body of literature on coaching behaviours include identifying that external and internal control can be perceived independently, alongside autonomy-support. Four distinct profiles emerged from the sample in this study; 1) internally controlling, 2) autonomy-supportive, 3) controlling, and 4) autonomy-supportive and externally controlling. These profiles were encouraging as the emergence of a profile which was dominated by internal control, as well as a profile that had greater external control (alongside autonomy-support), provided strong evidence that coaches are able to distinguish between the use of these behaviours and further extends the literature beyond profiles which have included control overall (Amoura et al., 2015; Haerens et al., 2018), or using the subscales separately (Matosic & Cox, 2014). A further interesting result from these four profiles was that some coaches identified themselves as using controlling behaviours in favour of autonomy-support; showing that despite this being an undesirable type of behaviour the findings were able to reveal two negative profiles; internally controlling and controlling. Studies exploring controlling behaviour have discussed how this is a sensitive area of research that can be difficult to capture information on, particularly in a

context where it may seem appropriate considering the high-stakes nature of competitive sport (Bartholomew et al., 2011a; Cheon et al., 2015). However, the present study has highlighted that coaches can be aware of their use of controlling behaviours, providing encouragement for future research to continue to explore controlling behaviours. Another key finding from these profiles revealed that the presence of high autonomy-support appeared to inhibit the use of internally controlling behaviours, more so than externally controlling; as shown by the emergence of an autonomy-supportive and externally controlling profile. This highlights the importance of educating coaches on why they should prioritise the use of autonomy-support, with previous research identifying that internal control can be more harmful for athletes than external control (De Meyer et al., 2016; Hein et al., 2015).

Study 1 also examined the differences in coaches' needs experiences and motivations across these profiles. Firstly, the results revealed that coaches who reported low controlled motivation, still perceived their use of external control to be high. In contrast, internally controlling behaviours were perceived only when coaches reported high need frustration and controlled motivation. The most maladaptive profile for a coach to be in was 'very controlling', as these coaches reported the highest need frustration, and lowest need satisfaction; closely followed by the 'internally controlling' profile. Whereas the most adaptive profile to be in was 'autonomy-supportive and externally controlling', with these coaches reporting the highest need satisfaction and autonomous motivation. This was a particularly interesting finding, as previous research has implied that the most adaptive profile for a coach to be in would consist of positive need experiences and autonomous motivation, and therefore result in the use of autonomy-support and low control (Stebbing et al., 2011). Instead, in the current study the presence of high autonomy-support has occurred alongside the perceived use of external control. These findings highlight how in combination, coaches use these different behaviours even when experiencing positive outcomes but may use control in a less damaging manner when combining with autonomy-support. This study showed a development in the understanding of how coaches may perceive their use of behaviours, and allows future research to be informed on how coaches can report different amounts of both internal and external control, whilst experiencing both low and high controlled motivation.

The findings also suggested that the use of internal control appears to be less when there is a greater presence of need satisfaction. This supports the distinct nature of the controlling dimensions, as the coaches in the 'autonomy-supportive and externally controlling' were still reporting higher levels of external control, despite having high need satisfaction. These findings suggest that coaches do not experience need satisfaction when

they perceive a greater use of internal control, providing insightful evidence for ensuring that coaches are working within environments encouraging positive need experiences as much as possible. This extended previous research which has indicated the importance of need satisfaction when wanting to promote the use of autonomy-supportive behaviours and suggests this can also be associated with a reduced use of internal control (Rocchi & Pelletier, 2017).

In comparison to the 'internally' and 'very controlling' profiles which reported high levels of controlled motivation and amotivation, both the 'autonomy-supportive' and 'autonomy-supportive and externally controlling' profiles reported similarly low levels. These findings imply that the differences existing between the more maladaptive and adaptive profiles are clear in terms of the presence of both controlled motivation and amotivation. Thus, providing further support for previous studies on the associations between controlled motivation and controlling behaviours (Van den Berghe et al., 2014).

Study 1 also explored the different potential antecedents of the three behaviours, including pressures from above (coaching context), and pressures from below (coaches' perceptions of their athlete's motivation). The coaching context and coaches' perceptions of their athlete's autonomous motivation were found to positively predict the use of autonomy-supportive behaviours, and negatively predict external and internal control. These findings highlight that despite the distinctive nature of these behaviours, as shown from the cluster analyses and profiles that emerged, they can still be influenced by the coaching context and perceptions of their athlete's autonomous motivation, although in different directions. In contrast, coaches' perceptions of athletes' controlled motivation was found to only positively predict externally controlling behaviour. This was particularly interesting to explore as it highlighted the importance of ensuring coaches are educated to understand the different ways their athletes are motivated, and the most suitable type of behaviour to depend on in order to benefit the athlete. These current findings suggested that when the athlete was controlled and therefore low in desire to participate or compete, the coach deemed the use of autonomy-supportive behaviours to not be suitable enough to help motivate their athletes. However, it was promising to find that despite the apparent reliance of a controlling behaviour to try and motivate their athletes, the choice of external control over internal control is deemed as the less damaging option of the two; as this avoids the direct manipulation of the coach-athlete bond (Bartholomew et al., 2010). A speculative interpretation of these results was that coaches may be more reliant on the use of external control because they can see the type of controlling strategies they are using and make them more obvious to their athletes



through being indirectly controlling via the use of rewards for example (Vansteenkiste & Soenens, 2005). It is possible that the coaches feel the persuasive nature of external control may be more effective in comparison to the direct approach of internal control or the relaxed approach of using autonomy-support (De Meyer et al., 2016, Matosic & Cox, 2014). Previous studies which have examined antecedents of autonomy-supportive and controlling behaviours have found similar results. As such the findings from study 1 extend these by exploring how the two dimensions of controlling behaviour are uniquely predicted (Rocchi et al., 2013; Stebbings et al., 2012).

### ***6.1.2 Aim: 2) Associations with athletes' needs, motivation, and outcomes with perceptions of coach behaviour profiles***

Building on study 1, study 2 chose to focus on coaching behaviours from the athlete's perspective. Although considerable research has been conducted on how autonomy-supportive and controlling behaviours can affect athletes, there has been no known research that has chosen to investigate the separate dimensions of control in terms of the external and internal aspects from an athlete's point of view. Further, recognising that coaches are not expected to realistically choose to only use one type of behaviour when working with their athlete provides further support for investigating perceived profiles of three types of behaviour; autonomy-support, external control, and internal control. In support of study 1, the findings of study 2 also found that externally and internally controlling behaviours are perceived as distinct, but co-occurring behaviours. The emergence of five distinct profiles within this sample of athletes supported the importance of including these three different types of behaviour when examining profiles from the athlete's perspective, as these differed to the four which emerged in study 1. These five emerging profiles also differed in comparison to those previously focusing on just autonomy-support and control (Amoura et al., 2015; Haerens et al., 2018; Matosic & Cox, 2014). This identifies the importance of examining this field of research from different perspectives, as it is evident that behaviours are not categorised as the same every time. The five profiles included; 1) autonomy-supportive, 2) autonomy-supportive and low controlling, 3) internally controlling, 4) low autonomy-supportive, and 5) controlling. In relation to the two dimensions of control, external control was found to be only slightly higher than internal control in all profiles except 'internally controlling'. Such findings contrast with a previous study conducted in the teaching context, which found that external control was perceived as much greater than internal control (De Meyer et al., 2016). Therefore, this shows that assessing these behaviours within a different context is important as it is evident that they can be more prevalent, and potentially more

normative in an environment related to competitive sport. The profiles also highlighted that perceptions of coaches who used higher autonomy-support, were combined with more moderate uses of both external and internal control. Previous studies have reported the presence of a 'high autonomy-support – high control' group (Amoura et al., 2015; Haerens et al., 2018), however this did not emerge from the perceptions of the athletes in this study, evidencing that their coaches do not appear to employ the use of autonomy-support when using greater external and internal control. This may be an area of concern for coaches who rely predominantly on the use of controlling behaviours, as in this study would not have employed autonomy-support alongside control. As such, this is an important implication for coach education, in that it must highlight how beneficial the use of this autonomy-supportive behaviour is in terms of buffering any increase in internal or external control.

In relation to examining the differences in athletes' needs experiences and motivation across these profiles, the 'autonomy-supportive and low controlling' was identified as the most adaptive profile, whilst the most maladaptive was the 'controlling'. These findings align theoretically, based on a 'high-low' or 'low-high' profile relating to either positive or negative outcomes (Haerens et al., 2018). Several intriguing differences existed amongst athletes' controlled motivation and amotivation in each of the profiles. The findings showed that athletes who were in the 'low autonomy-supportive' profile had the highest controlled motivation, whereas the athletes who were in the 'very controlling' profile reported the highest amotivation. Based on previous literature, it was expected that the highest reports of amotivation and controlled motivation would have been for those in either the 'internally controlling' or 'controlling' profiles, rather than the 'low autonomy-supportive' profile (Matosic & Cox, 2014). However, the findings from study 2 suggest that as the use of control increases there is a greater impact on athletes' amotivation, whilst the moderate presence of control in the low autonomy-supportive profile appears to have a more distinct relationship with controlled motivation. Therefore, these findings suggest that the most damaging combination of behaviours on an athlete's motivation is both high internal and external control, whereas a coach using lower autonomy-support appears to be related closer to athletes with controlled motivation. This further supports the distinctiveness of these behaviours, as previously highlighted that low autonomy-support is not the equivalent of using high control (Amoura et al., 2015; Bartholomew et al., 2010).

An examination of the more adaptive profiles found that athletes in the 'autonomy-supportive' profile who also had moderate controlling behaviours, reported lower amotivation than those in the 'autonomy-supportive and low controlling' profile. This finding

implied that within this sample, there is a more negative relationship with a low presence of control in comparison to a moderate use. Therefore, it is possible that coaches who do not use much control within a competitive environment, may be perceived by their athlete as caring less or putting minimal effort in, resulting in the athlete not seeing the point of participation. This suggests that competitive athletes may believe that it is more acceptable for the coach to use moderate control as this is deemed more normative, therefore associating with less amotivation (Cheval et al., 2017). The different findings in need satisfaction across profiles highlighted that although it was highest for those in the 'autonomy-supportive' profile, it was not significantly different for those in the 'autonomy-support and low controlling' profile. This shows that athletes were more likely to report that their need satisfaction was high when they perceived a high level of autonomy-supportive behaviour from their coach, regardless of low or moderate controlling behaviours. Thus, providing further support for distinct associations being present between the behaviours and needs experiences (Bartholomew et al., 2011a; Vansteenkiste & Ryan, 2013). In terms of need frustration, the study found that even though athletes within the 'autonomy-supportive' profile also reported moderate controlling behaviours, they experienced the lowest need frustration. This again follows a similar pattern to motivation, in that a complete absence of control appears to result in a more negative association for athletes when compared to moderate use. Despite this, athletes within the 'controlling' profile reported the highest need frustration, showing that when compared to the profile dominant in internal control, the use of both external and internal control had a greater association with need frustration. This also provides support for the distinct nature of these controlling dimensions, as the presence of both dimensions of control is different to when one is used significantly more than the other (Bartholomew et al., 2010; Reeve, 2009; Vansteenkiste & Ryan, 2013).

Finally, the investigation into the predictive nature of these three behaviours on athletes' fear of failure, enjoyment and subjective vitality provided important findings on the unique effect these can have. The influence of autonomy-support on fear of failure was negative, whilst external control was positive. These findings matched the expectations that the positive behaviours would associate negatively, and the negative behaviours positively (Castillo et al., 2012; Moreno-Murcia et al., 2013). The surprising finding was that athletes within this study reported internally controlling behaviours to predict a decrease in their fear of failure, as such it was insightful to explore speculative reasons for this. Firstly, it was considered that the use of internal control may be so damaging on the athlete that it results in them no longer fearing failure as their relationship with their coach has been extremely

manipulated, with this chronic exposure to the behaviour reducing the impact (Cheval et al., 2017; Soenens & Vansteenkiste, 2010). Further, another outlook on this finding suggested that athletes in this competitive environment may be able to process certain internally controlling behaviours as constructive feedback; believing they must accept this behaviour from their coach to develop (Chan et al., 2018). Despite these explanations, the use of internal control should not be endorsed by coaches if they are seeing a reduction in their athlete's fear of failure. Instead, coaches should be informed of ways in which they can reduce athlete's fear of failure through behaviours which are autonomy-supportive; as the present study suggests this is also effective.

