Coventry University

DOCTOR OF PHILOSOPHY

Motivational determinants underpinning the optimal and diminished functioning of adult sport performers: a test of a theoretically integrated achievement goal and self-determination approach

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Award date:
2020

Awarding institution:
Coventry University

Link to publication

Motivational Determinants Underpinning The Optimal and Diminished Functioning of Adult Sport Performers: A Test of A Theoretically Integrated Achievement Goal and Self-Determination Approach

By

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PhD

September 2019

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September 2019

A thesis submitted in partial fulfilment of the University's requirements for the Degree of Doctor of Philosophy

Ethical Approval Certificate (Study 3)

Certificate of Ethical Approval

Applicant:

Mairi Mulvenna

Project Title:

Striving for success or avoiding failure? An investigation of self-referenced achievement goals and underlying reasons among 5K Parkrun athletes: Their relationship with emotional well-being and performance.

This is to certify that the above named applicant has completed the Coventry University Ethical Approval process and their project has been confirmed and approved as Medium Risk

Date of approval:

07 August 2017

Project Reference Number:

P53694

Abstract

Guided by Vansteenkiste, Lens, Elliot, Soenans, & Mouratidis (2014), this thesis adopted an integrated theoretical approach in aiming to gain an enhanced understanding of the motivational determinants underpinning well-being and performance in sport. All three studies drew upon key tenets from the 3 x 2 Achievement Goal Model (AGM; Elliot, Murayama, & Pekrun, 2011) and Self-Determination Theory (SDT; Deci & Ryan, 1985) with a primary emphasis on testing the notion of *goal complexes* (i.e., achievement goals x motivational context/reasons) on the performance and healthy functioning of novice participants across different competitive sport situations.

Study one focused on examining well-being and optimal functioning, and so exclusively concentrated on investigating approach-based goals (rather than avoidance goals) given their consistently reported positive associations with adaptive cognition, affective and behavioural patterns. An experimental test of separating task- and self-approach, relative to other-approach, goals (as proposed in the 3 x 2 AGM) alongside examining the interaction effects of the motivational context (autonomy support vs control) on indices of psycho-physiological functioning and performance among novice performers on a basketball shooting task was conducted. Goal main effects revealed the task-approach goal condition to be the most beneficial for psychological functioning (i.e., participants experienced the least anxiety, and highest levels of perceived competence and goal attainment) corresponding to the experimental task, and the self-approach goal condition resulted in the best performance. Main effects for the motivational context also revealed the autonomy-supportive (relative to controlling) condition to be the most beneficial for sport performance and physiological functioning (measured via cardiovascular reactivity).

In addressing a key limitation of study one, study two exclusively focused on the other-based goal, drawing direct comparisons between both other-approach and other-avoidance goals within a team-based sports competition. Similar to study one, study two also highlighted the importance of the motivational context towards impacting participants' psychological and emotional well-being among novices invested in a table football competition. Specifically, autonomy-supportive (relative to controlling environments) revealed significant differences in optimal (i.e., higher levels of self-efficacy, self-rated performance) and diminished functioning (i.e., greater levels of hopelessness).

In conjunction with parkrun U.K., study three focused on self-approach and self-avoidance goal pursuit, the most salient goals amongst the running community (e.g., Krouse, Ransdell, Lucas, & Pritchard, 2011; Martin, 2006), yet previously understudied in the sport-based, motivation literature. Like study two, study three – the final study of the thesis – provided further evidence of the over-riding effects of SDT-related constructs in explaining unique variability in the cognitive appraisals, emotional well-being and actual performance of participants taking part in a competitive achievement situation (i.e., 5km parkrun). Structural equation modelling findings provided partial support for the hypothesised model (i.e., self-approach goal and their underlying motives > stress appraisals > performance and emotional well-being). More specifically, it was found that the reasons (i.e., motives) underlying self-based goal pursuit (rather than the intensity of this particular goal pursuit alone) impacted parkrunners emotional well-being (pride) and performance. The mediational hypothesis concerning stress appraisals was also partially supported and discussed in more detail later in the thesis (chapter four).

In summary, the findings across the three studies comprising this PhD thesis provide limited evidence to support the goal complex notion drawing upon Vansteenkiste et al's (2014) integrated theoretical approach. Rather, the findings point towards the unique effects of achievement goals, and, in particular, the motives underlying goals, as well as the social environment in which they operate, on influencing optimal and diminished functioning of novice sport performers in competitive sport situations.

Acknowledgements

The completion of this PhD thesis is the result of four years of hard work, commitment and perseverance. Although there were many great times, there too were challenges and obstacles that presented themselves along the way. What kept me going was the never-ending and unfaltering support of my supervisory team, family, friends, colleagues and partner – without you all, this would not have been possible.

Firstly, I owe my biggest thank you to my Director of Studies, Dr. James Adie. I wish to offer my sincere appreciation to you for your guidance, encouragement, time, patience, and thoughtfulness over the last four years – it never went unnoticed. You challenged me to improve, championed my successes and were always there to listen, with the right advice when things weren't going as planned. I have learned so much from you throughout the course of my doctoral studies, experience and skills that go beyond academia and research. You have all the qualities of the perfect supervisor and I feel privileged to have been your first PhD student. Thank you for sharing your incredible knowledge and intellectual wisdom with me.

Next, to my second supervisor, Dr. Luke Sage. Thank you for your input and advice across the last four years, particularly regarding study design. Your experience and knowledge informed my development and for that I am most grateful. You have always been thorough with your feedback and advice, pushing me to reach outside my comfort zones, however, your relaxed nature always helped to keep me calm, not to mention, provided plenty of laughter and entertainment!

Dr's. Nigel Wilson and Douglas Howat, thank you for your insightful knowledge and guidance, particularly in the early stages of my doctoral studies. Your experience and advice helped set me on the right tracks towards successful completion.

Dr. Carlo Tramontano, where would I be without your wealth of statistical knowledge?! Thank you for your analytical support regarding the third study of this thesis. A technique that was once alien to me, will now stay with me forever and that progression is down to you and your teachings. You emanate all the wonderful qualities of a true Italian, but I should specifically note that your patience is beyond admirable. Forever an SEM genius in my eyes!

It is most important to mention all the participants who gave up their time and volunteered to take part in my research projects, and all the interns who assisted with the data collection process. Without all of you, this thesis would not exist. I hope, whether involved in any of these studies as a participant or an intern, your experiences sparked, or further developed an interest in the field of sport psychology, or more specifically the topics of motivation, well-being and performance.

To my family, Dad, Mum, and my brother Ciaran. Your belief in me and my abilities has always encouraged me to pursue my dreams and knowing that I have you standing by my side in every situation, has brought me so many successes to date, and I hope many more to come. You have all invested so much in me in various ways, and as such, that endless support and encouragement has provided me with a great determination to achieve my goals. I truly hope I have and continue to make you proud. To my extended family - uncles, aunties, and cousins, thank you for creating the best support network I could wish for. I am very lucky to have so many role models to look up to.

To my friends, no matter where you were, or currently are in the world, all it took was a phone call, text message or a visit, filled with positive and reassuring words, to remind me that I can do it! I relied on you all more than you may ever know to help

me navigate through this journey and I am eternally grateful to you. Thank you for your patience and understanding during the many hectic and pressuring stages of this PhD which meant often long periods of time passed without us talking, yet when we eventually caught up, we picked up where we left off – a sign of true friendship. A special mention must go to the ladies I play Gaelic Football alongside – thank you for keeping me sane week in, week out, and providing me with a release from my PhD. This outlet where I could throw myself into the sporting environment I love, provided me with a family away from home, not to mention the many successes and much craic we have had along the way!

My fellow PhD colleagues also deserve a special thank you. Together, we have shared a very special bond and experience that not many will encounter. I have so often enjoyed the thought-provoking discussions and debates we engaged with, but mostly am thankful for the support you have provided me with on a professional and friendship level.

My final thanks go to a very special person, my boyfriend, Jack. Your strivings to be the best that you can be, whether that be in a professional, personal, or sporting capacity, inspire me. Your support and belief in me to complete has never faltered, even when my belief in myself was at times shaken. On many occasions you picked me up, pushed me to be keep going, celebrated my successes and embraced the challenging periods alongside me, all whilst loving me unconditionally. Thank you for being so incredibly understanding and patient, particularly in these final stages when so much of my time has been taken up by my PhD. Here's to having more time to spend together!

This thesis is dedicated to the memory of my wonderful grandmother, who passed

away during the course of my doctoral studies,

Rois Mulvenna.

Thank you for providing me with all the love, belief, strength, encouragement, laughs,

and wise words imaginable. You always knew what to say to make everything better,

accompanied with a big hug and cup of tea of course! You have always, and will

continue to be, a true source of inspiration to me, and I can only hope you are looking

down on me with pride. You are so missed every day.

<u>Contents Listing</u>

List of Empirical Chapters (Papers)

List of Conference Presentations

List of Tables

List of Figures

List of Empirical Chapters (Papers)

The following three papers forming this thesis represent original work conducted by the principal author. Study design, data collection, statistical analysis and writing were conducted by Mairi Mulvenna. Dr. James Adie advised on study design, data analysis and paper editing. Where listed, the secondary authors also advised on study design, data analysis and paper editing. Dr. Carlo Tramontano advised on data analysis of the third paper. Undergraduate students assisted with the data collection process on papers one and two.

1. Mulvenna, M., Adie. J. A., Sage, L. D., Wilson, N. E., & Howat, D. (under review). *Approach-achievement goals and motivational context on psycho-physiological functioning and performance among novice basketball players.* Manuscript submitted to Psychology of Sport and Exercise.

2. Mulvenna, M., Adie. J. A., & Sage, L. D. *Other-based achievement goals and motivational context on psychological and emotional functioning and performance of sports participants*. Manuscript in preparation for submission to Journal of Sport and Exercise Psychology.

3. Mulvenna, M., Adie. J. A., & Tramontano, C. *Self-based goals, underlying reasons, performance and emotional well-being among parkrunners: A prospective design.* Manuscript in preparation for submission to Frontiers in Psychology.

List of Conference Presentations

Below are a set of accepted conference abstracts that stem from data collected during study for this doctorate degree at Coventry University.

1. Mulvenna, M., Adie, J. W., & Sage, L. (May 2019). Other-referenced achievement goals and the motivational context on the psychological functioning and performance of sports participants: An experimental investigation. Poster presentation at the Self-Determination Theory (SDT) Conference, The Netherlands.

2. Mulvenna, M., Adie, J. W., & Sage, L. (July 2018). Intrapersonal goals, underlying reasons and emotional-well-being among parkrunners: A prospective design. Oral presentation at the European College of Sport Science (ECSS) Congress.

3. Mulvenna, M., Adie, J. W., Sage, L., Wilson, N., & Howat, D. (November 2017). The effects of achievement goals and motivational context on psychological functioning and sport performance: An experimental investigation. Oral presentation at the British Association of Sports and the Exercise Sciences (BASES) and European Federation of Sport Psychology (FEPSAC) combined conference, Nottingham.

4. Mulvenna, M., Adie, J. W., Sage, L., Wilson, N., & Howat, D. (December 2016). The effects of achievement goals and the motivational context on the psycho-physiological functioning of sport participants. Poster presented at the British Psychological Society (BPS), Division of Sport and Exercise Psychology (DSEP) Annual Conference, Cardiff.

Table of Contents

List of Tables

List of Figures

Chapter 1

1 General Introduction

Participation in competitive sport has the potential to elicit emotional, psychological, physical, and social benefits for individuals and teams based on their achievement pursuits (Adie & Bartholomew, 2013; Fraser-Thomas & Côté 2009; Moore & Werch, 2005). Whether classified as an elite athlete, seasoned competitor, amateur, or motor skill learner, it is assumed sport engagement will lead to positive outcomes such as enhanced mental health and well-being, improved cardiovascular health, and heightened confidence, as well as the development of meaningful relationships with team-mates and fellow performers. Whilst it is true many participants experience a range of positive consequences, attaining such positive outcomes is not automatically guaranteed from mere involvement alone (Quested et al., 2013). Despite striving for optimal performance and experiences, the road to athletic success is often obstructed by somewhat unexpected challenges that test the psycho-physiological strength of an individual (Balaguer et al., 2012; Vallerand & Losier, 1999). As a result of the intense mental and physical demands of the competitive environment, over-exposure to stressors and pressures, and the type of goals participants pursue, damaged self-esteem, development of affective disorders such as anxiety or depression, injury, and burnout are frequently reported by sports participants (Fraser-Thomas & Côté, 2009; Krane, Greenleaf, & Snow, 1997). In more extreme cases, research has reported the increased occurrence of body image distortion and experienced eating disorders amongst athletes (Pritchard & Wilson, 2005; Sundgot-Borgen & Torstveit, 2004) which, alongside other problematic issues aforementioned, can lead to contemplating and actual withdrawal from sport (Weiss & William, 2004). Consequently, to avoid such circumstances and alternatively promote healthy and sustained sport participation, it is important to understand the key factors that contribute to both optimal functioning and performance within a competitive context. To shed light on this matter, the current

thesis draws upon an integrated motivational perspective, (e.g., Vansteenkiste, Lens, Elliot, Soenens, & Mouratidis, 2014) by placing emphasis on the important role of environmental social interaction underpinning achievement goal pursuits, influencing indices of optimal and diminished functioning among individuals and teams in competitive sport situations (Carpentier & Mageau, 2013; Milyavskaya & Koestner, 2011; Reinboth & Duda, 2004; Vansteenkiste, Mouratidis, & Lens, 2010).