The second athlete outcome studied was enjoyment, this behaviour was positively predicted by autonomy-support and negatively by external control. The findings on autonomy-support are encouraging as they support existing research which promote the use of positive behaviours leading to adaptive responses such as enjoyment (Sheldon et al., 2011). The absence of any relationship between internal control and enjoyment is interesting and was considered within the competitive environment as perhaps being a behaviour that was too intrusive and manipulative towards the athlete so much so there is no relationship with enjoyment. In contrast, the finding that externally controlling behaviours were predictive of a decrease in enjoyment was considered due to this type of behaviour being more expected within the university sport environment; uses of external rewards, or attempts as trying to have excessive personal control surrounding athletes' studies and life outside of sport (Deci & Ryan, 1985). Considering the pressures of aspiring to do well in university sport and having external forces placed on the athletes, it is theoretically understandable as to why their enjoyment is decreasing when these behaviours are present as they are not as damaging as internal control on the coach-athlete bond (Bartholomew et al., 2010; De Meyer et al., 2016; Soenens & Vansteenkiste, 2010).

Another avenue explored in relation to external control was the possibility of differences in perceptions of the behaviours used between the coach and athlete. Externally controlling behaviours could be perceived from the coach's perspective as a way in which they create planned disruptions or provide rewards in training sessions to replicate the competitive environment, in the belief this may help their athlete to be more prepared (Collins & MacNamara, 2012). However, if this is the case, and yet athletes are perceiving these behaviours negatively and therefore as externally controlling, it highlights the need for athletes' and coaches' perceptions to be compared for congruence. A coach-athlete partnership working with different perceptions is not as effective when the coach may believe

that their behaviour is adaptive, whilst the athlete does not (Jowett, 2007). With this in mind, research has identified that athletes' perceptions of their coaches' behaviours are given priority over the coaches' perceptions, as providing these are positive from the athlete's point of view, the outcomes will also be positive (Horn et al., 2008; Rocchi & Pelletier., 2018). The differences between predictive nature of internal and external control on enjoyment also provided further support for the uniqueness of the two controlling dimensions. The final outcome assessed was subjective vitality, with autonomy-supportive behaviour being the only predictor, which was positive in direction. This finding is crucial for highlighting the distinct impact this behaviour can have, implying that the only way to improve an athlete's subjective vitality is to use autonomy-support within this environment (Adie et al., 2012; Balaguer et al., 2012; Bartholomew et al., 2011b; Berntsen et al., 2019; Cheval et al., 2017). It is encouraging that this positive outcome is not influenced through either external or internal control directly, suggesting the importance of future research exploring how these dimensions may be mediated by other outcomes, in terms of their relationship with subjective vitality (You, 2017). In comparison to the enjoyment outcome, these findings also highlight how these behaviours can be predictive of outcomes in different ways; for example, enjoyment was a positive outcome which did have a relationship with external control, whilst subjective vitality did not.

### **6.1.3 Aim: 3) Congruence and Incongruence of Coaching Behaviour Perceptions**

Evolving from the findings of both study 1 and 2, study 3 chose to address the importance of examining how congruent perceptions from athletes and coaches can impact athlete outcomes. This study chose to use some of the weaknesses highlighted in studies 1 and 2 on how accurate the reports of coaching behaviours perceptions are between coach-athlete dyads; to help address the limitations in the literature of measuring how congruent these relationships are. Using singular coach-athlete dyads, this study examined solely the darker side of coaching behaviours, using external and internal control, whilst measuring their relationship to negative athlete outcomes; fear of failure and competitive anxiety. The dyads were categorised based on whether the perceptions from coach and athlete were congruent, incongruent with the coach rating their behaviour stronger than the athlete (overrating), or incongruent with the coach rating their behaviour weaker than the athlete (underrating). This study further addressed the importance of coaches understanding that regardless of their own perception of their behaviour, it is vital to acknowledge the way that this is perceived from their athlete's point of view (Horn et al., 2008; Rocchi & Pelletier, 2018).

The initial phase in this study found that the sample was split relatively equally across the different dyad groups, which was encouraging for exploring the relationships these had with the outcomes. The results of close to a third in each dyad category match the results from the study conducted by Rocchi and Pelletier (2018); showing these categories are applicable across different samples when measuring different types of behaviours. There were a greater number of dyads with coaches who underrated and overrated their internally controlling behaviour in comparison to their use of external control. Whereas the coach-athlete dyads with the greatest percentage were those who were congruent in their perceptions of external control. These results suggest that the coach-athlete dyads in this study had a better perceived agreement on the use of externally controlling behaviours within the competitive environment when compared to internally controlling behaviours.

As the underrating of controlling behaviour is deemed as the most damaging type of incongruence, it is concerning that nearly a third of the dyads were categorised as this, as previously highlighted it is most important that the athlete perceives the best behaviour; and is therefore either congruent or the coach overrates their controlling behaviour. Although not as harmful, the overrating coach-athlete dyads, are also important to acknowledge as this shows there are a significant number who are also imbalanced in their perceptions of the behaviour being used. Therefore, within the coaching environment, this identifies the potential impacts of the reliability of results from studies using coach perceptions alone (Bound et al., 2001; Rocchi & Pelletier, 2018). In terms of differences across these dyads, neither gender, type of sport, nor time spent as a dyad were found to differ significantly, suggesting these do not impact the level of incongruence or congruence in perceptions of behaviours. This was interesting as Rocchi and Pelletier (2018) only examined female athletes, therefore the present study has clarified that in this sample of athletes, regardless of gender there can be both congruence and incongruence in perceptions. It did not come as a surprise to find no differences existing based on length of time the athlete-coach dyad had been together for, taking into consideration the relatively short duration of time spent at university; the opportunity to examine dyads that had been together for a greater amount of time may have revealed significant differences (Jowett & Nezelek, 2012). Finally, the finding that the type of sport did not differ across the dyad categories was important as it shows that in terms of educating coaches to be more aware of their behaviour this can be generalised across both team and individual sports, as the results infer that this does not differ for a coach who works one-to-one or with a group of athletes.

After identifying three different dyads existing within the sample, this study was able to examine the relationship existing between the congruence or incongruence of perceptions of externally and internally controlling behaviours, on two athlete outcomes. Due to the common focus on autonomy-supportive behaviours and positive outcomes, this study extended the literature by concentrating solely on the two dimensions of control and negative outcomes, to fully explore the darker side of the coaching environment. Firstly, when investigating the relationship with fear of failure, the study found that when the coaches' and athletes' perceptions were congruent and high on both types of control, the athletes reported higher fear of failure, whereas both perceiving low levels of control resulted in a lower fear of failure.

With regards to the effects of the dyad perceptions across external and internal control, when a coach underrated their use of external control this led to greater athlete fear of failure, when compared to underrating the use of internal control. This result highlighted that there is a need for coach education to focus on the use of external pressures and how they are perceived if the incongruence of perceptions of this behaviour are worse than those on internal control. It is possible that coaches within these underrating dyads are not necessarily aware of the types of behaviours they are currently using which are creating external forces on their athlete. As such, the greater negative impact this imbalance in perceptions is creating for athletes' fear of failure needs to be addressed. Further, these findings link to study 2, in which it was suggested that coaches may be using behaviours which associate closely to external control without intending for them to be delivered in this manner; creating confusion between coach and athlete about whether external control is meant to be present or if it is an attempt to replicate the competitive environment. For example, by increasing the pressure felt in training using planned disruptions, an athlete may misinterpret this as becoming overly controlling of the environment; thus, highlighting the importance of always using autonomy-supportive behaviours (Savage et al., 2017).

A further interesting finding on external control was that the coach-athlete dyads where the coach underrated their behaviours, resulted in greater fear of failure reported by the athletes, when compared to the congruent coach-athlete dyads. This identifies that when the use of external control is rated as high by both coach and athlete, there is an awareness between them of the behaviour within the environment in which the athlete is still choosing to participate in. Thus, making it less damaging for them compared to when the coach is underrating their behaviour and as such may be in denial over their use of external control; resulting in a more undermining effect on the athlete as they are perceiving the behaviour

more negatively than their coach. These findings were also applied to the Cognitive Evaluation Theory (Ryan & Deci, 2002, 2007), considering how the effect the use of rewards can have on an athlete can rely on the way in which they are delivered if done so in a controlling manner by a coach. As such, this externally controlling behaviour could be delivered by a coach with the intentions of motivating them to earn rewards. However, when delivered in a controlling manner, they may be unaware of the negative impact they are having on their athlete; instead, rewards offered with an informational aspect can promote a more positive sporting environment and thus reduced fear of failure for the athlete (Ryan & Deci, 2002, 2007; Quested & Duda, 2010). These findings support the importance of examining congruence and incongruence of these behaviours, as opposed to solely focusing on how athletes' perceptions alone of coaching behaviours can impact different outcomes.

Finally, with regards to internal control, congruent coach-athlete dyads, were found to result in greater reports of fear of failure when compared to dyads in which the coach underrated their use of this behaviour. These findings suggested that when the coach-athlete dyad both recognise the presence of internally controlling behaviours this was more damaging on fear of failure; this is the opposite result to perceptions of externally controlling behaviours. This highlights the importance of reducing the use of internal control as much as possible, as even when perceptions are congruent it is proving to be the most harmful for athletes, a finding explained by the more direct nature of internal controlling behaviours (Bartholomew et al., 2011a). Overall, these findings support and expand upon those of Rocchi and Pelletier (2018) who also found that when the coach is underrated their use of a controlling behaviour, this resulted in a more negative impact on the athletes' need experiences than when the coach is overrating.

The second athlete outcome investigated in study 3 was competitive anxiety, with the findings suggesting that this was high when coach-athlete perceptions of externally and internally controlling behaviours were congruent and high. Similarly, when the coach underrated both externally and internally controlling behaviours, the athletes also reported high competitive anxiety. These results highlight that regardless of the coach's perception of these two dimensions of controlling behaviours, athletes' competitive anxiety remains high. However, when both coach and athlete were congruent that these behaviours were low, the competitive anxiety was reported as lower. Interestingly, when examining at internal control in isolation, if both the coach and athlete reported moderate perceptions of this behaviour, the athletes had lower competitive anxiety. Thus, suggesting that the use of this behaviour in moderation may be less damaging on this particular outcome than expected when both coach



and athlete are aware of the use in moderation with the competitive environment, further supporting the acceptance of the use of control by coaches in this environment (Cheon et al., 2015; Cheval et al., 2017).

Another unexpected finding came from the result that when both coach and athlete were congruent and perceived low internal control, athletes had moderate competitive anxiety. Whereas even when the athlete was incongruent with their coach who overrated their use of external control, this still led to lower competitive anxiety. These findings offer two insights; firstly, that a lower perceived use of internal control results in greater competitive anxiety than a moderate use of internal control; further supporting that athletes are interpreting internal control as normative and perhaps the coach being more involved than when not using this at all (Cheon et al., 2015; De Meyer et al., 2016). Secondly, for external control, as long as the athlete perceived this behaviour as lower, it related to less competitive anxiety, suggesting the moderate use of this behaviour would be worse for an athlete. These findings support the importance of future research and coach education identifying and explaining the differences in these uses of control to both athletes and coaches. If the behaviours were to have been perceived in the same manner or had the same relationships with fear of failure and competitive anxiety, there would have been minimal support for considering these as separate dimensions. Further, if there were no differences found between the two types of incongruence, then this would have inferred that it is not necessarily most important to consider how the athlete is perceiving these behaviours when compared to their coach. Overall, the findings of this study show the importance of congruence in perceptions so that athlete and coach are fully aware of the environment they are working within. Secondly, these findings have shown that when there is incongruence in perceptions, a more negative result on the athlete's outcomes is seen when the coach underrates their use of controlling behaviours; this was as expected in terms of placing the importance of the accuracy of the perception lying with the athlete. Furthermore, this study shows how there is room to reduce the imbalance in perceptions between coaches and athletes to improve the overall experience for athletes by broadening their awareness of the two dimensions of controlling behaviour.

## **6.2 Theoretical and Practical Implications**

A key focus of British Universities and Colleges Sports (BUCS) has been to prioritise students being supported by having the best experience in their university sports career. Therefore, the findings from this thesis can be applied to expanding knowledge of developing coaches in this specific environment for a positive outcome for both themselves and their

athletes. In the introduction to this thesis, it was highlighted that an element of the research would be related to expanding Vision aims 2 and 3 from the BUCS strategy. These Vision aims included striving; 1) to enhance the student's experience and develop graduate attributes through taking part in Higher Education and physical activity, and 2) to recognise and create opportunities for the development of coaches, volunteers, and leaders in sport (BUCS strategy, 2017; pg. 17). However, a weakness within this strategy was identified in terms of the absence of focus on the coaches involved in this process; neglecting that a key factor in an athlete's sporting experience can be influenced by their coach (Adie et al., 2012; Bartholomew et al., 2011a; Haerens et al., 2018; Ryan & Deci, 2017). With this aspect of the university sporting environment not being acknowledged within the strategic aims of BUCS, it is therefore possible that achieving the aims focused on athletes would be hindered through the failure to consider the prominent role played by coaches, which requires greater understanding. The focus of the studies on BUCS coaches and athletes has provided several practical applications of the results to consider for future BUCS strategies and coach education. Despite the studies within this thesis being presented separately, overall, the findings have complimented each other to explore perceptions of coaching behaviours more holistically within the university sport environment; as such several recommendations of the uses of these findings are presented. Study 1 aimed to expand the understand of which antecedents predicted the different coaching behaviours, and how these were perceived in combination by coaches. From this, study 2 was able to examine the combination of perceived behaviours by athletes and their impact on three different outcomes. Finally, study 3 provided the chance to examine the darker side of coaching behaviours more specifically, choosing to investigate whether perceptions of externally and internally controlling behaviours, were either congruent or incongruent between an athlete and their coach, and how these differences were related to athletes' fear of failure and competitive anxiety. Overall, the results from the studies presented within this thesis provide several potential practical and theoretical implications and knowledge; the following section aims to provide an insight into how these will be useful for the literature, as well as sports educators (National Governing Bodies) and university related organisations such as BUCS.

### ***6.2.1 Theoretical Implications of Research Findings***

Person-centred research has been beneficial for SDT research on behaviour profiles emerging in both coaching and teaching contexts (Amoura et al., 2015; Haerens et al., 2018; Matosic & Cox, 2014). The use of this approach was vital for the identification of the different combinations of external control, internal control, and autonomy-support within both

Chapter 3 and 4 of this thesis and enabled the examination of the different relationships existing among these profiles. The findings of these studies can be applied to future research on how perceptions of such combinations can be different dependent on the viewpoint and environment these individuals are from. The similarities to previous research using this method provided a useful comparison across settings, whilst the differences that existed allowed an insight into how behaviours may not be perceived in similar combinations from a coach and athlete. Further, Chapter 3 and 4 provide a development on previous research which had chosen to examine control and autonomy-support as two distinct constructs (Amoura et al., 2015; Haerens et al., 2018). The comparisons that were made across the different profiles which emerged in both studies, also provided the opportunity to explore how the presence of autonomy-support may be able to buffer internally controlling behaviours more so than externally controlling, and as such highlights the importance of these three behaviours being considered as distinct but co-occurring constructs (De Meyer et al., 2016).

Chapter 3 provided support for previous research which has examined how different antecedents may influence a coach's behaviour, with a focus on pressures that were perceived from both above and below within the university sport environment (Reeve, 2009; Rocchi et al., 2013; Stebbings et al., 2012). Moreover, it allowed a comparison of whether the separate behaviours examined in this study could be influenced independently. The findings support that the various elements which determine coaches' behaviour must be considered if future research is to explore the most effective way of reducing internally and externally controlling behaviours. Whilst research has previously explored how different antecedents may be associated with autonomy-supportive or controlling behaviours, this study extends the current literature by providing evidence that specifically highlights that coaches' perceptions of their controlled motivation encourages a greater use of external control. This was an interesting finding which highlighted and supports how coaches may have trouble in interpreting their athlete's motivation and understanding the best way to work with them to keep them engaged. As such, research should now aim to further explore coaches' interpretations of their athlete's motivation and understand how they should process this information in terms of the behaviour they adopt. With previous research identifying the problems coaches have had interpreting their athlete's motivation, the present thesis contributes further support for a greater understanding of this area for coaches to lean towards the adoption of autonomy-supportive behaviours regardless of the presence of athletes who are autonomous or controlled in their motivation (Shokri et al., 2014).

One of the key findings from Chapter 4 which extends the current literature were the differences present between internal and external control in terms of predicting fear of failure, supporting their independence and uniqueness as dimensions of control. Further, the findings that only external control predicted lower enjoyment, whilst internal control did not, supported the independent and potentially less destructive nature of this behaviour for a relationship to still be present with this outcome. The absence of both internal and external control predicting subjective vitality supported the significance of autonomy-support being used as much as possible by coaches. Despite this being well-known as the most adaptive form of behaviour for coaches to strive to use, the examination of both types of control within this study will benefit future research as the present findings show that these negative behaviours are still being used. Thus, for as long as coaches are still reliant on the use of such behaviours, the more research should continue to develop the knowledge of dimensions of control; particularly with the present study showing that even low to moderate perceptions of control have shown damaging results on athletes.

Chapter 5 within this thesis chose to focus specifically on the two dimensions of controlling behaviour and their relationships with negative outcomes which can exist within a competitive sport environment. The present research findings provided the opportunity to compare coach and athlete perceptions across the two dimensions of control, and their specific links with fear of failure and competitive anxiety. This study was therefore the first to consider how the differences that incongruence, and the direction of this, can be vital to the understanding of how perceptions of behaviours can influence athletes in the darker side of sport. This research also builds upon previous dyad studies examining coaching behaviour as it used independent coach-athlete dyads, in comparison to previous studies which have formed coach-athlete dyads using coaches who have reported on the generic use of behaviour with a group of athletes rather than a specific individual (Rocchi & Pelletier, 2018). Therefore, this makes the present findings more accurate in terms of the comparisons in perceptions between coach and athlete, improving the reliability of the results found. This study identified differences between the dyad perceptions of external and internal control. The results implied that research should further explore how in competitive environments, an absence of externally controlling behaviours may be deemed as a coach being uncaring, whilst the use of internally controlling behaviours can potentially be perceived as a normative pressure placed on the athlete by the coach, which should be tolerated in order to succeed at this level of sport (Masaki et al., 2017).

### ***6.2.2 Practical Implications of Research Findings***

The findings on the different coaching behaviour profiles found within Chapter 3 and 4 provide a basis to use within workshops which can alert and educate coaches to the different behaviours they are using, but also how these may be seen from their athlete's perspective. Further, the findings allow an opportunity to inform coaches how, for example, if a coach is to engage in a greater use of autonomy-supportive behaviours, this appears to inhibit their adoption of internally controlling behaviours. Chapters 3 and 4 also bring to light the importance of studying this area of research from both the coach's and athlete's perspective, as although some of the profiles which emerged were labelled the same, others differed; for example, only the coaches perceived an 'autonomy-supportive and externally controlling' profile. These findings also imply that within this environment it seems neither the coach nor athlete perceive a 'high-high' profile to exist. Thus, this should alert coaches to understand it is unlikely that if they are relying heavily on both externally and internally controlling behaviours, that they would also adopt any autonomy-supportive strategies. The findings could be applied to workshops and courses attended by coaches, in which they can be exposed to experiencing the different types of controlling behaviours from someone else. This would help to develop their understanding of the differences in these and to raise their awareness of how it feels to be on the receiving end of both external and internal control, with and without autonomy-support.

Both National Governing Bodies and organisations hiring and educating coaches should strive to provide opportunities and knowledge for coaches to be prepared for potentially immersing themselves within a competitive university sport environment. Overall, the findings from Chapter 3 highlight that improving coaches' understanding of how their coaching context and perceptions of their own athlete's motivation could influence the type of behaviour they use. As the coaching context was a predictor of all three behaviours, it is also important to make universities aware of the context they are providing for their sports coaches to work within. For example, if they are placing too much pressure on their coaches, implying their job is at risk without success, based on the present findings, the coach is more likely to resort to using both internally and externally controlling behaviours. Finally, improving coaches' perceptions of their athlete's motivation would help to transform the type of behaviour the coach depends upon. Through intervening with a coach's usual dependency on controlling behaviours when perceiving an athlete to be low in autonomous motivation or high in controlled motivation, developments in coach education on how this can be managed more effectively will bring about the most positive outcomes. Overall, the findings from this

thesis support that the use of autonomy-supportive behaviours is recommended to coaches, as opposed to believing internally or externally controlling behaviours can create an adaptive context for the athlete to train or compete in. Coach education should strive to highlight the existence of controlling behaviours to coaches, as the results from this thesis acknowledge that these are regularly used in combination with autonomy-support, but at varying levels. However, the educational delivery of the controlling behaviours would need to include an outline of why these should not be used. Chapter 4's findings indicated that when compared to high autonomy-support and low controlling behaviour combinations, the athlete's positive outcomes scored lower with any presence of moderate to high internal or external control, even when autonomy-support is used. These results promote the opportunity for coaches to engage in discussion and reflection of their own practice, as it is likely that they will learn to coach more effectively through their own experience of becoming more aware of these types of control (Moen et al., 2016). Further, it would be beneficial to provide coaches with a mentor who could help to facilitate their learning by providing guidance, observations and support their reflective practice (Fraina & Hodge, 2020).

Importantly it would appear that this competitive sport environment requires a change of belief in the use of autonomy-supportive behaviours not being perceived as being lazy or unstructured in the coaching approach. Therefore, educators need to include raising awareness of these antecedents more so within their workshops and qualifications. This means that coach education will need to move beyond only delivering specific sports content and how to work with athletes, instead also including how coaching behaviours may be influenced. The benefits of understanding the correct behaviour to use become irrelevant to a coach if they are not able to interpret and adapt to the environment they are working within, as such understanding the influence this can have on their behaviour. Therefore, if coach education providers were to use the present findings, they would be able to further help coaches to understand that adopting more autonomy-supportive behaviours will create positive experiences for their athletes. As such, this would result in improved performances, and create a move away from the acceptance and normalisation of the use of control within competitive environments. Overall, the importance of autonomy-supportive behaviours being universally adaptive in increasing positive outcomes and lowering negative outcomes, reinforces the need for coaches to strive for this approach.

The emergence of four coach behaviour profiles within Chapter 3 indicates that coach education needs to integrate methods that can help coaches understand that they will be adopting a varying level of each behaviour dimension (e.g., autonomy-support, internal and

external control). Autonomy-supportive dominant behaviours profiles have been recognised as being the most adaptive behaviour for athletes to perceive (Amoura et al., 2015; Haerens et al., 2018). However, the competitive environment appears to suggest a greater acceptance of controlling behaviours within the results of this thesis. Findings such as these should be addressed to continue to develop coach education to understand that coaches may face pressures which can result in the use of controlling behaviour and subsequently the negative effect on athletes. Despite control initially appearing to work effectively or being accepted by athletes, autonomy-support will not expose athletes to any potential harm and therefore should be prioritised in use. For example, if a coach is working with a large group, which includes new athletes and is restricted on time, they may adopt some externally controlling behaviours through the use of excessive control to keep the group on task. This combination of coaching behaviours should not be promoted through coach education. However, the thesis findings support that the inclusion of autonomy-supportive behaviours alongside external control can help to buffer the negative effects often seen within this environment as a consequence of control. Overall, it is essential for coach education to help coaches recognise when they are using controlling behaviours and understand the negative impact these have on their athletes, instead aiming to primarily adopt autonomy-supportive behaviours.

There are also implications for coach education in terms of adapting qualifications and workshops to address that different coaching behaviours can enhance or decrease different experiences of outcomes. Initially, encouraging coaches to adopt autonomy-supportive behaviours is a key element that will result in positive outcomes, as evidenced by Chapter 4's findings. However, with findings suggesting that coaches adopt more controlling behaviours when they perceive their athletes as mostly extrinsically motivated, methods focusing on working with athletes requiring greater encouragement should be integrated into coaching skill education.