Motivation can simply be defined as the direction and intensity of an individual's efforts influencing persistence, learning, and performance and can thus be viewed as the driving force underpinning all human action (Duda, 1989; Martens & Webber, 2002). It is commonly characterised by feelings of energy and activation representing forces that initiate, guide, and sustain goal directed achievement behaviour (Beaudoin, 2006; Iso-Aloha, 1999). Motivation refers to the 'why' of behaviour (McClelland, 1985; Weiner, 1992) and thus the reasons for participating in an activity are largely perceived as indicative of the person's affects and cognitions towards that activity. There may be various reasons to explain why athletes get involved with sport, such as to pursue learning and novel experiences or to attempt to conquer complex skills. In that sense, athletes striving to achieve certain goals are more autonomous in their reasons for sport involvement (e.g., for fun and enjoyment, to overcome challenges). The motivational aspects of the sporting environment and the types of regulations that drive goal behaviour are assumed to play a vital role in influencing potential psychological, emotional, and physical effects (positive and negative) for participants in sport situations (Adie & Bartholomew, 2013; Duda, 2001; Vansteenkiste, Lens et al., 2014). Therefore, the study of motivation in a sporting context is of supreme importance.

One motivational perspective that has contributed to the understanding of achievement-based goals and ensuing performance and well-being in sport psychology literature is the achievement goal approach (AGA; e.g., Dweck, 1986; Elliot & McGregor, 2001; Elliot, Murayama, & Pekrun, 2011; Nicholls, 1984). The achievement motivation literature has spanned the past four decades and has proved fruitful for studying an individual's goal pursuits in achievement situations (e.g., sport). From its early establishment, there have been numerous AGAs offered in the literature, starting from the classic dichotomous frameworks offered by Ames (1992), Nicholls (1984), and Dweck (1986), to the more contemporary theories proposed by Elliot and colleagues within the hierarchical model of achievement motivation (HMAM; e.g., Elliot, 1999; Elliot et al., 2011; Elliot & Harackiewicz, 1996; Elliot & McGregor, 2001). Within the context of sport, these achievement goal frameworks have contributed to the understanding of achievement related cognition, affect, and behaviour as well as well- and ill-being, and performance (e.g., Lochbaum & Gottardy, 2015; Reinboth & Duda, 2006; Shen, Chen, & Guan, 2007). Most work in existence that has examined the constructs of achievement goals, in terms of its processes and influences on outcome variables, has done so at a contextual level in sport. Less work has explored sport participant's achievement behaviour at a situational level.

It has been well-documented in everyday life by both elite and amateur athletes and coaching staff that performance outcome (i.e., winning or losing), is a key consequence of achievement motivation pursuits. For example, recently retired Los Angeles Lakers star Kobe Bryant, hailed as one of the greatest National Basketball Association (NBA) players of his time, was once quoted as saying, "I focus on one thing, and one thing only – that's trying to win as many championships as I can". Similarly, Tiger Woods, widely regarded as one of the greatest golfers in the history of

the game stated, "The only reason I enter an event is to win". The importance of winning is also ever present at an amateur level. Focusing on the Gaelic Athletic Association (GAA) in Ireland, Brian Cody, senior hurling manager of Kilkenny for the past 21 years, is regarded as the greatest manager in the history of the game. For him and his players, winning the coveted All-Ireland Senior Championship Title is everything as he declared, "What we've been trying to do is difficult. You know it's difficult to win one, to win two. Madness to win three. But to come back to win it again for a fourth time in a row should be impossible really". Since then, Brian Cody has led his team to a further 13 All Ireland Final Days, winning seven and drawing two. As a result, studying achievement patterns and performance outcomes have been a primary focus of the sport-based achievement goal literature (Elliot, Cury, Fryer, & Huguet, 2006; Lochbaum & Gottardy, 2015). However, far less is known about the psychological and emotional experiences before and during competition, as well as how sport performers function post-event. These ideas about how an athlete responds over the course of an achievement-based situation (i.e., competition), particularly the different feelings likely to occur as a result of their specified goal pursuit warrant further investigation. Without an understanding of these motivational processes, it is likely even the most talented athlete would fail to recognise their potential in a given sport situation. Thus, the study of achievement motivation as it pertains to sport participants and the environment within which they function in competitive sport situations is clearly of paramount importance (Roberts, Treasure & Conroy, 2007). The current thesis aimed to examine combined goal and environmental influences on the optimal and diminished functioning of sports participants at a situational level (i.e., sport competition).

1.1   Optimal and Diminished Functioning in Sport

Optimal and diminished functioning are concepts synonymous with the constructs of well- and ill-being and refer to an individual's healthy operations within achievement settings (such as sport). Well-being is a multifaceted and complex construct. However, more holistic definitions include the World Health Organisation (WHO) who describe well-being as "a state of complete physical, mental and social well-being and not merely the absence of disease or infirmity". In the sport psychology literature, concepts of well-being have been dominated by two relatively distinct, yet related perspectives: (1) the hedonic approach and (2) the eudaimonic approach (Deci & Ryan, 2008; Ryan & Deci, 2001; Ryff, Singer, Dienberg Love, 2004). Although both perspectives equate well-being with happiness, they differ in philosophical views and markers of what constitutes happiness in society.

Hedonic Perspective

The hedonic stance proposes that happiness and pleasure form the essential goal of human life. According to this perspective, well-being is therefore achieved by increasing happiness through striving to experience more pleasurable moments, focusing on rewarding goals in line with individual beliefs and values, and approaching stimuli that enhance positive affect (Deci & Ryan, 2008). In research, hedonia tends to also be examined under the label of subjective well-being (SWB). The term itself applies to affective and judgmental elements of well-being and the idea is for people to self-evaluate, in a general way, the degree to which they perceive themselves to experience a sense of wellness (McMahan & Estes, 2011). SWB is most often interpreted to mean experiencing low negative affect and high positive affect (where affect includes both moods and emotions). A heightened degree of life satisfaction has

at times also been used as an indicator, and so, the extent to which one fully endorses these three concepts will reflect enhanced levels of SWB (Deci & Ryan, 2008).

By definition, SWB is considered to be more of a fleeting experience, one that is subject to change based upon the judgements an individual assimilates to any given situation. In that respect, well-being can be considered a situational-specific construct, however, most of the literature investigating the concept, has examined it on a global scale (i.e., drawing assumptions that an individual will function in the same way across the many domains of their life). This presents a problem, firstly because of the risk of representing average estimations of a number of undefined aspects of a person's life or a gross estimation of the current state (Schwartz & Strack, 1999). Secondly, it is assumed that individuals experience fluctuations in their feelings in any given situation and it is expected this would be ever present within the dynamic environment of sport. Therefore, a more situational-specific examination of optimal functioning warrants investigation. However, the measurement of SWB has been restricted to the exploration of positive and negative affect in previous work (e.g., Adie, Duda, & Ntoumanis, 2008a; Gaudreau & Braaten, 2016; Vansteenkiste et al., 2010) and so is limited in its considerations of more specific types of emotional responses or alternative indicators of optimal functioning.

Eudaimonic Perspective

Originally coined "the good life", the eudaimonic approach refutes the views of the hedonic perspective and rather considers well-being to be more than simply pleasure equated to happiness as an end-state. Instead, this tradition suggests human goals and values that increase positive affect are not viewed as inevitably advantageous to the individuals' growth and development. Eudaimonia is more concerned with observing

the challenges and activities people engage with towards developing and attaining their human potential, and as such, these actions are expected to be in line with values rooted within an individual's sense of self and consequently to which they assign great importance (Ryan & Deci, 2001; Ryff et al., 2004).

The eudaimonic perspective has been operationalised as a theory-driven definition of psychological well-being (PWB) based on the effective psychological functioning of the individual. According to Ryff (1989), PWB is divided into six key dimensions: "self-acceptance (positive view of the self, one's own qualities and one's past life), positive relation to others (trusting, caring and empathetic relationships with others), autonomy (self-determined with intrinsic motivation and self-referenced standards for evaluation), environmental mastery (effective mastery of the environment and the context to fulfil personal needs and values), purpose in life (directed toward purposeful goals for living) and personal growth (sense of development and self-fulfilment over time)". Although the present thesis does not directly assess eudaimonic indices of well-being, one of the theoretical motivational frameworks adopted throughout the studies (i.e., self-determination theory [SDT; Deci & Ryan, 1985]) has criticised Ryff's (1989) operationalisation of PWB. Within SDT, autonomy and mastery are viewed as antecedents of PWB, not indicators as proposed within the eudaimonic perspective. Although present researchers acknowledge and endorse SDT as a eudaimonic theory, this thesis utilises this motivational framework to address a broader sense of optimal and diminished functioning in sport.

Optimal Functioning in Sport

As a result of these philosophical distinctions and varying definitions, the investigation of well-being has opened up several avenues of exploration within the

sport psychology literature. For almost two decades now, sport psychology literature has demonstrated a growing interest in the number of studies conducted with competitive athletes and in which well-being has been explicitly assessed as a key outcome variable. The majority of this work has been conducted from the traditional eudaimonic perspective capturing well-being through numerous indicators such as subjective vitality and confidence (Gagné, Ryan, & Bargmann, 2003), task engagement (Cury, Elliot, Sarrazin, Da Fonseca, & Rufo, 2002), enjoyment/interest (Spray, Wang, Biddle, & Chatzisarantis, 2006), and self-esteem (Gagné et al., 2003). Participants are assumed to experience these adaptive consequences as a result of being fully and meaningfully engaged with their behaviour, effectively functioning, and aware of their athletic capabilities and potential; all trademarks of eudaimonia (Ryan, Huta, & Deci, 2008). It appears therefore, that eudaimonia presents a sufficient condition for the experience of hedonic well-being (as indexed by positive affect) but to be clear, the conditions that promote a hedonic context do not in turn stimulate a eudaimonic environment.

Ill-Being and Diminished Functioning

Moving beyond discussions surrounding hedonic and eudaimonic well-being and the various markers that can measure these constructs, it is important to acknowledge that sports participants operating within competitive settings may also exhibit high levels of ill-being and diminished functioning. Researchers have evidenced that the presence of well-being does not necessarily mean the absence of ill-being, and similarly, high levels of well-being are not associated with low ill-being – as such, the two dimensions coexist (see Adie & Bartholomew, 2013). Perceptions and experiences of stress and anxiety (cognitive and somatic) are two variables commonly studied in the literature as indices of ill-being. Regarding stress, there are two predominant

categories of appraisals, representing how individuals respond to the demands they are faced with in their environment, namely challenge and threat appraisals. When an individual appraises an upcoming event with as an opportunity for growth, success, learning, and mastery, this person views performance in a positive manner and is said to be appraising the task as a challenge (Lazarus & Folkman, 1984). On the contrary, threat appraisals represent the construal that the forthcoming event presents danger to the individual's well-being. Typically, threat appraisals are associated with undesirable anxiety responses, both cognitively, such as negative expectations about success, negative self-talk, worries about performance, images of failure, and disrupted attention, and somatically (e.g., increased heart rate, sweaty palms, and butterflies in tummy). In contrast, perceived challenges tend to augment anxiety symptoms in a more positive manner (Jones, Meijen, McCarthy, & Sheffield, 2009).

It has been recognised in research that cognitive appraisals of a stressful situation can also shape emotional, physiological, and behavioural responses, acting in a potential mechanistic role, explaining the relationships between achievement goal pursuit and various outcomes (Lazarus, 2000; Lazarus & Folkman, 1984). There is evidence supporting the proposition that achievement goals play a role in determining challenge and threat states (Jones et al., 2009) and further, it is assumed and has been empirically supported in sport settings that cognitive appraisals are relevant to personal well-being (e.g., Adie et al., 2008a, 2010; Nicholls, Polman, & Levy, 2012). Research investigating the goal determinants of variability in cognitive appraisals of a stressful event is more commonly found in education (e.g., McGregor & Elliot, 2002) and has received less attention in the sport psychology literature, however, recent investigations by Adie et al., (2008a; 2010) addressed this gap. Observing a similar trend to that reported in academic environments, Adie et al., (2008a) found variations in goal pursuit

to differentially impact stress appraisals. More specifically, a positive construal of achievement goals was found to be strongly and positively associated with challenge appraisals, whilst goals possessing a more negative focus, were a strong, positive predictor of threat appraisals. Adie et al., (2008a) also stated that the type of cognitive appraisal perceived, had a varying impact on well-/ill-being. Specifically, it was reported that challenge appraisals were strongly, positively related to positive affect, and moderately, positively associated with self-esteem. Researchers additionally observed a strong, positive link between threat appraisals and negative affect. A similar pattern of findings emerged in the work of Adie et al., (2010) suggesting that the more individuals anticipate a sport competition as an opportunity for growth and mastery (i.e., a positive challenge), the greater the degree of well-being they will experience, with threat appraisals more commonly linked to compromised healthy functioning.

Although encouraging findings, from a theoretical and conceptual viewpoint, research has significantly advanced since this work. This thesis will attempt to extend current work exploring the mechanistic role of cognitive appraisals of stress, to also test its potential mediational role (see section 4.1) in explaining the relationship between motivational pursuits (i.e., achievement goal, the environment influence, and reasons underpinning goal pursuit) to varying indices of optimal and diminished functioning, and performance, an area that remains relatively underexplored in the sport domain.

Towards a More Thorough Measurement of Optimal and Diminished Functioning in Sport

Our previous discussions surrounding the definition and description of well-being have identified that the concept is predominantly viewed and measured from a psychological perspective. Indeed, this focus on psychological indicators carries great

significance and plays an informative role in helping us understand how athletes operate in achievement contexts. Variables such as task enjoyment, perceptions of competence, and self-efficacy (i.e., an individual's beliefs in their ability to meet the task demands and execute the required behaviours within a specific situation, Bandura, 1997) are all positive indices of how well an individual is functioning when performing within their sport environment.

However, in re-addressing the WHO's definition of well-being as "a state of complete physical, mental and social well- being and not merely the absence of disease or infirmity", it suggests previous perspectives (e.g., PWB [Ryff, 1989; Ryan & Deci, 2001]) have not accounted for a more holistic conceptualisation of well-being if defined as optimal functioning. To address these limitations, there has been calls in the literature to move beyond solely focusing on psychological well-being to encompass a broader view of the concept of optimal functioning through utilising a more rounded and thorough operationalisation of the construct. This thesis plans to address these gaps and so discussion of the varying constructs forming well-being (and ill-being) or a state of optimal (or diminished) functioning are presented in more detail below. In addition, a selection of the indicators utilised throughout this thesis are presented below and throughout the empirical chapters.

Emotional Well-Being.

As human beings, we experience a range of emotions in response to what happens in our lives and for athletes operating with the domain of sport, particularly in specific performance situations, this is no different. It is firstly pertinent to define, and clarify the differences between, emotions and affect (which is more commonly measured in the sports-based literature) in order to alleviate any possible confusion

between these two terms. Emotions are "relatively brief but intense experiences activated by cognitive appraisal of situational factors" (Lane & Terry, 2000, p. 17), whereas affect is a "broad rubric that refers to all things emotional" (Rosenberg, 1998, p. 247). These variables differ in that each emotion has a specific associated antecedent (Lazarus, 1991, 2000), as opposed to affect which has no explicit referent. It has been suggested, measuring a range of emotions may be superior to assessing affect because this allows researchers to capture the variety of emotions experienced in competitive sport situations (Jones, Lane, Bray, Uphill, & Catlin, 2005). Indeed, a number of studies have shown that a range of positive and negative emotions are associated with sport competition. For example, Japanese field hockey players experienced excitement, pride, shame, and anxiety before and after a number of world cup matches (Kerr, Wilson, Bowling, & Sheahan, 2005), whilst national level adult golfers (Nicholls, Hemmings, Clough, 2010) and separately elite table-tennis players (Martinent, Campo, & Ferrand, 2012) felt happy and anxious during competition. Furthermore, happiness, excitement, and dejection have been reported before and after team sport (Allen, Jones, & Sheffield, 2009) and golf (Allen, Jones, & Sheffield, 2011) competitions.

One framework useful for understanding specific achievement-related emotions is based upon the work of Pekrun and colleagues (e.g., Pekrun, 1992; Pekrun, Elliot, & Maier, 2006; Pekrun, Goetz, Titz, & Perry, 2002). The 2 x 2 taxonomy of achievement emotions classifies emotions across two dimensions: object focus and valence. With reference to object focus, two further classifications exist: (1) activity-related emotions and (2) outcome-related emotions. Examples of activity-related emotions include enjoyment, boredom and anger, whilst outcome-related emotions relate more to retrospective outcome emotions, such as pride and shame following success and failure, and prospective, anticipatory outcome emotions, including hope, anxiety, and

hopelessness. The second dimension of valence concerns how positive versus negative achievement emotions can be distinguished.

The definitions of emotions investigated in this thesis are presented in Table 1.

Table 1.

Definitions of Emotions investigated in this thesis.

Emotion	Definition
Hope	A feeling of expectation and desire for a particular thing to happen.
Hopelessness	A feeling or state of despair.
Pride	A feeling or deep pleasure or satisfaction derived from one's own achievements.
Shame	A feeling of humiliation or distress caused by the consciousness of failure.

Physiological Well- and Ill-Being.

Aside from the more commonly utilised self-report measures of well-being implemented in the sport-based achievement goal literature, it has been proposed researchers should incorporate more objective markers of physiological functioning. There are many markers, particularly those identified in response to stress to be considered and they may well be particularly informative regarding potential mechanisms through which social-psychological processes differentially impact an individual's healthy and compromised functioning in competitive sport situations. To begin with, secretory immunoglobulin A (S-IgA) is an immunological protein known to increase sensitively during acute psychological stress (Bosch, Ring, de Geus, Veerman, and Amerongen, 2002). The main purpose of this marker is to protect against

the invasion of infectious agents (e.g., viruses and bacteria) and conveniently, the levels of this protein can be measured in saliva samples. This presents an opportunity for sport psychology researchers to conduct a relatively non-invasive method of data collection with an easily accessible marker of immune function (e.g., Bartholomew, Ntoumanis, Ryan, Bosch, & Thøgersen-Ntoumani, 2011). Next, cortisol is the body's main hormonal response to stress and is best known for its "fight-or-flight" instinct in the face of a crisis. When a situation is perceived as particularly stressful (e.g., in a motivated performance situation), an individual will have high levels of cortisol circulating in their system and this hormone can be measured via provision of a salivary or blood sample. Alternatively, Galvanic Skin Response (GSR), also known as skin conductance or electro-dermal activity response, is reliable indicator of stress. It is a measurement of flow of electricity through the skin of an individual. When the individual is under stress, skin conductance increases due to greater moisture on the surface of the skin, which enhances the flow of electricity. Conversely, the skin conductance is reduced when the individual becomes less stressed. GSR measurement can be taken by measuring electrical potentials between electrodes placed on surfaces of the skin (typically placed on the hand, first, and middle fingers) or more easily through smart watches and wristbands.

For the purposes of this thesis, physiological functioning was monitored via cardiovascular (CV) reactivity, indexed by heart rate (HR) and blood pressure (BP) recordings (see Turner, Jones, Sheffield, Barker, & Coffee, 2014). Heart rate is defined as the speed of the heartbeat measured by the number of contractions (beats) per minute (bpm) and is most simply measured using a monitor which sits just below an individual's chest muscles. Faced with a stressful situation, heart rate becomes substantially elevated. Blood pressure (BP) is the pressure exerted on the walls of blood

vessels due to blood circulation and varies between a systolic (maximum) and a diastolic (minimum) pressure. An increased BP has been related with increased stress. BP waveforms are commonly recorded by applying a cuff to the upper arm. Although it remains relatively understudied in sport-motivation based literature, these markers can be utilized alongside administering self-report, psychological instruments as a complementary measure to provide an enhanced understanding of an athlete's optimal and diminished functioning.

Two theories that have been adopted in the literature to enhance our understanding of the motivational processes underpinning optimal and diminished functioning in sport are the achievement goal approaches (AGA; Ames, 1992; Dweck, 1986; Elliot, 1999; Elliot & McGregor, 2001; Elliot et al., 2011; Nicholls, 1984) and self-determination theory (SDT; Deci & Ryan, 1985). To clarify, the present thesis researches motivation at the situational level, utilizing the hedonic approach to build on the eudaimonic approach to better inform and enhance our understanding of how variations in motivational pursuits can impact an individual's psycho-physiological and emotional functioning. Traditionally, the AGA-SDT literature places focus on the promotion of optimal functioning from a eudaimonic perspective, and whilst researchers appreciate this, these motivational frameworks are utilized in the current work to address a broader sense of optimal and diminished functioning in sport. However, it was important to extend upon existing work, to account for some of the proposed fleeting experiences individuals may have when engaged with a specific, competitive sporting situation. These changing experiences are reflective of a more hedonic perspective of optimal functioning that remains an under-researched concept within the sport-motivation literature. Indeed, empirical research does exist to demonstrate that situations which give rise to well-being from a eudaimonic approach

work in a similar manner for experiencing well-being from the hedonic approach (see Ryan & Deci, 2001).

To elaborate on the present research, due to the specific conditions or competitive sport situations that participants were performing in line with, it was expected variations in psycho-physiological and emotional functioning would be observed. That is, depending on their motivational pursuits, participants would report experiences of more positive or negative emotions (a construct reported in the sport literature to be a dynamic and ever-changing), an extension on the more commonly measured hedonic indicators of positive and negative affect, and differences in their stress experiences and responses (as indicated by appropriate self-report and objective measures).

1.2 Achievement Goal Theory

For over 40 years now, AGA's (e.g., Ames, 1992; Dweck, 1986; Elliot, 1999; Elliot et al., 2011; Elliot & McGregor, 2001; Nicholls, 1984) have provided a framework for studying achievement goals in the sport domain. Achievement goals can be referred to as dynamic cognitive entities representing future-based possibilities to guide, interpret, and explain patterns of variations in an individual's emotional, cognitive, and behavioural functioning (Kaplan & Maehr, 2007). Based upon the pioneering work of Nicholls (1984), the original AGA is built upon two main assumptions: (1) individuals' function in a rational manner and (2) the adopted achievement goal(s) guide future achievement reference decisions and behaviours. Like other AGA's, the primary goal of action in Nicholls' (1984) model surrounds people's goal-directed focus or drive to demonstrate or develop competence in relation to their achievement strivings. Thus, construal of ability is a central tenet in Nicholls (1984)

theory and he specifically theorised two conceptions of ability: differentiated and undifferentiated. These two definitions of ability represent the two orthogonal and implicit achievement goal orientations proposed in this original model as task and ego. Task and ego goals are therefore theorised to reflect ways in which success can be defined and methods by which one infers competence. The task goal orientation adopts an undifferentiated concept of ability and effort, meaning athlete's actions are focused on achieving task mastery and personal improvement. For task-oriented individuals, success is defined in relation to self-referenced criteria and judged subjectively by the athlete's perceptions of his or her performance. In contrast, an ego goal orientation refers to an athlete's disposition to demonstrate normative competence such as outperforming the opposition (using equal effort) or performing equally to others using less effort. Thus, success is readily judged by the ego-oriented athletes, by defining competence using other-referenced standards. This two-goal framework became known within the literature as the dichotomous model (see Elliot & Conroy, 2005). At this stage, it is worthwhile highlighting that Dweck's (1986) model also proposed a dichotomy of goals that vary as a function of how competence is defined. Although labelled differently (i.e., learning [compared to task] and performance [compared to ego] goals), this perspective was theoretically similar enough to Nicholls (1984) framework and so is categorised within the dichotomous approach. To clarify, these early conceptualisations of achievement goals were viewed as a combination of aims and reasons (Elliot & Thrash, 2001).