Approaches for improving safeguarding within sport is also required based upon the research findings within this thesis to help athletes cultivate athlete-centered cultures and sports organisations that care about those involved in their sport. Therefore, the adoption of research findings by Komaki and Tuakli-Wosornu (2021) suggest that those in charge of clubs and coaches could use safeguarding checklists in which athletes should answer questions about their training and competitive environment. This approach encourages coaches and others to adopt appropriate athlete-centred and autonomy-supportive behaviours, overall improving athlete's well-being and welfare (Komaki & Tuakli-Wosornu, 2021). Athletes would be asked to complete their checklists weekly to allow for results to be summarised on a regular

basis. This process could be set-up via phones or computer submission to ensure data remains confidential. For example, rather than directly asking athletes to report wrong-doing of their coach within their training or competition environment, instead they would be asked to report back on how welcoming their coach is on receiving feedback from athletes. The data collected and displayed in graphs regularly can be used to promote and recognise coaches who are adopting responsible practice and could be used for directors and employees to help acknowledge the good work of their staff. The anonymous results should also help to create discussion within the club and provide a chance to consider suggested adaptations to sessions in upcoming weeks and months. Thus, also providing the opportunity for coaches who may be having a difficult time to look for guidance on improving their coaching behaviour approach. This approach of reinforcement rather than wrongdoing aims to transform the sporting culture (Komaki & Minnich, 2016). Further, for a coach to receive data on their right-doing, rather than wrong-doing, provides them with opportunities to self-correct without being demoralised for negative recognition. This method would also help to empower athletes as the safeguarding metric enables athletes to highlight positive behaviours, creating a shift in the power dynamic between coach and athlete (Komaki & Tuakli-Wosornu, 2021). Moreover, whilst this movement to embrace the use of positive consequences to motivate adaptive behaviour from coaches would be challenging at first, it should be welcomed by athletes who have previously been within a 'suck-it-up' sport context and unable to provide feedback before (Pinches, 2020).

The findings from Chapter 3 provide support for using interventions or workshops that inform athletes of the types of appropriate behaviour for their coach to use. This links to the unexpected finding that athletes reported lower fear of failure when they perceived a greater use of internal control by their coach. Through educating athletes on how to recognise both internally and externally controlling behaviours, they can become more prepared for avoiding being deceived, damaged, or forced into believing this type of behaviour is acceptable. For example, if an athlete can understand that the use of intimidation is not an acceptable type of behaviour, they are more likely to not take this behaviour so personally. Educating athletes to understand that they should be immersing themselves within autonomy-supportive climates as they are more likely to result in the best long-term results, may require a change in beliefs about what makes an effective competitive sporting environment. Practically, the findings from study 2 also supported the direct impact that autonomy-supportive behaviours can play on all athlete outcomes, crucially being the only one related to subjective vitality. This is beneficial for coach educators to understand the



promotion of this behaviour, over and above control. Importantly, these findings show how educating coaches on the damaging effect of using internally controlling behaviours is required to help reduce the adoption of these in a competitive environment.

As the current thesis findings support the presence of both types of behaviour being used (shown in all profiles), this evidences the importance of implementing interventions to always promote a greater use of autonomy-support. With reference to this, it is unrealistic to only advocate for the sole use of autonomy-supportive behaviours. Interventions that do not consider the use of control, avoid enabling coaches to recognise and reflect on their understanding of their use of control. As such, interventions should focus on helping coaches to recognise the pressures they face within their coaching environments, and how these can be managed effectively using autonomy-support, rather than control. Further, this increases the importance of educating coaches on the negative effects of the use of controlling behaviour, in addition to the benefits of adopting autonomy-supportive behaviours autonomy-support. As an example, the use of an intervention study could include three groups of coaches, who are allocated to a workshop each focusing on promoting the use of a specific behaviour predominantly (e.g., autonomy-supportive, externally controlling, or internally controlling). Each group could be monitored across a duration of time to examine which coaching behaviour proved to be most effective when working with athletes, investigating the relationships with athlete performance, well-being or ill being as potential outcomes.

In order to have an effective coach-athlete relationship, congruence in perceptions is key to producing the most positive output; as such it was important to find coach-athlete dyads split across congruent and incongruent perceptions of external and internal control within study 3. Due to the congruent dyads not dominating in either type of control measured, this highlights the need for coach educators to identify for ways in which they can reduce the distance between perceptions found in the incongruent dyads, breaking down the barriers between coaches and their athletes. Study 3 also showed that it is possible for the coach to be perceived by an athlete in a controlling manner, however the influence on the athlete was not as negative as expected. Therefore, clarity between both coach and athlete on the purpose of the behaviour used by the coach will help with strengthening this relationship. In the case where the coach may believe they are in fact helping their athlete through the use of planned disruptions, if a weak relationship with the coach exists from their athlete, it is most likely to be perceived solely as externally controlling behaviours being implemented instead.

Therefore, the findings from this study highlight the benefits of university sports clubs building into their Club structure strategies and policies which enable both coach and athlete to regularly review and consider good coaching practice and outcomes. For example, the regular scheduling of meetings between coaches and athletes to discuss the training and competition environment would be beneficial. These conversations would provide opportunities for reflections from both coach and athlete and a chance to address dissimilarities and changes moving forward. Acknowledging the potential power relationship present between the coach and athlete, it is possible that this set-up for reviewing coaching practice may restrict athletes somewhat if they had something negative to say about their coach. For this reason, those in committee positions within clubs (e.g., welfare officers), should also schedule reviews that enable athletes to feedback their comments on the coaching context in confidence, away from their coach. The issues highlighted within the current study also link into the responsibilities that should still be taken by sport National Governing Bodies in terms of their post qualification continued professional development. Across the wide range of coaching courses available amongst sports, there are no consistent protocols in place for ensuring that coaches are delivering to the expected standard required by each sport Governing Body after receiving the initial qualification. A comparison between local club and university club settings can identify the more stabilised committee foundations that exist in local clubs. In contrast, the committees for university clubs will rotate yearly, often with a complete set of new members as students graduate after 3-4 years. Local club set-ups therefore benefit from having a support network within the club that is more long-term with regards to development, knowledge, and approach for addressing potential issues, queries or scenarios that need to be investigated. It is important that sports clubs aim to create an environment where both coaches and athletes feel comfortable to discuss perceptions of behaviours with each other, to work towards a healthy and adaptive environment for all.

Overall, there is a key perception involved in the process of the coaching behaviour from the coach to the athlete, as whilst the coach could use the same behaviour to two different athletes, due to the athlete's individual differences (e.g., current anxiety levels, or well-being) they may perceive the behaviour to be less autonomy-supportive than the other athlete reports. Furthermore, whilst a coach can take responsibility of their behaviours, they cannot manipulate their athlete's perceptions, emphasising the importance of effective communication and closeness between the dyad (Jowett & Ntoumanis, 2003). Therefore, the integration of schemes which provide supported interaction or feedback sessions from athlete to coach within the club setting would help to give the athlete a chance to feel comfortable

sharing their thoughts and feelings. However, this may be a process previously impacted or avoided due to fears of feelings of rejection by the university club committee or concerns of disagreement with other athletes in the same coaching group. All clubs should be given support by their National Governing Body (e.g., local or university) to ensure they have a club structure in place to support athlete welfare and continuous coach development.

### **6.3 Limitations and Future Directions**

This thesis aimed to contribute to the literature on coaching behaviours within the competitive sport environment, with a particular focus on externally and internally controlling dimensions. However, there are some limitations within the present studies that should be considered for future research. Firstly, a key focus for research choosing to examine the darker side of coaching in the competitive sports environment would be to include measurements of all three dimensions of a coach's need-thwarting style (control, chaos and cold), to build upon the findings of those in the present thesis which investigated autonomy-thwarting (control) behaviours alone. Similarly, the study chose to only examine the autonomy-supportive element of a need-supportive style, highlighting that future research could measure all three dimensions (autonomy-support, structure, and involvement). This will allow an examination of how these may be distinct from one another, but also co-occur and provide greater knowledge of these aspects. Recently, researchers have identified that interpersonal behaviours can also include being need-indifferent. Employing the use of newer measures (Bhavsar et al., 2019) in order to also collect data from athletes and coaches would expand the understanding of how coaches may be influenced towards adopting these, or how each type of behaviour can associate with different athlete outcomes.

Chapter 3 chose to examine the predictors of coaching behaviour and did not consider how the use of these behaviours may also be related to different coach outcomes, such as enjoyment or burnout in their job. It would be interesting for future research to investigate how different behaviour profiles from a coach's perspective may be associated with both positive and negative outcomes, and to see whether both internal and external control may have stronger or weaker links with each of these; further identifying the particulars of their distinct constructs. The inclusion of both negative and positive outcomes would enable an extended investigation into the links between the different dimensions of controlling behaviour. As these were shown to have distinct predictors from the coaching environment on external and internal, examining when the use of either results in a different type or level of outcome experienced by the coach would be beneficial. Further, outcomes such as enjoyment and burnout are very applicable in terms of sustaining the interest and well-being

of a coach at university, but also avoiding the burnout of an individual working within a potentially pressurised environment at times. Similarly, but in regard to antecedents, the first study acknowledged that an expansion on the more commonly researched antecedents would benefit understanding. The dominating focus on the pressures faced by those in a position of authority have been pressures from above and below. Pressures from within are less commonly investigated within the sporting context, and more so, within a university setting; as such exploring individual traits, personality, and opinions could play a significant role in the adopted coaching behaviours.

Future research should aim to employ different research designs and methods of data collection as all three chapters within this thesis relied upon cross-sectional survey data. The use of both longitudinal and observational studies would help to address the weaknesses found in the use of cross-sectional designs previously highlighted within the discussion sections of chapters 3, 4 and 5. A larger participant sample with repeated measurements in which the multilevel structure of the data of time would be nested in individuals and/or athletes being nested in coaches would enable the examination of the interactive influence of antecedents which are time-varying and the relationship between variables related to athletes and those related to their social context (i.e., the coach) to be characterised and examined (Hox et al., 2017). Athletes within the same coaching group may be more alike than those coached by others, meaning that the intraclass correlation between variables measured on athletes from one coach will be higher than the average correlation measured on athletes from different coaches (Hox et al., 2017). Consequently, this may influence the likelihood of finding statistically significant findings and result in errors in conclusions.

Future research may also wish to consider the use of Structural Equation Modelling (SEM) which would allow research questions to explore the sequences that exist between the profiles for both antecedents for coaches and effects for athletes. As the findings from this research programme support the distinct nature of external and internal control, analysing these individually to explore potential pathways between variables would provide an insight into the relationships existing and could be compared to the original motivational sequence (Mageau & Vallerand, 2003). This motivational sequence can be applied to coaches by highlighting how the social factors within an environment (e.g., antecedents of coaching behaviours), can predict a coach's need experiences (satisfaction or frustration), which in turn links to the coach's motivation, and finally predicts their coaching behaviour as the outcome (Mageau & Vallerand, 2003). From the athlete's perspective, this sequence would be initiated by their perceptions of the coaching behaviour (social factor), which would predict their need

experiences, linked to their motivation, and finally predict positive or negative outcomes. The use of SEM would allow a thorough investigation into how the profiles of coaching behaviour can be examined within a sequence; either acting as an outcome for the coach or the social factors for the athlete.

The application of a longitudinal research design to the examination of coach behaviour profiles would enable future research to study if and how profile membership varies over time, further understanding how the antecedents (for coaches) and outcomes (for athletes) are associated with the differences seen over time. The use of Latent Transition Analysis to this work would facilitate the exploration of these important questions. The examination of the dyad sample longitudinally would provide an insight into whether perceptions on coaching behaviours became more aligned as time progressed in the relationship or across the sporting season. For example, the coach and athlete may be more congruent in their perceptions when in the pre-season, as opposed to the competitive phase of their sporting year. Further, longitudinal studies would enable a greater insight into how perceptions of internal and external control may differ across the university competition season, or as they progress through the duration of completing a degree.