Early research investigating the utility of Nicholls (1984) proposals largely focused on exploring the varying consequences associated with different goal orientations. It has been frequently postulated in the literature and grounded in theoretical principles, that individuals exhibiting a high task-orientation, or tendency to

be highly ego-oriented (and so, are convinced of their athletic abilities) will subsequently experience a range of adaptive motivational consequences. For ego-oriented individuals who are less sure of their ability, maladaptive consequences are posited to ensue. Meta-analyses conducted in the physical domain (Biddle, et al., 2003; Ntoumanis & Biddle, 1999) have indicated conceptual coherence for the task goal orientation as it was meaningfully correlated with adaptive achievement motivated outcomes such as positive emotions, motives of skill development and team membership, and beliefs that effort leads to success. Duda (2001) and Roberts (2001) further supported this work in the sports and exercise domain by reporting the positive associations between task-orientations and skill development, persistence, intrinsic motivation, and challenge construal. Considering the task-oriented individuals are focused on personal growth, mastery, and improvement, these findings make theoretical sense. On the other hand, the ego goal orientation results are not as clear or consistent conceptually. For example, researchers have reported an ego-oriented individual to elicit less desirable patterns of achievement behaviours, cognitions, and emotions, (e.g., increased negative affect [Ntoumanis & Biddle, 1999], and extrinsic motivation [Brunel, 1996]), but also positive outcomes (e.g., positive affect [Ntoumanis & Biddle, 1999]), and separately no relations with negative achievement outcomes (e.g., anxiety [Sari, 2015]). Though historically, the ego goal orientation has been paired with maladaptive and detrimental outcomes, it seems these orientations may not always function in such a negative manner.

Researchers (e.g., Dweck & Legget, 1988; Nicholls, 1984) attempted to explain the equivocal findings surrounding the ego-oriented goal through the moderating hypothesis associated with perceived levels of competence. To briefly extend on this, they associated the ego goal with the "helpless", and the magnitude to which pursuit of

this goal affected cognition, affect, and behaviour, was based upon individual's perceptions of their own ability. It was therefore hypothesised when a person adopted an ego-oriented (or performance) goal, coupled with having a low assessment of their current ability, this would create an increase in one's doubts about their adequacy, negative affect, and performance deterioration characteristic of helplessness. For someone in pursuit of this goal, but with even less certainty surrounding their ability, such negative connotations cannot be avoided. However, Elliot (1999) refuted that the ambiguity surrounding the mixed findings for ego goals was attributed to a failure to test the moderating hypothesis. Instead he argued for a greater exploration of the nature and function of ego (performance) goals (i.e., the inclusion of an approach-avoidance distinction) towards providing a more detailed and insightful account of achievement behaviour.

The hierarchical model of achievement motivation (HMAM) was subsequently founded (Elliot, 1999; Elliot & Church, 1997) and firstly provided a revision of the conventional dichotomous approach by rethinking how achievement goals were defined; thus, competence was now differentiated across two dimensions, (1) definition and (2) valence. Within this model, achievement goals were now viewed as concrete aims rather than a combination of aims and reasons (regulations), as previously conceptualised in the dichotomous model. In terms of definition, competence was viewed across three standards, (1) a self-referenced or intrapersonal standard, (2) a task-referenced or absolute standard, and (3) an other-referenced or normative standard. To be clear, the definitional construct of competence here proposed by Elliot (1999) reflects the traditional mastery-performance (or task-ego) dichotomy where striving for an intrapersonal or absolute standard was classified together as a mastery goal, whilst achievement strivings related to a normative or other standard, was termed a

performance goal. The second competence dimension is valence, which distinguished goals across two classifications: approach (i.e., focused on attaining success) and avoidance (i.e., focused on avoiding failure).

The combination of definition and valence dimensions was firstly applied to the performance goal construct only and resulted in a trichotomous framework (Elliot & Church, 1997; Elliot & Harackiewicz, 1996), but soon after, this model underwent further revisions within the HMAM to establish the 2 x 2 achievement goal model (AGM; Elliot & McGregor, 2001) which extended the approach-avoidance distinction also to the mastery goal. As such, four distinct goal constructs existed: (1) mastery-approach (MAp), (2) mastery-avoidance (MAv), (3) performance-approach (PAp), and (4) performance-avoidance (PAv). To clarify, only MAp, PAp, and PAv goals were constructs within the trichotomous model, and the later addition of the MAv goal, then completed the 2 x 2 AGM format. A MAp goal reflects striving to achieve task mastery or improvement (i.e., self- or task-referenced competence), MAv goals focus on not falling short of task mastery (i.e., avoidance of demonstrating self- or task-referenced incompetence), PAp goals relate to a desire to outperform others (i.e., focus on demonstrating normative competence), and finally, PAv goals aim to avoid performing any worse than, or losing to others (i.e., to avoid demonstrating normative incompetence).

In line with theoretical predictions, MAp goals have led to a host of adaptive outcomes for individuals operating within the sport environment, such as the promotion of intrinsic motivation (Nien & Duda, 2008), effort expenditure, self-talk, and enjoyment (Van de Pol & Kavussanu, 2011), positive emotions (Dewar & Kavussanu, 2011), and successful performance (Lochbaum & Gottardy, 2015; Puente-Díaz, 2013; Van Yperen, Blaga, & Postmes, 2014). MAp goals have further demonstrated negative

relations with cognitive anxiety (indexed by concentration disruption and worry; Morris & Kavussanu, 2009), threat appraisals (Adie et al., 2008a), and negative affect (Gaudreau & Braaten, 2016). Elliot and Conroy (2005) initially proposed MAv goals would have fewer positive outcomes than MAp goals, and less negative effects than PAv goals. The sport literature testing these possibilities has repeatedly found MAv and PAv goals to both yield maladaptive consequences such as cognitive anxiety (Morris & Kavussanu, 2009), increased amotivation (Nien & Duda, 2008), and decreased performance (Elliot et al., 2006). PAp goal adoption was also posited to ensue in some positive consequences, but fewer than when pursuing a MAp goal (Elliot & Conroy, 2005) – as such, PAp goals have demonstrated positive relations with a series of both adaptive and maladaptive outcomes studied in the literature.

Stemming from the original inconsistent findings surrounding the ego-oriented goal (e.g., Ntoumanis & Biddle, 1999), when framed within the 2 x 2 AGM (Elliot & McGregor, 2001), research continues to reveal equivocal findings associated with PAp goals. For example, experimental findings have shown PAp goals to have comparable levels of intrinsic motivation relative to MAp goals (Cury et al., 2002) and correlational findings have found positive associations with challenge appraisals (Adie et al., 2008), and performance (Elliot et al., 2006). In contrast, other studies have revealed PAp goals to be unrelated to these same variables (Morris & Kavussanu, 2009; Nien & Duda, 2008; Puente-Díaz, 2012). Furthermore, literature has observed positive links between PAp goals with hope (Puente-Díaz, 2013) and vitality (Li, 2010) but also with negative affect (Adie et al., 2008a; Mouratidis, Vansteenkiste, Lens, & Van den Auweele, 2009), engagement with unsportspersonship attitudes (Kavussanu & Roberts, 2001), and extrinsic motivation (Nien & Duda, 2008). To briefly explain this, theoretically, PAp goals may certainly be construed in a positive sense, in that they appear to represent a

natural manifestation of competence strivings. However, these goals also seem to be susceptible to becoming intertwined with disruptive motivational concerns such as self-presentation and self-validation issues (Elliot & Moller, 2003). These are most likely occurring because of the normative criteria associated with this goal (i.e., possessing a desire to outperform competition, considering that it is not possible to be the best in competition; Elliot & Moller, 2003). Further explanations for these ambiguous findings will be discussed later in this thesis (see section 1.4), however, for now it seems plausible to conclude, that the sport-related findings in the literature have supported this supposition that PAp goals can be adaptive as far as performance is concerned (e.g., Kavussanu, Morris, & Ring, 2009), but have found that the long-term pursuit of PAp goals can be health-compromising (e.g., Adie et al., 2010).

Elliot and colleagues (Elliot et al., 2011) called for further revisions on the HMAM, specifically upon the 2 x 2 AGM (Elliot & McGregor, 2001) to provide a more precise definition of the mastery goal, which traditionally incorporates both self- and task-referenced competence criteria. A question surfaced in the literature debating if these two standards of competence are indeed similar enough to remain as a single goal construct or are there distinct differences in their structure that would warrant their separation into individual constructs. To explore this further and enhance the predictive utility of the mastery goal, Elliot et al., (2011) argued for and extended his theory to create the 3 x 2 AGM. Like before, competence was defined along the dimensions of definition and valence, however, Elliot postulated a separate type of goal construct for each of the three standards used in competence evaluation: self-, task-, and other-referenced criteria.

Self-based goals use intrapersonal criteria as an evaluative referent of competence. A self-approach (SAp) goal is defined in terms of demonstrating

improvement relative to how one has done in the past or has the potential to do so in the future (e.g., a 100m sprinter crossing the finish line in a quicker time than what they have previously achieved). A self-avoidance (SAv) goal, on the other hand, relates to the desire to avoid performing as poorly as previous experiences (e.g., a 100m sprinter wishing to avoid crossing the finish line any slower than their previous attempts). Task-based goals use the absolute demands of the task as the evaluative referent. A task-approach (TAp) goal involves demonstrating competence in relation to what the skill demands (e.g., correctly executing the technique of a back handspring in gymnastics). A task-avoidance (TAv) goal is defined by avoiding demonstrating incompetence in relation to skill requirements (e.g., avoiding performing the incorrect back handspring technique). Other-based goals are conceptually equivalent to PAp and PAv goals (i.e., other-approach [OAp] goals involve aiming to do better than and/or outperform others, e.g., winning a championship fixture in Gaelic football, whilst other-avoidance [OAv] goals focus on avoiding performing any worse relative to others, e.g., avoiding losing to the opposition). The crossing of definition and valence dimensions now unveiled six distinct goal constructs (see figure one).

Reviewing their definitions, it makes sense why previous theories have considered self- and task-based goals together within a single rubric (i.e., mastery goal). In everyday life, self- and task-based strivings are often commingled. For example, the self-based goal of expanding one's knowledge base and the task-based goal of understanding new course material are obviously closely intertwined. Conceptually, self- and task-based goals display similarities to the extent that they both have an

Definition

	Absolute (task)	Intrapersonal (self)	Interpersonal (other)
Positive (approaching success)	Task-approach goal	Self-approach goal	Other-approach goal
Negative (avoiding failure)	Task-avoidance goal	Self-avoidance goal	Other-avoidance goal

Valence (row heading for the table above)

Figure 1[1]. The 3 x 2 Achievement Goal Model.

evaluative standard that can be used privately and at one's own discretion in the acquisition of competence information (Elliot et al., 2011). So, for the regulation of these goals, these conceptual similarities likely promote somewhat similar processes. However, upon closer inspection, one can see why it may be best to consider these goals separately. To provide a simple illustration utilising a task many people complete on a daily basis, a person completing a crossword puzzle may have the goal (i.e., TAp goal) in mind to find all of the words in the puzzle, without necessarily taking into account their prior puzzle-solving experiences; alternatively, a person may be more focused on trying to find more (or avoid finding less) words in today's crossword puzzle than in yesterday's puzzle (i.e., adopting self-based goals) without necessarily needing to find every single answer of the puzzle. This greater conceptual clarity has a potential beneficial impact from an empirical viewpoint, as it can be concluded in research examining these goals, the direct effects of the self- and separately, the task-

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[1] *Note*. Reprinted from "A 3 x 2 Achievement Goal Model", by Elliot, Murayama, & Pekrun (2011), *Journal of Educational Psychology, 3, 632 – 648, p. 634.*

components of goal pursuits with studied outcomes, something that was not possible to determine when utilising the omnibus MAp goal (Elliot & Thrash, 2001).

Research utilising the 3 x 2 AGM as their underpinning motivational framework has demonstrated support of the separation of the former mastery goal, into its distinct self- and task-referents. In their original paper in education, Elliot et al., (2011) reported self- and task-based goals to be linked with different consequences. They reported TAp goals as a positive predictor of intrinsic motivation, absorption in class, and learning efficacy, whilst SAp goals were unrelated to each of these variables. Furthermore, SAp goals demonstrated positive relations with energy in the classroom, whereas SAv goals were a negative predictor and task-based goals revealed no association at all. Within this study, and in agreement with the majority of existing literature within the earlier AGA's, OAp goals were positively related to performance, unrelated to all other variables, and OAv goals remained a problematic achievement pursuit for all studied outcomes. The positive links between OAp goals and academic performance have been further supported within other educational research (Benita, Shane, Elgali, & Roth, 2017; Diseth, 2015). Similar findings were also reported more recently across education and work-based populations (Gillet, Lafreniére, Huyghebaert, & Fouquereau, 2015). TAp goals were positively correlated to positive affect and engagement, but not significantly correlated to anxiety whilst OAp goals were positively related to positive affect, but among undergraduate students only. In addition, SAv goals were unrelated to satisfaction, engagement, positive affect, and anxiety. Although these findings demonstrate support for the distinct consequences of self- and task-based goals, most of the research investigating the 3 x 2 AGM thus far has been conducted within education. Far less work has applied the framework within a sport context. One exception is the work of Delrue et al., (2016), who observed runners adopting SAp

goals aspired to a faster time pre-race and consequently ran faster than those adopting a SAv goal.

This thesis will be utilising this most recent development of the AGA's, namely the 3 x 2 AGM (Elliot et al., 2011). More specifically, a series of studies will be conducted attempting to extend the limited sport research utilizing this theoretical approach. This will place particular focus on how these goal pursuits relate to optimal and diminished functioning, where there currently is also a scarcity of work.

Aside from the incorporation of the approach-avoidance distinction and a clearer definition of competence in relation to each achievement goal, the HMAM extends the original dichotomous framework by proposing that goals are firstly activated based upon their corresponding antecedents and consequently, the goal endorsed will influence the pattern of outcomes experienced. One type of antecedent originally and most frequently investigated are the two types of achievement motives, namely the need for achievement (NAch) and the fear of failure (FF; Atkinson, 1964). A clear pattern of relations was proposed in literature between antecedents and MAp and PAv goals. More specifically, it was hypothesised and evidenced across various achievement domains, such as sport (e.g., Conroy & Elliot, 2004; Conroy, Elliot, & Hofer, 2003) and education (e.g., Elliot & McGregor, 2001; Moller & Elliot, 2006), that the NAch instigates adoption of a MAp goal (because of their more positive desire for success), whilst FF underpins PAv goal pursuit (as a result of their associated negative focus to avoid failure). Much like the inconsistent findings surrounding the original performance goal construct, PAp goals offer a complex relation with achievement motives, and are determined by both the NAch and FF, most likely because of their positive strivings for success, intertwined with the awareness they must avoid failure to achieve this normative standard. It is important to clarify when motives

have been studied previously in accordance with Atkinson (1964), they were operationalised as needs rather than an actual form of regulation of goal-directed behaviour. Self-determination theory (SDT; Deci & Ryan, 1985) provides such a possibility. As such, there are proposed alternative sets of antecedents that can influence goal adoption, (1) personal factors (i.e., reasons one has for their achievement goal pursuit), and (2) an individual's perception of environmental factors (i.e., the motivational context), which may be beneficial in providing us with an enhanced understanding of motivational processes and their impacts on achievement related outcomes, yet they remain relatively under-explored within the sport domain. Elliot (1999) postulated the environmental factors as antecedents of goals, however, so far, mostly task- and ego-climates have been examined (e.g., Spray et al., 2006). Self-determination theory (SDT; Deci & Ryan, 1985) provides a complimentary motivational perspective to that offered by AGT's and the key tenets and principles of this model, address the alternative sets of antecedents proposed in literature.

1.3   Self-Determination Theory

Self-determination theory (SDT; Deci & Ryan, 1985; Ryan & Deci, 2002) represents a broad framework for the study of human motivation and personality and has been widely applied in the sport domain (e.g., Balaguer, et al., 2012; Bartholomew et al., 2011; Gillet, Vallerand, Amoura, & Baldes, 2010; Vansteenkiste et al., 2010; Vansteenkiste, Mouratidis, Van Reit, & Lens, 2014). SDT articulates a meta-theory for framing motivational studies, a formal theory that defines intrinsic and the multifaceted extrinsic motivation, and a description of the respective roles of intrinsic and types of extrinsic motivation in cognitive and social development and in individual differences (Deci & Ryan, 1985). Perhaps more significantly, SDT propositions also focus on how

cultural and social factors enable or undermine people's sense of volition and initiative, in addition to their well-being and quality of their performance (Deci & Ryan, 1985).

Autonomous vs Controlled Motivation

The concepts of intrinsic and extrinsic motivation, distinguish between why individuals engage with behaviours, for example, is it because they were inherently enjoyable, interesting, and provided an optimal challenge for them (i.e., intrinsic motivation) or rather to obtain a completely separable outcome (i.e., extrinsic motivation; Ryan & Deci, 2000). This latter conceptualization is multidimensional, and as such, it is the type and not merely the quantity of motivation driving the behaviour that is considered to be the principal determinant of cognitive, affective, and behavioural outcomes. It has been well documented that those athletes who report behavioural engagement for more intrinsic reasons (i.e., autonomously regulating), are likely to experience positive outcomes such as enhanced persistence, performance, and well-being whilst those athletes who report more extrinsic motives are more likely to dropout or encounter negative outcomes such as anxiety and depression (e.g., Krane et al., 1997; Whitehead, 1995). SDT argues that extrinsic motivation (controlled regulation) can vary considerably in its relative autonomy and thus can reflect either external control or self-regulation (Ryan & Deci, 2000). Hence, it is possible for individuals to be autonomously extrinsically motivated. To better explain the development and multifaceted nature of extrinsic motivation, Deci and Ryan (1985) proposed a taxonomy of the different types of regulation for extrinsic motivation. These regulations differ in the degree to which they have been internalized and integrated into an individual's sense of self. Viewed along a continuum (see figure two), the concept of internalization describes how an individual's motivation for behaviour can range from passive compliance to active personal commitment (Deci & Ryan, 2000).

At the left-hand side of the continuum lays amotivation, representing a lack of motivation. This means, amotivated actions are passive and have no intentional aim. The other classifications on the continuum refer to types of motivated behaviour. At the far right of the continuum is intrinsic motivation, the prototype of autonomous or self-determined behaviour. Extrinsically motivated behaviours are characterised by four varying types of regulations and fall along the self-determination continuum between amotivation and intrinsic motivation (Ryan & Deci, 2002). First, situated next to amotivation, external regulation represents the least autonomous form of extrinsic motivation and most often occurs when behaviours are performed to satisfy an external demand (e.g., instruction from the coach) or obtain an externally imposed reward. Such actions can be seen to emanate fully from an externally perceived locus of causality (Deci & Ryan, 1985). Following on from external regulation, is introjected regulation. Introjection describes a controlling type of internal regulation whereby individuals feel pressure (from within) to engage in behaviours to avoid experiencing feelings of guilt and shame or to attain ego enhancements and feelings of worth (Ryan & Deci, 2000). A more autonomous, or self-determined form of extrinsic motivation is identified regulation. In this case, individuals value the goal, and recognise the potential importance the behaviour carries, and so accept it as their own (Ryan & Deci, 2000). Finally, integrated regulation represents the most autonomous form of extrinsic motivation. Occurring when regulations are fully assimilated with the self, this type of motivation is grounded within an individual's beliefs and personal needs. As a result, integrated motivation shares qualities with intrinsic motivation (e.g., they are often volitional and valued by the self) but because behaviours (e.g., achievement strivings) are regulated by extrinsic sources, rather than for the inherent enjoyment or interest associated with the task, it is still classified as extrinsic regulation (Deci & Ryan, 1985).

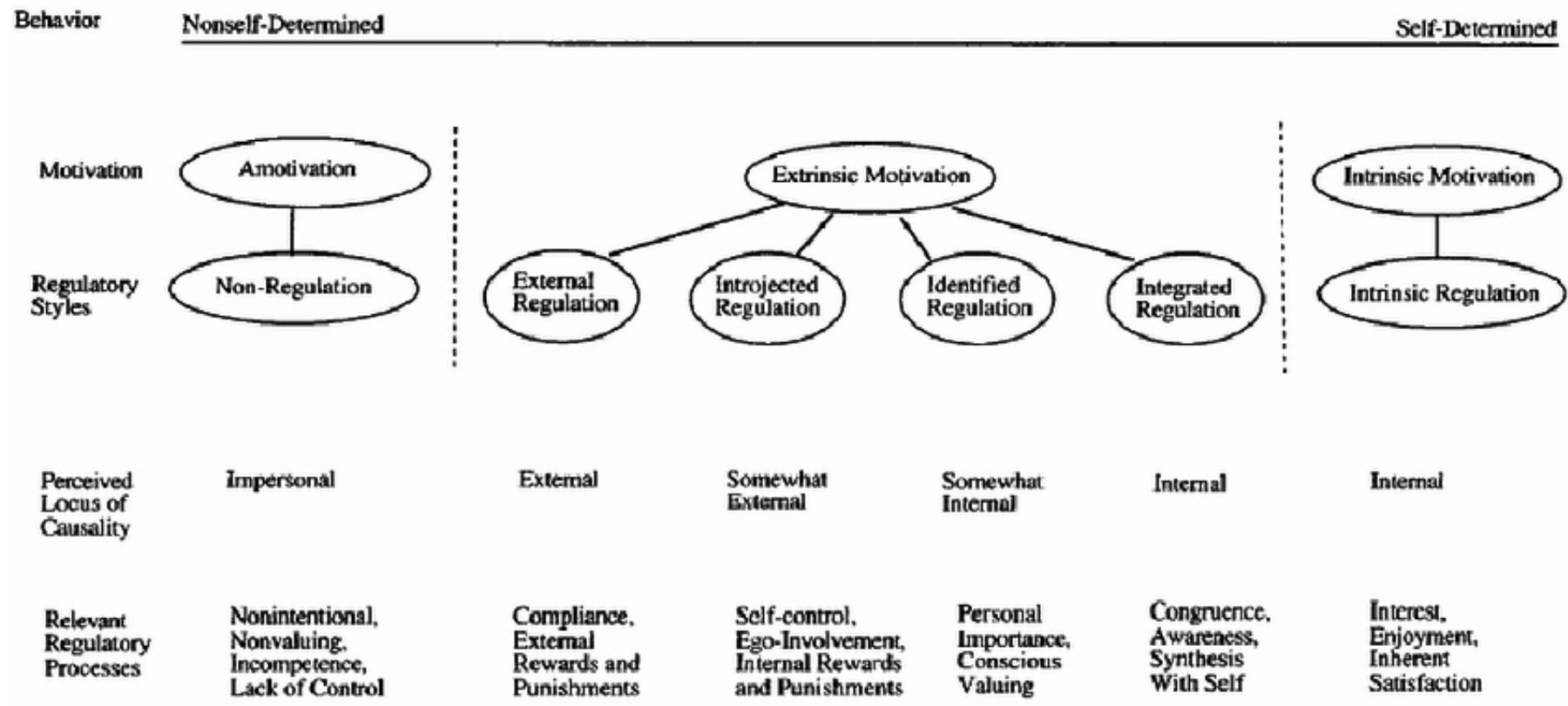| Behavior	Nonself-Determined					Self-Determined
Motivation	Amotivation	Extrinsic Motivation				Intrinsic Motivation
Regulatory Styles	Non-Regulation	External Regulation	Introjected Regulation	Identified Regulation	Integrated Regulation	Intrinsic Regulation
Perceived Locus of Causality	Impersonal	External	Somewhat External	Somewhat Internal	Internal	Internal
Relevant Regulatory Processes	Nonintentional, Nonvaluing, Incompetence, Lack of Control	Compliance, External Rewards and Punishments	Self-control, Ego-Involvement, Internal Rewards and Punishments	Personal Importance, Conscious Valuing	Congruence, Awareness, Synthesis With Self	Interest, Enjoyment, Inherent Satisfaction

Figure 2[2]. The SDT Continuum for Motivation Regulation.

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[2] *Note*. Reprinted from "Intrinsic and extrinsic motivations: Classic definitions and new directions" Ryan & Deci (2000). *Contemporary Educational Psychology, 25,* 54 – 67, p. 72.