Longitudinal research would also help to examine how these behaviours can influence athletes across the duration of their time at university; providing the chance to examine whether these results are because the athletes become less affected by the different types of controlling behaviour after constant exposure, or are more accepting of it as part of the process. The change in pressures experienced by both athletes and coaches across a university semester can intensify from week to week; especially considering the academic deadlines which approach at the end of each semester for students. At least three time points for research could be used to explore the changes over time. For example, at the beginning of the term, halfway through a semester or year, and the end of term or year which would be close to deadlines. Athlete's functioning could also be studied over a period of time in relation to either their motivation, needs, or outcomes, and their perceptions of the three coaching behaviours focused on with this thesis. In relation to the BUCS competition season, it would also be of interest to monitor differences during various training and competitions phases. For example, pre-season training where pressures will be growing, peak competition period when pressures should be at the most intense for athlete and coach, and off-season when training and therefore pressures will be reduced. These examples of different timepoints both in academia and sport provide an insight into the reasons why data collection from both coach and athlete would be beneficial.

A longitudinal analysis of the associations existing between internal control, external control and autonomy-support and the different basic individual need states (e.g., autonomy-satisfaction, competence-satisfaction, autonomy-frustration etc.), as well as potential well-being outcomes would align with the SDT emphasised temporal order from previous literature (Lonsdale & Hodge, 2011). The implementation of three time points will allow the data to show evidence of a linear change over time, whereas four time points (including breaks in between university year in addition to those previously identified) provides the minimum for the exploration of curvilinear change over time. This curvilinear approach would provide greater insight into the key times within an academic year and whether they reflect any 'peaks or troughs' when athletes have high pressure from academic deadlines or coaches are under pressure to consistently produce successful athlete performances. A longitudinal approach would enable research to address some of the following questions: i) what factors predict change in behaviour profile membership over time; examining influences on increases or decrease in external control and internal control, ii) what factors predict changes in coach-athlete dyad profile membership based on congruence or incongruence, across the duration of a university degree.

The use of observation techniques from the researcher would add a third dynamic to the perceptions of coaching behaviours, providing the opportunity to triangulate data and build upon Chapter 5 which addressed incongruence in perceptions. Moreover, using observational data collection methods alongside self-reporting measures, can help to address common method bias, reducing factors such as social desirability (Podsakoff et al., 2012). This approach could also be integrated into both Chapter 3 and 4, allowing a comparison of the observation data to either coach or athlete self-reports. Used within the teaching environment to address issues with inflated self-reports of teaching behaviours, observations have been found to provide a new insight to measuring behaviour that avoids reliance of self-report and potential bias (De Meyer et al., 2014; Hagger et al., 2009). To ensure the observed data could be triangulated with self-report questionnaires, the researcher would rate the items on the questionnaire based on their observations during the same timepoint that the coach completes their responses. Alternatively, a breakdown of the different coaching behaviours and their characteristics could be used to provide the researcher with a scale to rate the observed behaviours they are seeing every five minutes within a session delivery (e.g., adopting a similar approach to De Meyer et al., 2014). These scale ratings would be changed to codes to analyse the presence of the different types of behaviour.

The exploration of this research area could also be studied using a qualitative inquiry approach. The inclusion of individual interviews and focus groups to investigate individuals' experiences and perceptions of the coaching environment and behaviours would provide several narratives that could be examined for potential emerging themes across groups of athletes and coaches. The use of interviews would enable the researcher to gain a greater level of detail due to the involvement in the actual experiences of the participants through discussion (Creswell, 2009). The qualitative approach to research is exploratory and aims to explain why and how a specific social phenomenon operates in the manner it does within a specific environment (Polkinghorne, 2005). It would also be interesting to investigate using interviews, exactly how coaches and athletes view the combinations of the different types of behaviour (autonomy-support, external control, and internal control), extending beyond the profiles which emerged from the quantitative data. For example, why do competitive contexts lend themselves to normalising the use of internal or external control from coaches, and the reduction of autonomy-support? Further, focus groups including individuals from either different levels of competition, or type of sport, could be beneficial for making comparisons to the findings identified within this thesis. Insightful qualitative observations can be complimented by reflective, in-depth interviews, thus helping to engage with the coaching process (Jones & Lavalley, 2009). It would therefore be beneficial to adopt a mixed-methods approach to capture the holistic view of coaching behaviours, rather than perspectives from solely one side; athlete or coach. The adoption of mixed-methods research, to include interviews following the completion of questionnaires by coaches and athletes, would also provide rich data to examine and compare. Questions which encourage the coach interviewee to expand upon the reasons behind their questionnaire scores ratings would enable the exploration of experiences and reasons why coaches adopt different combinations of behaviours.

Developing on the variables used in the present research programme, future focus within longitudinal research could be more refined to specific abuse and welfare outcomes related to the use of controlling behaviours, e.g., athlete's reports of bullying and depression. The variables could initially focus on those similar to the current research programme to enable the tracking of perceptions of coaching behaviours across the academic year; additional data such as workload or competition dates could also assist with tracking relevant antecedents for coaches. The use of Latent Transition Analyses would also be beneficial to examine what predicts changes in coach and athlete profile membership across a period.

Three potential areas to explore in future research using a longitudinal approach, to extend the current thesis chapters are as follows:

- i) Chapter 3: Coach data collected prior to the university terms starting and early training sessions, as well as during peak competition times. This would provide a comparison between the differing levels of pressure present during different times in the year.
- ii) Chapter 4: Athlete data collected from those in their first year of university, and therefore creating a new coach-athlete relationship, followed through their university years, to monitor the development of perceptions in relation to time spent with coach.
- iii) Chapter 5: Dyad data could be collected in pre-season training sessions as well as at competitions. This would provide an overview of whether coaches and athletes are closer in their perceptions of coaching behaviour during one context more than the other. For example, does the coach unconsciously employ more controlling behaviours during competitions.

In view of study 1, the antecedents chosen in relation to coaching behaviours were selected from previous research (Rocchi et al., 2013; Stebbings et al., 2012). However, considering the number of potential antecedents that may exist and influence coaching behaviour, future research should consider investigating these. For example, the examination of the coaching context, provided an overview of some of different elements (professional development, job security, and work-life conflict) that may exist. However, the option to explore these in more depth or investigate other elements such as those presented by Rocchi et al. (2013), and relate these to the different dimensions of controlling behaviour would continue to develop our awareness of the key influences of control still be relied upon. Further, considering the specific environment this thesis focused upon, antecedents closely linked to the competitive nature which exposes and therefore increases the pressures within this environment should be focused upon. Furthermore, collecting data which would enable the examination of antecedent of behaviour, which included pressures, as well as needs and motivation would provide an insight into the interactions and associations between these variables in relation to coaching behaviours. Within study 2 and 3, the outcomes covered both positive and negative aspects in order to link these to both the positive and negative behaviours. However, future research could examine outcomes which are understudied in controlling environments; for example, thriving (Gucciardi et al., 2017) and perfectionism (Haraldsen et al., 2019). Further, with regards to the competitive environment, outcomes linked to performance would provide a further insight into how such behaviours may associate with whether an athlete performs to their best.



Limitations also lie within the use of the person-centered approach and more specifically cluster analysis in order to identify the behaviour profiles. However, for the present sample, cluster analysis was adopted and the most appropriate based on the data limitations that identified the range of scores across some of the behaviour variables from both coaches and athletes were narrow. Despite the flexibility of using cluster analysis within this approach, the selection of the final clusters is often subjective and can be prone to producing clusters of similar size (Morin et al., 2011). Therefore, future research may choose to adopt Latent Profile Analysis (LPA), which would provide a more rigorous investigation into data when determining clusters numbers. The benefits of using LPA over cluster analysis include allowing an examination of within- and between-group variance and co-variance, tested within a model (Pastor et al., 2007). Moreover, LPA can cater for variables which use a range of scale types, avoiding the need to transform data to standardised scores (Muthén, 2002).

The dearth of research on congruence in coach-athlete perceptions should continue to be explored, employing different analysis technique to those in the present thesis. Su et al. (2019) identify that despite the increasing number use polynomial regression analysis to investigate congruence, results have varied substantially across studies; suggesting alternate methods such as latent moderated structural equations are used instead. Additionally, collecting data from the athlete on how they think their coach views their own behaviour would provide another insight when considering how different perceptions may interact. For example, if the athlete believes that their coach is aware of their use of externally controlling behaviours, and chooses to remain in their sport despite this, it may be that they have just become accustomed to controlling rewards and excessive personal control. Alternatively, the athlete may be affected negatively due to perceiving the behaviour as intentional.

Finally, accessing a larger sample of participants would enable future research to use different forms of analysis which would not be impeded by variables which were in some places of this thesis narrow in their range, or unable to provide enough power for structural equation modelling for example. Further, although this study chose to focus on one section of the BUCS league table, future research could access a greater range of universities to improve the participant sample size. In relation to this, in order to ensure the findings could be applied to the competitive environment, identifying that the participants were all competing in BUCS level competitions somewhat restricted the selection of athletes as many individuals belong to sports clubs at university as a hobby rather than for being involved in competitions. This programme of research also identified that many university sports club do

not have qualified coaches, which excluded these clubs from the studies due to wanting to ensure the coach was perceived as solely the coach consistently across participants, rather than one of the team who leads the training session. However, future research could examine the differences between sports clubs who have unqualified student coaches in comparison to those with NGB qualifications; benefiting gaining information on sports club structure provided by university unions, supporting the importance of having qualified coaches.

#### **6.4 Summary and Conclusion**

This thesis has made a unique contribution to the coaching and motivation research fields, with a focus on exploring the two dimensions of controlling coach behaviour; external and internal. This final chapter presents and discusses the key findings from the research conducted. The specific university focus of this study has provided a greater insight into how coach education can be moulded to inform and adapt to those working within this environment, with training and competition goals focused around BUCS competitions. Further the identification of athletes and coaches who were participating at a higher more competitive level of sport, enabled the research to identify how these behaviours may be perceived as more or less acceptable in comparison to different environments such as club level or teaching. Limited research has focused on the controlling aspect of coaching behaviours within competitive or elite sport, often dismissing this as normative and acceptable. However, the present findings are valuable in their contribution to continuing to understand how coaches are influenced by both their perception of their athletes' motivation and the context they work within, whilst also showing how athletes are impacted by these behaviours independently. The acceptance that a pressurised environment requires controlling behaviours to achieve success is something that future research should continue to challenge for the well-being and sustainability of participation of athletes in this level of sport.

To conclude, this thesis has provided findings of how internally and externally controlling behaviours are distinct dimensions of control which have separate antecedents and influences. Importantly, it has also addressed the need to examine how these behaviours are perceived from both the coach and their athletes, as well as comparing these for congruence and examining how this relates to negative outcomes. As such, the present thesis extends the existing literature which has explored the darker side of the coaching environment. Overall, the findings from this thesis provide vital support for the need to further explore controlling behaviours in relation to coach education and athletes' experiences within the competitive sport environments.

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## Appendices

### 6.1 Appendix A – Participant Invitation Email (Study 1, 2 & 3)

Dear Chairman/coach/athlete (delete as appropriate),

I am a PhD Student at the University of East Anglia and my research project involves looking at coaching behaviour within the university sport environment.

I am emailing to invite your club/you (delete as appropriate) to participate in this study, in which your club coaches/athletes/you would need to complete a questionnaire taking approximately 10-15 minutes. This will be accessible online or as a paper copy.

Please find attached an information sheet with further details about the study and its aims. If you are interested in taking part, please complete the attached consent form and return to myself (R.Tuff@uea.ac.uk) by [provide deadline date for return], after which you will be provided with the questionnaire to complete.

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

Thank you for considering taking part in this study.

Kind regards,  
*Rebecca Tuff*  
*PhD Researcher*  
*University of East Anglia*

## 6.2 Appendix B – Participant Information Sheet (Study 1, 2 & 3)

### UEA PhD in Education THESIS RESEARCH PROJECT

*“Antecedents and Outcomes of Sports Coaches’ Interpersonal Behaviours: Examining External and Internal Control from a Self-Determination Theory Perspective.”*

.”

Dear participant,

I am writing to you about the research I am conducting as part of my thesis for my PhD in Education at the University of East Anglia (UEA).

I am interested in examining the causes of coaching behaviours, perceptions of these and their consequences on athletes. In relation to these, the study aims to research whether a coach uses a combination of behaviours when coaching as opposed to only one when coaching. Further, in relation to these profiles of behaviour, the study aims to examine whether the athlete and coach perceive these to be similar and the effect the level of similarity has on the athlete.