SDT proposes that in order to experience psychological growth, autonomous behaviour, and a unified sense of self, individuals will work to integrate within themselves the regulation of extrinsically motivated activities that they recognise as beneficial for effective functioning in the social environment even if they are not inherently interesting (Ryan & Deci, 2002). Considering the training environment within a sport domain, often tasks or skills are required to be performed in a repetitive and continuous manner. Engaging in such behaviour is unlikely to promote a sense of solely intrinsic motivation among athletes, however, the process of integrated regulation will play a particularly pertinent role here, because participants will recognise and believe in the training tasks towards aiding their achievement strivings (Mallet & Hanrahan, 2004). For the purposes of this thesis, behaviour (i.e., achievement strivings) is operationalised as autonomous (i.e., intrinsic, integrated, and identified motivation) and controlled (i.e., introjected, extrinsic and amotivation).

Basic Psychological Needs

SDT also proposes a set of psychological needs that act as essential nutrients, which must be satisfied for people to experience optimal functioning and effective social engagements (Deci & Ryan, 2008). The needs for autonomy, competence and relatedness are proposed to be universal across people and cultures and applicable throughout all aspects of a person's life. First, the need for autonomy refers to the provision of choice and experience of volition when executing a task or engaging in a behaviour more generally. Second, the need for competence involves the ability to bring about desired outcomes and feelings of effectiveness and mastery when interacting with one's environment. Third, the need for relatedness reflects feelings of connectedness and belongingness in one's everyday interactions (Deci & Ryan, 2000).

The way in which a participant regulates their behaviour, will be influenced by their experience of the basic psychological needs. It is hypothesised that when the three psychological needs are satisfied (i.e., individuals feel self-determined [autonomy], efficacious [competence], and connected to others in their social environment [relatedness]), autonomous behavioural engagement and an adaptive pattern of cognitive, affective, and behavioural outcomes will ensue (Deci & Ryan, 2000). However, when the three psychological needs are undermined, otherwise known in the literature as need frustration, subsequent outcomes are assumed to be maladaptive (e.g., compromised well-being and diminished functioning; Ryan & Deci, 2000). Thus, the concept of basic psychological needs provides understanding of the motivational processes underpinning different indices of optimal and diminished functioning. The importance of psychological needs in relation to optimal and diminished functioning (or well/ill-being) has been emphasised within Basic Psychological Needs Theory (BPNT; Deci & Ryan, 2000), a sub-theory within the broader SDT framework.

BPNT details the dynamic relations between psychological needs and health, and postulates that people function and develop more successfully as a consequence of social environmental support for their basic psychological needs (Ryan & Deci, 2000). With respect to social environmental factors, there are many influences present within the sport context which may impact the extent to which athletes' psychological needs are satisfied, but perhaps the most important is the context created by significant others (e.g., coach, team manager etc). It has been suggested and empirically supported that the level of autonomy-support (vs interpersonal control) provided by significant others towards sports participants operating within a performance environment can significantly shape ensuing psychological, emotional, physical, and behavioural consequences (e.g., Balaguer, Castillo, Cuevas, & Atienza, 2018; Gillet et al., 2010;

Reinboth, Duda, & Ntoumanis, 2004). An autonomy-supportive motivational context is made up several elements, including promoting choice, considering the athlete's perspective, engaging them in the decision-making process, offering a rationale for the task to be undertaken, acknowledging potential difficulties associated with performance, and utilizing non-controlling language (Ryan & Deci, 2000). In contrast, the factors shaping an interpersonally controlling environment involves the exertion of excessive personal control, use of pressuring language, inducing rewards, deadlines, and threats, and exhibiting intimidation techniques intended to control participant's behaviour (Bartholomew, Ntoumanis, & Thøgersen-Ntoumani, 2009).

An extension on the original BPNT (Deci & Ryan, 2000) proposed a dual-process model which is built upon a differentiated view of the social-contextual environment, athlete motivation, and athlete experiences. As such, this model suggests that the perceived differences in coaches and/or team managers provision of autonomy-support versus control will influence a distinct set of processes pertaining to need satisfaction and need frustration respectively. In turn, this will impact a differentiated set of athlete experiences that can be classified as adaptive (reflecting optimal functioning i.e., resulting from need satisfaction) or maladaptive (reflecting diminished functioning, i.e., resulting from need frustration). To clarify, the dual-process model proposed need satisfaction and need frustration to not only be conceptually distinct (low scores of need satisfaction does not equate to a need frustration experience), but each possesses a unique set of antecedents and consequences. To extend on this, individuals who report low need satisfaction may identify feelings of having minimal choice, a lack of support from significant others, and low perceptions of ability in relation to a given task. On the other hand, an individual who experiences need frustration would report more intense feelings such as being coerced, pressured, or forced into activities, rejected

or excluded from a group, and of being heavily criticized. It has been suggested, whilst low levels of need satisfaction could be associated with less desirable outcomes (e.g., low vitality and excitement for sport), need frustration experiences are more likely to be related to controlled motivation (environment), amotivation and more extreme, maladaptive consequences such as burnout and eating disorders (Warburton, Wang, Bartholomew, Tuff, & Bishop, 2020). Thus, it was necessary to distinguish between a lack of need satisfaction and experiences of need frustration. In doing so, the dual-process model addresses what has been termed, both the brighter and the darker aspects of the athletic experience (Bartholomew, Ntoumanis, Ryan, & Thøgersen-Ntoumani, 2011; Bartholomew, Ntoumanis, & Thøgersen -Ntoumani, 2011).

A large body of sport research guided by SDT and investigating the implications of autonomy-supportive motivational contexts have reported associations with indices of optimal functioning (e.g., Reinboth et al., 2004) and sport performance (e.g., Hooyman, Wulf, & Lewthwaite, 2014). For example, significant positive relations have been reported between an autonomy-supportive context and enjoyment (Alvarez, Balaguer, Castillo, & Duda, 2009), positive affect (Gagné et al., 2003), effort (Van de Pol Kavussanu, & Kompier, 2015), subjective vitality (Adie et al., 2008b), and indeed performance (Gillet et al., 2010). The findings from the sport SDT-based literature also demonstrate implications of an interpersonally controlling environment on reducing self-determined behaviour (or promoting controlled regulation), and subsequent diminished psycho-physiological functioning (Bartholomew et al., 2011). Positive associations have been observed between controlling motivational contexts and psychological need frustration (Balaguer et al., 2012), anxiety (Ramis, Torregrosa, Viladrich, & Cruz, 2017), athlete burnout (Balaguer et al., 2012), and poor performance (Spray et al., 2006).

Having an understanding of why an athlete engages with a task, provides a foundation for better understanding of their behavioural regulation and consequently how this impacts optimal and diminished functioning. Furthermore, the concept of human needs turns out to be extremely useful because it provides an awareness of how various social forces and interpersonal environments affect autonomous versus controlled motivation. The majority of the work testing these concepts in research have done so from a contextual focus (i.e., testing within the domain of sport; for a review, see Pelletier & Sarrazin, 2007), and few studies have explored elements at a situational level (i.e., concentrating on the 'here and now' during a specific competition, or task-performance; e.g., Blanchard, Mask, Vallerand, de le Sablonniére, & Provencher, 2007). This thesis will adopt the latter approach, investigating the concepts of SDT within specific sports situations to attain an enhanced understanding of the motivational processes operating at this level.

Research has recently suggested, to advance our knowledge on the motivational processes underpinning optimal and diminished functioning in sport, future work should consider the autonomous and controlled regulations (arising from the influence of athlete's reasons for behaviour engagement and the impact of the social environment) behind the pursuit of achievement goal (i.e., moving towards testing a theoretical integration of AGA and SDT; Vansteenkiste, Lens et al., 2014). As such, it is expected the varying reasons (autonomous vs controlling) underpinning achievement goal pursuit, and/or the unique motivational contexts within which they are adopted will relate differentially to studied cognitive, affective, and behavioural outcomes.

1.4   Working Towards Theoretical Integration of AGT & SDT

The proposal of integrating key tenets of AGA and SDT towards providing a more comprehensive overview and understanding of the motivational processes underpinning well-being and performance in achievement settings is not a recent movement. Duda (2001) called for achievement goal researchers to combine different motivational perspectives, and since then researchers across achievement domains (e.g., sport and education) have attempted to merge the key theoretical constructs and tenets embedded within AGA and SDT frameworks (e.g., Reinboth & Duda, 2006; Sarazin, Vallerand, Guillet, Pelletier, & Cury, 2002; Spray et al., 2006; Vansteenkiste et al., 2010; Vansteenkiste, Mouratidis et al., 2014). Although this movement has presented challenges, the central issue facing researchers was the varying role competence plays across both theories, resulting from the absence of a rigid theoretical framework to guide integration attempts. In the classic achievement goal approaches where there is an exclusive focus on the conception of ability, competence is assumed to perform a moderating role in the prediction of ego (performance) achievement goals on studied achievement outcomes (Dweck & Legget, 1988; Nicholls, 1984). In contrast, within SDT, competence is viewed as a basic psychological need that requires satisfaction, if optimal functioning is to ensue (Deci & Ryan, 2008). It has been argued, because of these variations regarding the role of competence, an incomplete understanding of motivation in achievement contexts, such as sport entails. It has been well documented in such contexts, that individuals possess a desire to have choice in their actions (i.e. the need for autonomy) and feel a connection to others in a meaningful way (i.e. a need for relatedness) and as such, AGA does not take this into consideration (Ntoumanis, 2001). SDT on the other hand, fails to represent how social contexts influence motivation when promoting either differentiated or undifferentiated competence.

Regardless, early research testing the incorporation of key theoretical tenets from both theories have demonstrated facets of a task- and ego-oriented environment are relevant to the experience of need satisfaction and therefore optimal (and diminished) functioning. For example, in their cross-sectional research with British athletes, Reinboth et al., (2004) revealed perceptions of a coach-created environment that represented a more task-involving climate (e.g., focus on improvement), was positively associated with basic need satisfaction, which in turn positively influenced well-being and negatively related to ill-being. Follow-up work by Reinboth and Duda (2006) adopted a longitudinal approach to specifically test the motivational sequence assumed in theory between the social environment, need satisfaction, and well-/ill-being. University athlete's perceptions of a task-involving climate predicted an increased satisfaction of the basic needs, which in turn impacted feelings of subjective vitality. Similar work has been conducted in a laboratory environment with comparable results (e.g., Standage, Duda, & Pensgaard, 2005). One exception drawing from the original AGM includes work by Spray et al., (2006). Researchers induced achievement goals (task- and ego-oriented) under autonomy-supportive and controlling contexts to examine their relationship with behavioural and emotional outcomes for participants performing a golf task. No significant findings emerged favouring task or ego goals, however, the autonomy-supportive context predicted more adaptive outcomes across all measured variables than the controlling context. Although advancing previous work by incorporating elements of SDT, Spray et al., (2006) utilised Nicholl's (1984) early conceptualisation of achievement goals. Like prior work, these studies adopted the dichotomous goal perspective and ignored the moderating role of competence for ego goals and largely (with the exception of Spray et al., 2006) explored facets of the

motivational climate to represent the environment, thus not truly exploring SDT's conceptualisation of the social context.

To address these shortcomings in previous literature and drawing directly from the more contemporary framework of achievement goals (i.e., the HMAM) and SDT, work by Vansteenkiste and colleagues sought to provide a clearer insight into the potential integrative possibilities of the core constructs of these theories. Specifically, they have examined the reasons (autonomous vs controlling) underpinning achievement goal pursuit in varying sports contexts. Firstly, in soccer, Vansteenkiste et al., (2010) reported endorsing PAp goals for more autonomous reasons led to athletes feeling more energized alongside experiencing greater positive and less negative affect. In contrast, soccer players who felt psychologically pressured or controlled to outperform their opponent during the game reported somewhat more negative affect. A similar pattern of adaptive findings was observed across the course of a season in volleyball (Vansteenkiste, Mouratidis et al., 2014) where autonomous reasons underlying a MAp goal were positively associated to prosocial behaviour toward teammates, game enjoyment, and performance satisfaction. By more accurately incorporating the key constructs of HMAM and SDT, this literature progressed previous work and highlighted the importance of considering the reasons underpinning goal pursuit in influencing achievement patterns, however, it is not without its limitations. Measurement (e.g., reliance on self-report measures, adopting dominant goal approach [Van Yperen, 2006] and thus not explicitly examining specific goal pursuits, overlooking influences on optimal and diminished functioning) and design (e.g., correlational approach, focus on team games, adoption of 2 x 2 AGM approach-based goals only) issues were evident, but most of all, the absence of a theoretical framework undergirding these integration attempts meant research had not truly tested the

contribution of varying reasons underpinning any one goal, and the possibility such combinations could have on cognitive, affective, and behavioural patterns.