In order to carry out this study, I have proposed to explore these issues by collecting data from coaches and athletes using questionnaires. Both questionnaires are anticipated to take 20 minutes to complete.

Please read the information sheet attached to this letter and, if you are willing to take part in this study, please sign and return the consent form enclosed.

If you have any further questions about the research, please contact me on: [R.Tuff@uea.c.uk](mailto:R.Tuff@uea.c.uk). If you have any concerns about the research please contact my supervisor: Victoria Warburton ([V.Warburton@uea.ac.uk](mailto:V.Warburton@uea.ac.uk)).

Yours sincerely,

*Rebecca Tuff*

Rebecca Tuff

## INFORMATION SHEET CONTINUED

### UEA PhD in Education THESIS RESEARCH PROJECT

*“Antecedents and Outcomes of Sports Coaches’ Interpersonal Behaviours: Examining External and Internal Control from a Self-Determination Theory Perspective.”*

**Researcher:** Rebecca Tuff

**Supervisor:** Dr. Victoria Warburton

I would like to invite you to take part in my research and I need your signed consent if you agree to participate. Before you decide, you need to know why I am doing this research and what it will involve. Please take time to read this information carefully to help you decide whether or not to take part. Please contact me if there is anything that is not clear or if you would like more information. Thank you for reading this.

#### **What is this study about?**

This research project involves examining perceptions, causes and effects of coaching behaviour. The study aims to research whether a coach uses a combination of behaviours (profile), the causes of this profile and the effects. Further the research will compare perceptions of coach behaviour from both coach and athlete to examine the level of similarity and whether the athlete outcomes depend upon the level of this.

#### **How will you be involved?**

As a participant in the study you will be asked to fill out a questionnaire which will take approximately 20 minutes. The coach questionnaire will assess pressures they may experience when coaching, their basic psychological need satisfaction and motivation to coach, as well as their perception of the coaching behaviour they use. The athlete questionnaire will assess their perceptions of their coach’s behaviour, as well as the athlete’s basic psychological need satisfaction, motivation, enjoyment and stress.

#### **Who will have the access to the research information (data)?**

Data management will follow the 1988 Data Protection Act. I will not keep information about you that could identify you to someone else. All the names of the individuals taking part in the research and the exercise facilities, training groups or clubs will be anonymised to preserve confidentiality. The data will be stored safely for a period of 10 years and will then be destroyed. The data will be anonymised throughout and you will not be identifiable in my thesis or any future publications.

#### **Who has reviewed the study?**

The research study has been approved under the regulations of the University of East Anglia’s School of Education and Lifelong Learning Research Ethics Committee.

#### **Who do I speak to if problems arise?**

If there is a problem please let me know. You can contact me via the University at the following address:

Rebecca Tuff  
School of Education and Lifelong Learning  
University of East Anglia  
NORWICH NR4 7TJ  
[R.Tuff@uea.ac.uk](mailto:R.Tuff@uea.ac.uk)

If you would like to speak to someone else you can contact my supervisor:

Dr. Victoria Warburton  
Email: [V.Warburton@uea.ac.uk](mailto:V.Warburton@uea.ac.uk)  
Tel: 01603 592636

If you have any complaints about the research, please contact the Head of the School of Education and Lifelong Learning, Dr Nalini Boodhoo, at [n.boodhoo@uea.ac.uk](mailto:n.boodhoo@uea.ac.uk).

**OK, I want to take part – what do I do next?**

You need to fill in one copy of the consent form and return the form to myself upon completion. Please keep the letter, information sheet and the 2<sup>nd</sup> copy of the consent form for your information.

**Can you change your mind?**

Yes. You have the right to withdraw from the research at any time.

**Thank you very much for your time.**

6.3 Appendix C – Participant Consent Form (Study 1, 2 & 3)

CONSENT FORM

UEA PhD in Education  
THESIS RESEARCH PROJECT

*“Antecedents and Outcomes of Sports Coaches’ Interpersonal Behaviours: Examining External and Internal Control from a Self-Determination Theory Perspective.”*

I have read the information about the study.

*Please tick the relevant box.*

**I am willing** to take part in the study.

**I am not willing** to take part in the study.

Your Name: .....

Your Signature: .....

Date: .....

## 6.4 Appendix D - Coach Questionnaire (Study 1)

*“Antecedents and Outcomes of Sports Coaches’ Interpersonal Behaviours: Examining External and Internal Control from a Self-Determination Theory Perspective.”*

I am a PhD student from the University of East Anglia interested in learning more about coaching behaviour within the sport environment. To gather this information a questionnaire containing several sections has been put together, which will take about 15-20 minutes to complete. You do not have to fill out this questionnaire and you can opt out of the study should you wish to at any point. All of your answers will be confidential and will not be seen by your coach. If you are happy to proceed in this research, please read the information below and write your name in the space provided. This sheet will be detached from your questionnaire by the researcher after you have been assigned a participant number, to ensure your answers remain anonymous.

### Willingness to participate

1. The purpose of this study has been explained to me.
2. I have read and understood the information sheet and consent form given to me about the study.
3. I have been given the chance to ask questions
4. I understand that I do not have to take part in the study.
5. I understand that I have the right to withdraw from the study at any time without having to explain why and all of my data will be excluded from the study.
6. I understand that all of my data will remain confidential by the researcher.
7. I agree to participate in this study

Name: \_\_\_\_\_

Date: \_\_\_\_\_

Section 1

Gender:  Male  Female

Date of birth: \_\_\_\_\_

Please choose one option that best describes your ethnic group or background:

**White**

- English / Welsh / Scottish / Northern Irish / British
- Irish
- Gypsy or Irish Traveller
- Any other White background \_\_\_\_\_

**Mixed / multiple ethnic groups**

- White and Black Caribbean
- White and Black African
- White and Asian
- Any other Mixed/multiple ethnic background \_\_\_\_\_

**Asian / Asian British**

- Indian
- Pakistani
- Bangladeshi
- Chinese
- Any other Asian background \_\_\_\_\_

**Black / African / Caribbean / Black British**

- African
- Caribbean
- Any other Black/African/Caribbean background \_\_\_\_\_

**Other**

- Arab
- Any other Asian background \_\_\_\_\_

The University sports club you belong to (e.g. UEA tennis club): \_\_\_\_\_

What is your highest coaching qualification (type/level): \_\_\_\_\_

How long have you been training your current University sport athlete/s (please answer as accurately as you can remember):

\_\_\_\_\_ Years                      \_\_\_\_\_ Months



## Section 2

Reflecting on your coaching practices over the last month, please indicate how much you agree or disagree with each statement. There are no right or wrong answers; please be honest.

	Strongly			Neutral			Strongly
1. I am less friendly with my athlete if they don't make the effort to see things my way.	1	2	3	4	5	6	7
2. I make it clear to my athlete what they need to do to learn the skills and strategies of their sport.	1	2	3	4	5	6	7
3. I find time to talk to my athlete.	1	2	3	4	5	6	7
4. I shout at my athlete in front of others to make them do certain things.	1	2	3	4	5	6	7
5. I don't think of my athlete often.	1	2	3	4	5	6	7
6. I only use rewards/praise so that my athlete stays focused on tasks during training.	1	2	3	4	5	6	7
7. I provide my athlete with choices and options.	1	2	3	4	5	6	7
8. I am less supportive of my athlete when they are not training and competing well.	1	2	3	4	5	6	7
9. I try to control what my athlete does during their free time.	1	2	3	4	5	6	7
10. I give my athlete activities to perform that are suitable to their level.	1	2	3	4	5	6	7
11. I make it clear to my athlete what to expect from engaging in training.	1	2	3	4	5	6	7
12. I threaten to punish my athlete to keep them focused during training.	1	2	3	4	5	6	7
13. I convey confidence in my athlete's ability to do well at their sport.	1	2	3	4	5	6	7
14. I spend a lot of time with my athlete.	1	2	3	4	5	6	7
15. I try to motivate my athlete by promising to reward them if they well.	1	2	3	4	5	6	7
16. I understand my athlete.	1	2	3	4	5	6	7
17. I pay my athlete less attention if they displease me.	1	2	3	4	5	6	7
18. I help my athlete to feel confident about learning the skills and strategies of their sport.	1	2	3	4	5	6	7
19. I intimidate my athlete into doing the things that I want them to do.	1	2	3	4	5	6	7
20. I am often disapproving and unaccepting of my athlete.	1	2	3	4	5	6	7
21. I try to interfere in aspects of my athlete's life outside of their sport.	1	2	3	4	5	6	7
22. I encourage my athlete to ask questions.	1	2	3	4	5	6	7

	Strongly			Neutral			Strongly
23. I only use rewards/praise so that my athlete completes all the tasks I set during training.	1	2	3	4	5	6	7
24. I provide clear feedback about my athlete's progress.	1	2	3	4	5	6	7
25. I am less accepting of my athlete if they have disappointed me.	1	2	3	4	5	6	7
26. I put time and energy into helping my athlete.	1	2	3	4	5	6	7
27. I make sure that my athlete understands the best way to learn skills and strategies of their sport.	1	2	3	4	5	6	7
28. I listen to how my athlete would like to do things.	1	2	3	4	5	6	7
29. I embarrass my athlete in front of others if they do not do the things I want them to do.	1	2	3	4	5	6	7
30. I am not very involved with my athlete's concerns.	1	2	3	4	5	6	7
31. I try to understand how my athlete see things before suggesting a new way to do things.	1	2	3	4	5	6	7
32. I only use rewards/praise to make my athlete train harder.	1	2	3	4	5	6	7
33. I expect my athlete's whole life to centre on their sport participation.	1	2	3	4	5	6	7

### Section 3

The following statements relate to the general experiences you have had over the previous month whilst coaching within your university sport's club. Remember, there are no right or wrong answers; please be honest. Please indicate how much you agree or disagree with each statement.

In my sport...	Strongly			Neutral			Strongly
1. I feel prevented from making choices with regard to the way I coach.	1	2	3	4	5	6	7
2. There are situations where I am made to feel inadequate.	1	2	3	4	5	6	7
3. I feel like I can make a lot of inputs to deciding how my coaching role is done.	1	2	3	4	5	6	7
4. I really like the people I coach with/are involved in my club.	1	2	3	4	5	6	7
5. I feel pushed to behave in certain ways.	1	2	3	4	5	6	7
6. I feel I am rejected by those around me.	1	2	3	4	5	6	7
7. People at my club tell me I am good at what I do.	1	2	3	4	5	6	7
8. I get along with people that I coach with/are involved in my club.	1	2	3	4	5	6	7
9. I am free to express my ideas and opinions when coaching.	1	2	3	4	5	6	7
10. I feel forced to follow coaching decisions made for me.	1	2	3	4	5	6	7
11. I feel inadequate because I am not given opportunities to fulfil my potential.	1	2	3	4	5	6	7
12. I consider the people I coach with/are involved in the club to be my friends.	1	2	3	4	5	6	7
13. I feel under pressure to agree with the coaching regime I am provided.	1	2	3	4	5	6	7
14. I have been able to learn interesting new skills about my coaching.	1	2	3	4	5	6	7
15. Most days I feel a sense of accomplishment from coaching.	1	2	3	4	5	6	7
16. I feel others can be dismissive of me.	1	2	3	4	5	6	7
17. My feelings are taken into consideration when coaching.	1	2	3	4	5	6	7
18. People I work with in my coaching role care about me.	1	2	3	4	5	6	7
19. Situations occur in which I am made to feel incapable.	1	2	3	4	5	6	7
20. I feel like I can pretty much be myself when coaching.	1	2	3	4	5	6	7
21. I feel other people dislike me.	1	2	3	4	5	6	7
22. People at my club are pretty friendly towards me.	1	2	3	4	5	6	7
23. There are times when I am told things that make me feel incompetent.	1	2	3	4	5	6	7
24. I feel that other people are envious when I achieve success.	1	2	3	4	5	6	7

#### Section 4

The following statements relate to the way you have felt most recently when coaching in your sport. Please indicate on the scale the degree to which you agree with the following statements.