In an attempt to move the achievement goal approach one step further, Vansteenkiste, Lens et al., (2014) proposed a conceptual model integrating constructs of AGA's with SDT, arguing that achievement goal researchers move beyond looking only at the strength of pursuing particular achievement goals to additionally consider the autonomous and controlled underlying reasons. This idea was in part, born from the important movement in achievement goal literature and previous work (e.g., Elliot & Thrash, 2001), to provide greater conceptual clarity on the definitional aspect of the goals themselves. To briefly revisit the early models, researchers Dweck (1986) and Nicholls (1984) referred to a broad definition of achievement goals, one that consisted of related but nonetheless different competence-based processes including aims, reasons, feelings and in some cases, attributions – to be clear, these models represented achievement goals as omnibus constructs or orientations. This conception was advantageous to a certain extent; these related competence processes operating interdependently allowed for a rich and dynamic insight into an individual's achievement strivings. However, employing such a general perspective presented disadvantages and has been challenged in the literature (e.g., ambiguity over performance goals). To explain this, by examining a multi-faceted achievement goal, it remains unclear which elements (i.e., aims, reasons, feelings, or attributions) represent the true defining feature of the construct and which elements are therefore more peripheral. Furthermore, the various competence referents intertwined within any one goal made it difficult to discern precisely what aspect is driving observed affects, and alongside that why researchers tended to observe varying patters in achievement-related outcomes resulting from the same goal pursuit.

To address these problematic matters, Vansteenkiste, Lens et al., (2014) pursued the original call of Elliot and Thrash (2001), to disentangle aims from reasons, towards providing a narrower and more precise definition of achievement goal constructs to represent aims only (i.e., the "what" of achievement goals). Following this move, it was proposed that now, any one goal could have various underlying reasons (i.e., the "why" of achievement goals; autonomous vs controlling), and it was further suggested these reasons may not only trigger goal adoption but also help shape their consequential effects (Elliot & Thrash, 2001; Vansteenkiste, Lens et al., 2014). The same goal may therefore behave differently based on the underlying reasons for pursuing it. The potential combined effects occurring from merging specific reasons to the newly formed goal structure (made up of an aim only), is termed 'goal-complex' in the literature (Elliot & Thrash, 2001). To be clear, each complex fuses the goal and reason, rather than isolating and comparing the two elements, providing researchers with an opportunity to observe the potential moderating effects of reasons between goal adoption predicting well-being and performance (Senko & Tropiano, 2016). Aligned with theoretical propositions and previous discussions (see section 1.2), it has been recommended that it is not only SDT's constructs of reasons that may act as antecedents for goal adoption, but also the motivational context (autonomy-supportive vs controlling) too. Until very recently, these interactive possibilities were ignored in research and today, whilst some work has been conducted in an attempt to address the notion, goal-complexes still remain heavily under-researched.

The idea that goals could now be pursued for different underlying reasons was thought to provide a novel contribution to the years of debate surrounding the utility of the PAp (now referred to as OAp) goal, and more specifically in understanding whether they can be considered (mal)adaptive. An emerging stream of research has tried to

clarify when and for whom PAp goals are associated with good rather than bad outcomes (see Senko, Hulleman, & Harackiewicz, 2011). It was suggested and found that the inherent detrimental nature commonly associated with performance goals may not exist or could be significantly alleviated if OAp goals were pursued for autonomous reasons or adopted under autonomy-supportive motivational contexts (Vansteenkiste et al., 2010). As such, OAp goals can be considered as part of a "goal complex" that can in fact be potentially beneficial for sports participants, as long as they are pursuing them out of choice and within an environment that supports their strivings, or in a manner that is consistent with their values, interests, and priorities. An evolving body of research has started to test the varying reasons, or motivational context, underpinning not only PAp goals but a range of achievement goal constructs from the HMAM. Although still in its infancy, literature across education, and to a lesser extent sport, has revealed some fascinating and thought-provoking insights into the motivational processes operating at this level.

The majority of existing research has focused on autonomous versus controlled reasons to pursue achievement goals (e.g., Delrue et al., 2016; Gaudreau & Braaten, 2016; Gillet et al., 2014, 2017; Gjesdal, Appleton, & Ommundsen, 2017; Michou, Vansteenkiste, Mouratidis, & Lens, 2014). Overall, researchers have found that autonomous reasons underlying goals predict optimal outcomes relative to controlled reasons. Moreover, the reasons to pursue an achievement goal predicted variance in learning, achievement, and well-/ill-being outcomes, above and beyond the goals per se. In sport, Gaudreau and Braaten (2016) found significant interactive effects between OAp goals and underlying autonomous motivation on studied outcomes, such that the relations between OAp goals and perceived goal attainment, sport satisfaction and positive affect were considerably stronger for athletes pursuing these goals for

underpinning autonomous reasons. Additionally, they emphasised controlled goal motivation was negatively associated with positive affect and sport satisfaction but positively associated with negative affect. These findings especially help to shed light on the ongoing discussion surrounding the nature of OAp goals and appear to indicate that the observed differences among athletes psychological functioning may not be a function of interpersonal differences in PAp goals but rather a function of the reasons for which these goals are endorsed. Gjesdal et al., (2017) conducted similar work in youth sport, but from the dichotomous perspective of Nicholls (1984). Nonetheless, positive associations between task-orientations and increased self-esteem were observed, with this relationship becoming significantly stronger for those who were autonomously regulating their behaviour. Similar patterns of results have been reported in the education domain, with the underlying goal motivation often reported to be more important, above and beyond the goal itself, in predicting outcomes (Gillet et al., 2014, 2017; Michou et al., 2014).

Much less work has been conducted utilising the 3 x 2 AGM (Elliot et al., 2011) and exploring underlying autonomous and controlling reasons. One exception from sport, is the work of Delrue et al., (2016). Examining SAp and SAv goals among long-distance runners, findings revealed the 'why' (i.e., reasons) component proved an additional predictive asset next to the 'what' (i.e., goal) component as all studied outcomes were related to either autonomous or controlled reasons underlying SAp goals. Specifically, to the extent runners autonomously regulated their SAp goal pursuit, they were more ambitious in the time they were targeting, appraised the race more as a challenge, reported greater need satisfaction and flow during the race, and eventually ran faster. Controlled reasons underpinning goal pursuit demonstrated positive associations with threat appraisals and engagement with negative self-talk,

documenting the maladaptive nature of this regulation. Furthermore, this study revealed runners holding a SAv goal, while performing for reasons associated with control, were especially vulnerable to perceive the race as threatening. It appears from this finding that the detrimental effects of avoidance goals are exacerbated when pursued for controlling reasons, at least when appraising an upcoming sporting event.

Although these studies present an encouraging set of findings, conceptually they are restricted in that the majority of the work conducted thus far, has been designed within early achievement goal frameworks or measured at a contextual level, therefore obscuring the possibility for conclusions to be drawn on the effects of the most recent achievement goal development, the 3 x 2 AGM (Elliot et al., 2011). Delrue et al., (2016), although basing their research within this model, adopted the dominant goal approach (i.e., participants listed their achievement goal pursuits via a rank order method) rather than examining exclusive and independent goal constructs – such measurement issues are problematic when attempting to provide a transparent set of findings on the influence of specific achievement goals and their underlying reasons on cognitive, affective, and behavioural outcomes. In addition to this, the correlational nature of this work means causality cannot be inferred. Lastly, AGA's and SDT are renowned for their ability to predict optimal and diminished functioning (well-/ill-being) in achievement settings such as sport. Yet for researchers exploring their integrative possibilities, more focus seems to be placed on achievement patterns (performance) and more general representations of (un)healthy functioning, rather than specific indices of well- and/or ill-being.

Finally, there is a scarcity of experimental work across all achievement domains applying Vansteenkiste, Len's et al., (2014) integrative model. Two notable exceptions exist within education. Firstly, framed within the 2 x 2 AGM, Benita, Roth, and Deci

(2014) demonstrated that mastery goals (based upon self-referenced criteria) predicted more positive emotional experiences, such as self-reported interest and enjoyment on a hand-writing task, when adopted in an autonomy-supportive as opposed to an autonomy-suppressive context. In extending this initial work, Benita et al., (2017) adopted the 3 x 2 AGM and reported (1) other-goals to yield better performance than self-goals (study 1), (2) the benefits of self- and task-goals over other-goals with respect to feelings of pressure/tension, and (3) favouring the promotion of task-, self- and other-referenced goals in an autonomy-supportive context, compared to an autonomy-suppressive context, on performance and emotional experience, importantly addressing and finding support for, the interactive effects associated with goal-complexes. Examining the motivational context under which approach-goal pursuits occur is important for many reasons. To begin with, promoting a goal in an autonomy-supportive context can give rise to the autonomous adoption of the goal. Given the findings linking autonomous reasons for adopting goals with better outcomes than controlled reasons, close examination of the situational elements facilitating autonomous reasons is crucial. Furthermore, the type of achievement goal individuals pursue, may not always matter, or at least not have such a profound effect on outcomes. For instance, socializing agents (coaches, team management) may encourage athletes to adopt a certain goal, however, previous research suggests that the autonomy-supportive or controlling ways in which they deliver these goals may affect athlete's (un)healthy functioning and performance above and beyond the specific goal being promoted (e.g., Benita et al., 2014; Gaudreau & Braaten, 2016).

1.5   Summary and Thesis Outline

Thus, in order to promote optimal functioning and performance in sport (and avoid experiences of diminished functioning), it is important to understand the

motivational processes which contribute to the variability in indices of emotional, psychological, and physiological well-being in competitive sport settings. To explore this topic, the current thesis applies an integrated theoretical motivational perspective to investigate the influence of the social environments and separately, the reasons underpinning achievement goal pursuit on indices of optimal and diminished functioning among sports participants. More specifically, this thesis aimed to test the notion of goal complexes guided by Vansteenkiste, Lens et al., (2014) framework. By incorporating key tenets of two prominent theories of motivation (i.e., AGA and SDT), this thesis hoped to gain an enhanced understanding of different areas of well-being that lend themselves to optimal functioning. Emphasis is placed on the emotional experiences associated with sport participation, both prospectively and retrospectively, as well as gathering markers of psychological and physiological well- and ill-being to provide a more thorough overview of how these constructs are present in sport and vary as a result of motivational pursuits.

Study 1

Although it has been well-documented in the achievement goal literature that the social environment plays an important role in influencing an individual's pattern of cognitive, affective, and behavioural responses, limited experimental work exists to test this notion utilising SDT's (Deci & Ryan, 1985) constructs of autonomy-supportive and controlling motivational contexts. The first study of this thesis aimed to address this gap by testing the effects of pursuing approach-based achievement goals (SAp, TAp, & OAp) induced under different motivational conditions on the psycho-physiological functioning and performance of novice basketball players. Specifically, within this study, we were interested in exploring the effects of these motivational variables on indices of psychological (enjoyment, anxiety) and physiological (heart rate and blood

pressure) well- and ill-being, in addition to observing performance. The decision to focus exclusively on approach-based goals only was grounded in existing theory and research. That is, with our measurement focus on well-being and optimal functioning, approach goals (particularly mastery-based goals) have been consistently reported to demonstrate positive associations with adaptive cognition, affective and behavioural patterns. Additionally, approach-based goals have revealed positive relations with indices of sport performance. However, this has not been the case for avoidance goals, which consistently demonstrate aversive associations with well-being, optimal functioning, and performance. Secondly, this thesis was interested in testing this recent split of the former omnibus mastery goal into its distinct task- and self-referents, towards adding to the literature in concluding if this theoretical shift was indeed worthwhile. Finally, previous literature has demonstrated that on occasion, OAp goals could indeed have similar, if not more positive associations with various outcomes in research, whilst in other situations this was not the case, and they have even shown negative relations with adaptive outcomes (e.g., Dewar & Kavussanu, 2012; Spray et al., 2006). These equivocal findings led us to question if we could better understand the operation of approach-goals more generally as a function of the environment within which one adopts them, rather than exclusively focus on the specific 'what' (i.e., the aim) component. To the best of the author's knowledge, this is the first study to experimentally investigate all three approach-based goals from the 3 x 2 AGM simultaneously in one study and adopting SDT contextual variables.