Why do you coach your sport?	Strongly			Neutral			Strongly
1. Because I find it stimulating.	1	2	3	4	5	6	7
2. Because coaching is fundamental to who I am.	1	2	3	4	5	6	7
3. Because it contributes to my development as a person.	1	2	3	4	5	6	7
4. Because I don't want to let my athlete down	1	2	3	4	5	6	7
5. To be respected by others.	1	2	3	4	5	6	7
6. Because I get a good feeling out of it.	1	2	3	4	5	6	7
7. Because it is moving me toward my personal goals.	1	2	3	4	5	6	7
8. I often think my coaching efforts are a waste of time.	1	2	3	4	5	6	7
9. Because coaching is integral to my life.	1	2	3	4	5	6	7
10. Because if I quit it would mean I'd failed.	1	2	3	4	5	6	7
11. To get recognition from others.	1	2	3	4	5	6	7
12. Sometimes I don't know why I coach anymore.	1	2	3	4	5	6	7
13. Because I enjoy the effort I invest.	1	2	3	4	5	6	7
14. Sometimes I feel the costs outweigh the benefits.	1	2	3	4	5	6	7
15. Because it allows me to achieve my personal goals.	1	2	3	4	5	6	7
16. Because I want to be appreciated by others.	1	2	3	4	5	6	7
17. Because it personifies my values and beliefs.	1	2	3	4	5	6	7
18. Because I enjoy the interaction I have with athletes.	1	2	3	4	5	6	7
19. Because I feel responsible for my athlete's performance.	1	2	3	4	5	6	7
20. Sometimes I question my desire to continue coaching.	1	2	3	4	5	6	7
21. Because I like the extrinsic rewards (i.e., money) associated with winning.	1	2	3	4	5	6	7
22. Because I feel pressure from myself to ensure my athlete wins.	1	2	3	4	5	6	7

## Section 5

Reflecting on your coaching environment over the last month, please rate the extent to which you agree with each statement.

In my sport...	Strongly			Neutral			Strongly
1. I am strongly encouraged to develop my coaching skills.	1	2	3	4	5	6	7
2. I am satisfied with the way coaching provides steady employment.	1	2	3	4	5	6	7
3. My career as a coach interferes with other aspects of my life.	1	2	3	4	5	6	7
4. I am provided with opportunities for professional growth and development.	1	2	3	4	5	6	7
5. I find it hard to successfully fulfil my responsibilities out of my coach duties.	1	2	3	4	5	6	7
6. I am satisfied with my job security (in my coaching role).	1	2	3	4	5	6	7
7. The demands of coaching interfere with my other roles in life.	1	2	3	4	5	6	7
8. I am satisfied with how things look for my future in coaching.	1	2	3	4	5	6	7
9. I am confident I can always find a job in coaching.	1	2	3	4	5	6	7
10. I am given opportunities to progress in my coaching role.	1	2	3	4	5	6	7
11. There is conflict between my coaching and other areas of my life.	1	2	3	4	5	6	7
12. I am provided with ongoing training in coaching techniques.	1	2	3	4	5	6	7

## Section 6

Reflecting on the athlete you have coached over the last month, please rate the extent to which you agree with each statement.

<i>Why does your athlete participate in sport?</i>	Strongly			Neutral			Strongly
1. Because they enjoy it.	1	2	3	4	5	6	7
2. Because it's a part of who they are.	1	2	3	4	5	6	7
3. Because the benefits of sport are important to them.	1	2	3	4	5	6	7
4. Because they would feel ashamed if they quit.	1	2	3	4	5	6	7
5. Because if they don't other people will not be pleased with them.	1	2	3	4	5	6	7
6. But they wonder what's the point.	1	2	3	4	5	6	7
7. Because they like it.	1	2	3	4	5	6	7
8. Because it teaches them self-discipline.	1	2	3	4	5	6	7
9. Because they feel pressure from other people to do so.	1	2	3	4	5	6	7
10. Because they question why they continue.	1	2	3	4	5	6	7
11. Because they would feel like a failure if they quit.	1	2	3	4	5	6	7
12. Because it's an opportunity for them to just be who they are.	1	2	3	4	5	6	7
13. Because they value the benefits of their sport.	1	2	3	4	5	6	7
14. But the reasons why are not clear to them anymore.	1	2	3	4	5	6	7
15. Because they think it's fun.	1	2	3	4	5	6	7
16. Because people push them to take part.	1	2	3	4	5	6	7
17. Because what they do in sport is an expression of who they are.	1	2	3	4	5	6	7
18. Because they feel obligated to continue.	1	2	3	4	5	6	7
19. Because it is a good way to learn things which could be useful to them in their life.	1	2	3	4	5	6	7
20. To satisfy people who want me them to take part.	1	2	3	4	5	6	7
21. Because they find it pleasurable.	1	2	3	4	5	6	7
22. Because they would feel guilty if they quit.	1	2	3	4	5	6	7
23. But they question why they are putting themselves through it.	1	2	3	4	5	6	7
24. Because it allows them to live in a way that is true to their values.	1	2	3	4	5	6	7

## 6.5 Appendix E - Athlete Questionnaire (Study 2)

*“Antecedents and Outcomes of Sports Coaches’ Interpersonal Behaviours: Examining External and Internal Control from a Self-Determination Theory Perspective.”*

I am a PhD student from the University of East Anglia interested in learning more about behaviour within the sports coaching environment. To gather this information a questionnaire containing several sections has been put together, which will take about 15-20 minutes to complete. You do not have to fill out this questionnaire and you can opt out of the study should you wish to at any point. All of your answers will be confidential and will not be seen by your coach. If you are happy to proceed in this research, please read the information below and write your name in the space provided. This sheet will be detached from your questionnaire by the researcher after you have been assigned a participant number, to ensure your answers remain anonymous.

### Willingness to participate

1. The purpose of this study has been explained to me.
2. I have read and understood the information sheet and consent form given to me about the study.
3. I have been given the chance to ask questions
4. I understand that I do not have to take part in the study.
5. I understand that I have the right to withdraw from the study at any time without having to explain why and all of my data will be excluded from the study.
6. I understand that all of my data will remain confidential by the researcher.
7. I agree to participate in this study

Name: \_\_\_\_\_

Date: \_\_\_\_\_

Section 1

Gender:  Male  Female

Date of birth: \_\_\_\_\_

Please choose one option that best describes your ethnic group or background:

**White**

- English / Welsh / Scottish / Northern Irish / British
- Irish
- Gypsy or Irish Traveller
- Any other White background \_\_\_\_\_

**Mixed / multiple ethnic groups**

- White and Black Caribbean
- White and Black African
- White and Asian
- Any other Mixed/multiple ethnic background \_\_\_\_\_

**Asian / Asian British**

- Indian
- Pakistani
- Bangladeshi
- Chinese
- Any other Asian background \_\_\_\_\_

**Black / African / Caribbean / Black British**

- African
- Caribbean
- Any other Black/African/Caribbean background \_\_\_\_\_

**Other**

- Arab
- Any other Asian background \_\_\_\_\_

The university sports club you belong to (eg. UEA tennis club): \_\_\_\_\_

How long have you been training with your current university sports coach (please answer as accurately as you can remember):

\_\_\_\_\_ Years                  \_\_\_\_\_ Months

Section 2



The following statements relate to your general experiences with your current main coach. Each coach has a different style and no one style is necessarily better than another. Please indicate how much you agree or disagree with each statement.

My coach...	Strongly			Neutral			Strongly
1. Is less friendly with me if I don't make the effort to see things their way.	1	2	3	4	5	6	7
2. Makes it clear to me what I need to do to learn the skills and strategies of my sport.	1	2	3	4	5	6	7
3. Finds time to talk with me.	1	2	3	4	5	6	7
4. Shouts at me in front of others to make me do certain things.	1	2	3	4	5	6	7
5. Doesn't seem to think of me often.	1	2	3	4	5	6	7
6. Only uses rewards/praise so that I stay focused on tasks during training.	1	2	3	4	5	6	7
7. Provides me with choices and options.	1	2	3	4	5	6	7
8. Is less supportive of me when I am not training and competing well.	1	2	3	4	5	6	7
9. Tries to control what I do during my free time.	1	2	3	4	5	6	7
10. Gives me activities to perform that are suitable to my level.	1	2	3	4	5	6	7
11. Makes it clear to me what to expect from engaging in training.	1	2	3	4	5	6	7
12. Threatens to punish me to keep me focused during training.	1	2	3	4	5	6	7
13. Conveys confidence in my ability to do well at sport.	1	2	3	4	5	6	7
14. Spends a lot of time with me.	1	2	3	4	5	6	7
15. Tries to motivate me by promising to reward me if I do well.	1	2	3	4	5	6	7
16. Understands me.	1	2	3	4	5	6	7
17. Pays me less attention if I have displeased him/her.	1	2	3	4	5	6	7
18. Helps me feel confident about learning the skills and strategies of my sport.	1	2	3	4	5	6	7
19. Intimidates me into doing the things that they want me to do.	1	2	3	4	5	6	7
20. Is often disapproving and unaccepting of me.	1	2	3	4	5	6	7
21. Tries to interfere in aspects of my life outside of my sport.	1	2	3	4	5	6	7
22. Encourages me to ask questions.	1	2	3	4	5	6	7
23. Only uses rewards/praise so that I complete all the tasks he/she sets during training.	1	2	3	4	5	6	7
24. Provides clear feedback about my progress.	1	2	3	4	5	6	7

<i>My coach...</i>	Strongly			Neutral			Strongly
25. Is less accepting of me if I have disappointed him/her.	1	2	3	4	5	6	7
26. Puts time and energy into helping me.	1	2	3	4	5	6	7
27. Makes sure I understand the best way to learn skills and strategies of my sport.	1	2	3	4	5	6	7
28. Listens to how I would like to do things.	1	2	3	4	5	6	7
29. Embarrasses me in front of others if I do not do the things he/she wants me to do.	1	2	3	4	5	6	7
30. Is not very involved with my concerns.	1	2	3	4	5	6	7
31. Tries to understand how I see things before suggesting a new way to do things.	1	2	3	4	5	6	7
32. Only uses rewards/praise to make me train harder.	1	2	3	4	5	6	7
33. Expects my whole life to centre on my sport participation.	1	2	3	4	5	6	7

<i>In my sport...</i>	Do not believe at all		Believe 50% of the time		Believe 100% of the time
1. When I am failing, I am afraid that I might not have enough talent.	1	2	3	4	5
2. When I am failing, it upsets my "plan" for the future.	1	2	3	4	5
3. When I am not succeeding, people are less interested in me.	1	2	3	4	5
4. When I am failing, important others are disappointed.	1	2	3	4	5
5. When I am failing, I worry about what others think about me.	1	2	3	4	5

### Section 3

The following statements relate to the general experiences you have whilst in your sport.

Remember, there are no right or wrong answers; please be honest. Please indicate how much you agree or disagree with each statement.

In my sport...	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree		
1. I feel prevented from making choices with regard to the way I train.	1	2	3	4	5	6	7
2. There are situations where I am made to feel inadequate.	1	2	3	4	5	6	7
3. I feel pushed to behave in certain ways.	1	2	3	4	5	6	7
4. I feel that I participate because I want to.	1	2	3	4	5	6	7
5. I am satisfied with what I can do.	1	2	3	4	5	6	7
6. I feel I am rejected by those around me.	1	2	3	4	5	6	7
7. I feel supported when I participate.	1	2	3	4	5	6	7
8. I feel forced to follow training decisions made for me.	1	2	3	4	5	6	7
9. I have some choice in what I want to do.	1	2	3	4	5	6	7
10. After training for a while I feel pretty competent. At a certain skill/technique.	1	2	3	4	5	6	7
11. I feel inadequate because I am not given opportunities to fulfil my potential.	1	2	3	4	5	6	7
12. I feel under pressure to agree with the training regime I am provided.	1	2	3	4	5	6	7
13. I feel understood when I participate.	1	2	3	4	5	6	7
14. I feel others can be dismissive of me.	1	2	3	4	5	6	7
15. I have a say regarding what skills I want to practice.	1	2	3	4	5	6	7
16. I think I do pretty well compared to other players/athletes.	1	2	3	4	5	6	7
17. I feel listened to when I participate.	1	2	3	4	5	6	7
18. Situations occur in which I am made to feel incapable.	1	2	3	4	5	6	7
19. I feel a certain amount of freedom of action.	1	2	3	4	5	6	7
20. I feel other people dislike me.	1	2	3	4	5	6	7
21. There are times when I am told things that make me feel incompetent.	1	2	3	4	5	6	7
22. I think I am pretty good.	1	2	3	4	5	6	7
23. I feel valued when I participate.	1	2	3	4	5	6	7
24. I feel that other people are envious when I achieve success.	1	2	3	4	5	6	7
25. I can decide which activities I want to practice.	1	2	3	4	5	6	7
26. I think I am pretty skilled.	1	2	3	4	5	6	7
27. I feel safe when I participate.	1	2	3	4	5	6	7

#### Section 4

The following statements relate to the way you have felt most recently when participating in your sport. Please indicate on the scale the degree to which you agree with the following statements.

<i>I participate in my sport...</i>	Strongly			Neutral			Strongly
1. Because I enjoy it.	1	2	3	4	5	6	7
2. Because it's a part of who I am.	1	2	3	4	5	6	7
3. Because the benefits of sport are important to me.	1	2	3	4	5	6	7
4. Because I would feel ashamed if I quit.	1	2	3	4	5	6	7
5. Because if I don't other people will not be pleased with me.	1	2	3	4	5	6	7
6. But I wonder what's the point.	1	2	3	4	5	6	7
7. Because I like it.	1	2	3	4	5	6	7
8. Because it teaches me self-discipline.	1	2	3	4	5	6	7
9. Because I feel pressure from other people to do so.	1	2	3	4	5	6	7
10. Because I question why I continue.	1	2	3	4	5	6	7
11. Because I would feel like a failure if I quit.	1	2	3	4	5	6	7
12. Because it's an opportunity to just be who I am.	1	2	3	4	5	6	7
13. Because I value the benefits of my sport.	1	2	3	4	5	6	7
14. But the reasons why are not clear to me anymore.	1	2	3	4	5	6	7
15. Because it's fun.	1	2	3	4	5	6	7
16. Because people push me to take part.	1	2	3	4	5	6	7
17. Because what I do in sport is an expression of who I am.	1	2	3	4	5	6	7
18. Because I feel obligated to continue to continue.	1	2	3	4	5	6	7
19. Because it is a good way to learn things which could be useful to me in my life.	1	2	3	4	5	6	7
20. To satisfy people who want me to take part.	1	2	3	4	5	6	7
21. Because I find it pleasurable.	1	2	3	4	5	6	7
22. Because I would feel guilty if I quit.	1	2	3	4	5	6	7
23. But I question why I am putting myself through this.	1	2	3	4	5	6	7
24. Because it allows me to live in a way that is true to my values.	1	2	3	4	5	6	7

Section 5

The following statements relate to the way you have felt most recently when participating in your sport. Please indicate on the scale the degree to which you agree with the following statements.

	Strongly			Neutral			Strongly
1. I enjoy doing my sport very much.	1	2	3	4	5	6	7
2. My sport is fun to do.	1	2	3	4	5	6	7
3. I think my sport is boring.	1	2	3	4	5	6	7
4. My sport does not hold my attention at all.	1	2	3	4	5	6	7
5. I would describe my sport as very interesting.	1	2	3	4	5	6	7
6. I think my sport is quite enjoyable.	1	2	3	4	5	6	7
7. When I do my sport, I think about how much I enjoy it.	1	2	3	4	5	6	7

<i>Most recently when doing my sport I have....</i>	Strongly			Neutral			Strongly
1. Felt alive and vital.	1	2	3	4	5	6	7
2. Haven't felt very energetic.	1	2	3	4	5	6	7
3. Sometimes felt so alive I want to burst.	1	2	3	4	5	6	7
4. Had energy and spirit.	1	2	3	4	5	6	7
5. Looked forward to each new day.	1	2	3	4	5	6	7
6. Nearly always felt alert and awake.	1	2	3	4	5	6	7
7. Felt energised.	1	2	3	4	5	6	7

## 6.6 Appendix F - Coach Questionnaire (Study 3)

*“Antecedents and Outcomes of Sports Coaches’ Interpersonal Behaviours: Examining External and Internal Control from a Self-Determination Theory Perspective.”*

I am a PhD student from the University of East Anglia interested in learning more about coaching behaviour within the sport environment. To gather this information a questionnaire containing several sections has been put together, which will take about 15-20 minutes to complete. You do not have to fill out this questionnaire and you can opt out of the study should you wish to at any point. All of your answers will be confidential and will not be seen by your coach. If you are happy to proceed in this research, please read the information below and write your name in the space provided. This sheet will be detached from your questionnaire by the researcher after you have been assigned a participant number, to ensure your answers remain anonymous.

### Willingness to participate

1. The purpose of this study has been explained to me.
2. I have read and understood the information sheet and consent form given to me about the study.
3. I have been given the chance to ask questions
4. I understand that I do not have to take part in the study.
5. I understand that I have the right to withdraw from the study at any time without having to explain why and all of my data will be excluded from the study.
6. I understand that all of my data will remain confidential by the researcher.
7. I agree to participate in this study

Name: \_\_\_\_\_

Date: \_\_\_\_\_

Section 1

Gender:  Male  Female

Date of birth: \_\_\_\_\_

Please choose one option that best describes your ethnic group or background:

**White**

- English / Welsh / Scottish / Northern Irish / British
- Irish
- Gypsy or Irish Traveller
- Any other White background \_\_\_\_\_

**Mixed / multiple ethnic groups**

- White and Black Caribbean
- White and Black African
- White and Asian
- Any other Mixed/multiple ethnic background \_\_\_\_\_

**Asian / Asian British**

- Indian
- Pakistani
- Bangladeshi
- Chinese
- Any other Asian background \_\_\_\_\_

**Black / African / Caribbean / Black British**

- African
- Caribbean
- Any other Black/African/Caribbean background \_\_\_\_\_

**Other**

- Arab
- Any other Asian background \_\_\_\_\_

The university sports club you belong to (e.g. UEA tennis club): \_\_\_\_\_

What is your highest coaching qualification (type/level): \_\_\_\_\_

How long have you been training your current university sport athlete/s (please answer as accurately as you can remember):

\_\_\_\_\_ Years                      \_\_\_\_\_ Months

## Section 2

Reflecting on your coaching practices over the last month, please indicate how much you agree or disagree with each statement. There are no right or wrong answers; please be honest.

	Strongly			Neutral			Strongly
1. I am less friendly with my athlete if they don't make the effort to see things my way.	1	2	3	4	5	6	7
2. I shout at my athlete in front of others to make them do certain things.	1	2	3	4	5	6	7
3. I only use rewards/praise so that my athlete stays focused on tasks during training.	1	2	3	4	5	6	7
4. I am less supportive of my athlete when they are not training and competing well.	1	2	3	4	5	6	7
5. I try to control what my athlete does during their free time.	1	2	3	4	5	6	7
6. I threaten to punish my athlete to keep them focused during training.	1	2	3	4	5	6	7
7. I try to motivate my athlete by promising a reward if they do well.	1	2	3	4	5	6	7
8. I pay my athlete less attention if they displease me.	1	2	3	4	5	6	7
9. I intimidate my athlete into doing the things that I want them to do.	1	2	3	4	5	6	7
10. I try to interfere in aspects of my athlete's life outside of their sport.	1	2	3	4	5	6	7
11. I only use rewards/praise so that my athlete completes all the tasks I set during training.	1	2	3	4	5	6	7
12. I am less accepting of my athlete if they have disappointed me.	1	2	3	4	5	6	7
13. I embarrass my athlete in front of others if they do not do the things I want them to do.	1	2	3	4	5	6	7
14. I only use rewards/praise to make my athlete train harder.	1	2	3	4	5	6	7
15. I expect my athlete's whole life to centre on their sport participation.	1	2	3	4	5	6	7



## 6.7 Appendix G - Athlete Questionnaire (Study 3)

*“Antecedents and Outcomes of Sports Coaches’ Interpersonal Behaviours: Examining External and Internal Control from a Self-Determination Theory Perspective.”*

I am a PhD student from the University of East Anglia interested in learning more about behaviour within the sports coaching environment. To gather this information a questionnaire containing several sections has been put together, which will take about 15-20 minutes to complete. You do not have to fill out this questionnaire and you can opt out of the study should you wish to at any point. All of your answers will be confidential and will not be seen by your coach. If you are happy to proceed in this research, please read the information below and write your name in the space provided. This sheet will be detached from your questionnaire by the researcher after you have been assigned a participant number, to ensure your answers remain anonymous.

### Willingness to participate

8. The purpose of this study has been explained to me.
9. I have read and understood the information sheet and consent form given to me about the study.
10. I have been given the chance to ask questions
11. I understand that I do not have to take part in the study.
12. I understand that I have the right to withdraw from the study at any time without having to explain why and all of my data will be excluded from the study.
13. I understand that all of my data will remain confidential by the researcher.
14. I agree to participate in this study

Name: \_\_\_\_\_

Date: \_\_\_\_\_

Section 1

Gender:  Male  Female

Date of birth: \_\_\_\_\_

Please choose one option that best describes your ethnic group or background:

**White**

- English / Welsh / Scottish / Northern Irish / British
- Irish
- Gypsy or Irish Traveller
- Any other White background \_\_\_\_\_

**Mixed / multiple ethnic groups**

- White and Black Caribbean
- White and Black African
- White and Asian
- Any other Mixed/multiple ethnic background \_\_\_\_\_

**Asian / Asian British**

- Indian
- Pakistani
- Bangladeshi
- Chinese
- Any other Asian background \_\_\_\_\_

**Black / African / Caribbean / Black British**

- African
- Caribbean
- Any other Black/African/Caribbean background \_\_\_\_\_

**Other**

- Arab
- Any other Asian background \_\_\_\_\_

The university sports club you belong to (e.g. UEA tennis club): \_\_\_\_\_

How long have you been training with your current university sports coach (please answer as accurately as you can remember):

\_\_\_\_\_ Years                  \_\_\_\_\_ Months

## Section 2

The following statements relate to your general experiences with your current main coach. Each coach has a different style and no one style is necessarily better than another. Please indicate how much you agree or disagree with each statement.

My coach...	Strongly			Neutral			Strongly
1. Is less friendly with me if I don't make the effort to see things their way.	1	2	3	4	5	6	7
2. Shouts at me in front of others to make me do certain things.	1	2	3	4	5	6	7
3. Only uses rewards/praise so that I stay focused on tasks during training.	1	2	3	4	5	6	7
4. Is less supportive of me when I am not training and competing well.	1	2	3	4	5	6	7
5. Tries to control what I do during my free time.	1	2	3	4	5	6	7
6. Threatens to punish me to keep me focused during training.	1	2	3	4	5	6	7
7. Tries to motivate me by promising to reward me if I do well.	1	2	3	4	5	6	7
8. Pays me less attention if I have displeased him/her.	1	2	3	4	5	6	7
9. Intimidates me into doing the things that they want me to do.	1	2	3	4	5	6	7
10. Tries to interfere in aspects of my life outside of my sport.	1	2	3	4	5	6	7
11. Only uses rewards/praise so that I complete all the tasks he/she sets during training.	1	2	3	4	5	6	7
12. Is less accepting of me if I have disappointed him/her.	1	2	3	4	5	6	7
13. Embarrasses me in front of others if I do not do the things he/she wants me to do.	1	2	3	4	5	6	7
14. Only uses rewards/praise to make me train harder.	1	2	3	4	5	6	7
15. Expects my whole life to centre on my sport participation.	1	2	3	4	5	6	7

<i>In my sport...</i>	<b>Do not believe at all</b>		<b>Believe 50% of the time</b>		<b>Believe 100% of the time</b>
1. When I am failing, I am afraid that I might not have enough talent.	1	2	3	4	5
2. When I am failing, it upsets my “plan” for the future.	1	2	3	4	5
3. When I am not succeeding, people are less interested in me.	1	2	3	4	5
4. When I am failing, important others are disappointed.	1	2	3	4	5
5. When I am failing, I worry about what others think about me.	1	2	3	4	5

<i>Before participating in a competition...</i>	<b>Not at all</b>			<b>Very much so</b>
1. I am concerned that I may not do as well as I could.	1	2	3	4
2. I am concerned about losing.	1	2	3	4
3. I am concerned about choking under pressure.	1	2	3	4
4. I am concerned about performing poorly.	1	2	3	4
5. I am concerned others will be disappointed with my performance.	1	2	3	4