Study 2

OAp goals have been at the centre of a debate in the literature for decades now (Elliot & Moller, 2003; Senko et al., 2011). Although reliably found to be adaptive for performance, their utility in predicting optimal and diminished functioning is unclear

with an inconsistent pattern on findings commonly reported. It has been suggested that by investigating the different environmental conditions underpinning OAp goal pursuit, we may be provided with an enhanced understanding of when OAp goals can be considered (mal)adaptive. In extending study one, study two drew direct comparisons between OAp and OAv goals in an effort to observe any additional potential goal-context interactions that may exist in line with theoretical predictions. While OAv goals have traditionally been associated with negative outcomes, it remains to be seen that, if pursued under a more adaptive context (i.e., autonomy-supportive environment), could the maladaptive nature of these goals be alleviated? Adopting a similar design to study one, this study sought to ascertain whether the motivational context (autonomy-supportive vs controlling) underpinning OAp and OAv goals, had differing effects on the psychological (self-efficacy) and emotional (hope and hopelessness) functioning, and performance of sports participants competing in a table-football match. The focus on emotional well-being in study two was an important novel contribution to the literature. It provided a progression from study one whereby well-being was not captured from an emotional perspective and it also reflects how emotions are ever-present in a dynamic environment such as sport.

Study 3

In addition to the role of the social context in shaping an individual's cognitive, affective, and behavioural responses, SDT (Deci & Ryan, 1985) also alludes to the role of the reasons underpinning achievement goal pursuit (i.e., autonomous vs controlling forms of regulation). Study three aimed to extend studies one and two of this thesis and specifically, the work of Delrue et al., (2016) by examining parkrunners adoption of SAp and SAv goals and the specific reasons underlying such achievement strivings on cognitive appraisals of stress, emotional well- and ill-being (indexed by pride and

shame), and performance. The self-based goal has received very little attention in previous research with most literature testing the task-based components of the former omnibus mastery goal. This therefore warranted further exploration of the goal, particularly as the research design involved the running community whereby self-based goal pursuit has been regularly reported in literature to be the most salient achievement striving (Roebuck et al., 2018). Adopting a longitudinal-prospective design, this study used structural equation modelling (SEM) to build and test a model of moderated-mediation. To explain this, we examined the potential moderating role of reasons on these self-based goals in predicting stress appraisals, emotional well- and ill-being, and performance. Secondly, this study investigated the potential mediating role of cognitive appraisals for parkrun in the relationship between self-based goal pursuit and their underlying reasons, with the study outcomes.

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Chapter 2

2   **Approach-Achievement Goals and Motivational Context on Psycho-Physiological Functioning and Performance among Novice Basketball Players**

2.1   Abstract

Objective: Drawing from an integrated motivational model (Vansteenkiste, Lens, Elliot, Soenens, & Mouratidis, 2014), this study tested the impact of induced approach-based achievement goal states under different motivational contexts on the psycho-physiological functioning and motor task performance of novice basketball players.

Design: A 3 x 2 (Goal [task-/self-/other-approach] x Context [autonomy-supportive/ controlling]) repeated measures experimental design was employed.

Method: 114 novice participants (M_{age}=23.53; SD=4.56) performed a basketball shooting task. They were subsequently randomly assigned to one of six experimental conditions before repeating this task. Physiological (heart rate [HR] and blood pressure [BP]) and psychological (stress appraisals, state anxiety, task enjoyment, perceived competence and goal attainment) data were captured at different intervals throughout the experiment.

Results: Factorial ANOVAs revealed participants: 1) performing under a controlling motivational context reported significantly higher HR ($p < .001$) and systolic BP ($p < .05$) post-task compared to those operating within an autonomy-supportive environment, 2) induced to an other-approach goal group, recorded significantly higher diastolic BP ($p < .05$) than those induced to self- and task-approach goals post-task, 3) adopting a task-approach goal under controlling conditions appraised the shooting task as significantly more threatening ($p < .05$) than their counterparts in the task-approach autonomy-supportive condition, and finally, 4) following approach-based goals under an autonomy-supportive context significantly improved their performance ($p < .001$) from pre-to post-shooting task.

Conclusions: Our findings provide limited support for an integrated motivational model and are discussed in relation to their unique theoretical and practical utility.

2.2   Introduction

Two prominent theoretical frameworks have been applied extensively to enhance our understanding of the psychological and physical functioning of participants in the sport domain. First, the achievement goal approach (e.g., Dweck, 1986; Elliot, 1999; Nicholls, 1984) has demonstrated how competence-based pursuits differentially effect achievement patterns and psychological well-being of athletes (e.g., Lochbaum & Gottardy, 2015). Second, the self-determination theory (SDT; Deci & Ryan, 1985) has proved fruitful for studying the impact of the motivational context under which sport participants can fully function. Previous studies have attempted to integrate the tenets of each motivational theory to enhance the predictive utility of achievement goal and SDT-related constructs, however, they have done so in the absence of an integrated framework. Following recent theoretical developments, Vansteenkiste and colleagues (2014) have proposed and empirically supported a conceptual model integrating the achievement goal approach with SDT (e.g., Michou, Matos, Gargurevich, Gumus, & Herrera, 2016; Vansteenkiste, Mouratidis, Van Reit, & Lens, 2014). To advance this line of inquiry, the purpose of the current study was to ascertain whether the motivational context underpinning achievement goal adoption had differing effects on the psycho-physiological functioning and performance of participants executing a novel sports task.

The Achievement Goal Approach

Over the past four decades, achievement goal perspectives (e.g., Dweck, 1986, Elliot, 1999; Nicholls, 1984) have been at the forefront of studying achievement motivation in sport (see Lochbaum & Gottardy, 2015 for a review). The earliest conceptualization proposed a dichotomous approach (Dweck, 1986; Nicholls, 1984) distinguishing between task (or mastery) and an ego (or performance) goals. A mastery

goal refers to striving for self- or task-referenced standards of competence (i.e., success is demonstrated via self-improvement or task mastery), whereas a performance goal is focused on attaining other-referenced standards of competence (i.e., success is construed by outperforming others). In line with theoretical propositions, mastery goals have repeatedly been found to predict positive achievement-related cognitions, emotions, and behaviours, as well as healthy functioning in sport (see Lochbaum & Gottardy, 2015). However, this has not been the case for performance goal findings in the dichotomous goal sport-based literature. An inconsistent pattern of results has found performance goals to be related (and unrelated) to both adaptive and maladaptive outcomes (e.g., Dewar & Kavussanu, 2012; Spray et al., 2006).

In addressing the ambiguity surrounding the performance goal findings, Elliot and colleagues (Elliot, 1999; Elliot & McGregor, 2001) revised the original dichotomous goal approach by establishing the hierarchical model of achievement motivation (HMAM). According to this model, achievement goals are conceptualized along two dimensions of competence: definition (self-, task- and other-referenced) and valence (approach and avoidance). The crossing of these dimensions led to the prominent use of the 2 x 2 achievement goal framework in sport (e.g., Conroy, Elliot & Hofer, 2003). This assumed and empirically found at least four achievement goals to be salient in sport settings: 1) Mastery-Approach (MAp; striving to attain self-/task-referenced competence), 2) Mastery-Avoidance (MAv; striving to avoid self-/task-referenced incompetence), 3) Performance-Approach (PAp; striving to attain other-referenced competence), and 4) Performance-Avoidance (PAv, striving to avoid other-referenced incompetence). Aligned with theoretical predictions (Elliot & Conroy, 2005), sport research has found MAp goal adoption to be associated with positive outcomes, including performance and indices of optimal functioning (Adie, Duda, &

Ntoumanis, 2010; Van Yperen, Blaga, & Postmes, 2014). However, on occasion, researchers have suggested that the merging of the omnibus mastery approach goal has masked over some findings (Elliot & Thrash, 2001), leaving it unknown, whether its individual self- or task-components demonstrate direct links with studied outcomes. Elliot and Conroy (2005) initially assumed MAv goals would have fewer positive outcomes than MAp goals, and less negative consequences than PAv goals. The sport literature has repeatedly found MAv and PAv goals to both yield maladaptive consequences. PAp goal adoption was also posited to ensue in some positive consequences, but fewer than when pursuing a MAp goal (Elliot & Conroy, 2005). The sport-related findings in the literature have supported this supposition in as far as performance is concerned (e.g., Kavussanu, Morris, & Ring, 2009), but have found that the long-term pursuit of PAp goals can be health-compromising (e.g., Adie et al., 2010). In sum, avoidance goals have consistently been related to diminished functioning (e.g., lower positive affect and increased worry and anxiety) and decreased performance (Papaioannou, Zourbanos, Krommidas, & Ampatzoglou, 2012). The implications of approach-based goals on performance and well-being are less straight-forward. With this in mind, we decided to focus on testing the effects of approach-focused goals on the performance, and psycho-physiological functioning of sport participants.

It has also been argued and empirically tested recently that the predictive utility of mastery-based goals can be enhanced by separating them into *task-* and *self*-based goals (i.e., task-approach [TAp; aims to attain task-referenced competence], task-avoidance [TAv; aims to avoid task-referenced incompetence], self-approach [SAp; aims to develop self-referenced competence], and self-avoidance [SAv; aims to develop self-referenced competence] goals (Elliot, Murayama, & Pekrun, 2011). For the purposes of this study, we only drew on the three approach-based goals of the 3 x 2

model. The separation of TAp and SAp goals, along with other-approach (OAp [performance]) goals, have predicted distinct achievement-related outcomes within a sport setting. Specifically, individuals pursuing an OAp goal demonstrated positive associations with conceptions of athletic ability whilst both TAp and SAp goals were found to relate positively to interest. Additionally, perceived competence was positively related to TAp goals but unrelated to SAp goals. In support of Elliot's (1999) proposal, this suggests that in the sport domain at least, positive perceptions of competence direct individuals focus towards the possibility of success, and so they are inclined to strive to demonstrate mastery and meet their potential (Morris & Kavussanu, 2008). Despite these initial encouraging findings, limited sport research has investigated the effects of approach-based goal pursuit from the 3 x 2 Achievement Goal Model (AGM; Elliot et al., 2011) on well-being.

Within the HMAM, it has been proposed that the endorsement of achievement goals may be influenced by competence-based constructs (e.g., achievement motives) and perceived environmental factors (e.g., the motivational context). Achievement motives (i.e., the need for achievement [NAch; the motive to succeed] and fear of failure [FF; the motive to avoid failure]), have been most widely studied and it is well documented in previous research that MAp goals are instigated by the NAch, PAv goals by the FF, and PAp goals by both motives (Elliot, 1999). Furthermore, it has been suggested that individuals may pursue a goal for various reasons, proposing these reasons may not only trigger a goal but also help shape their consequential effects (Elliot & Thrash, 2001). The same goal may therefore behave differently based on the underlying reasons for pursuing it. This idea involves disentangling all reasons from the goal referent, and then recombining the goal with each unique reason, the interaction termed "goal complexes" (Senko & Tropiano, 2016). Each complex therefore fuses the

goal and reason, rather than isolating and comparing the two elements, providing researchers with an opportunity to observe the potential moderating effects of reasons between goal adoption and well-being and performance (Senko & Tropiano, 2016). In line with these principles, it has been suggested that the alternative set of proposed antecedents, an individual's perception of environmental factors (i.e., the motivational context), may also differentially impact the consequential goal effects (Michou, Mouratidis, Lens, & Vansteenkiste, 2013). Until recently, few had considered exploring this goal-complex approach. With the existing controversial findings surrounding PAp goals, demonstrating positive associations with many adaptive, (e.g., performance; for a review, see Lochbaum & Gottardy, 2015), but also maladaptive outcomes (e.g., anxiety, worry and negative affect too; for a review, see Papaioannou et al., 2012) it would appear that, similar to the performance omnibus goal, they predict performance well, but usually at a cost to the athlete's welfare (Elliot & Moller, 2003). It has been proposed, to better explain and understand such complex relationships, researchers could extend this line of enquiry, testing goal complexes, incorporating key tenets from SDT's concepts of the underlying motivational context. Therefore, this study will investigate the potential interaction between achievement goals and the motivational context under which they are adopted in a novel sport situation, in explaining their relationship with psycho-physiological functioning and performance, the first study to experimentally do so.

Self-Determination Theory

A complimentary theoretical framework relevant to understanding competence-based motivation, performance and the healthy functioning of sport participants is Self-Determination Theory (SDT; Deci & Ryan, 1985; Conroy, Elliot, & Coatsworth, 2007). According to SDT, individuals are more or less self-determined in their behaviour (in

this case, goal-directed pursuits), and this has implications for their psychological and physical well-being. To this end, goal-directed behaviour is assumed to be regulated by autonomous or controlling motives. Research across different contexts has found autonomous motivation to be associated with higher adaptive consequences than controlled regulation (for a review, see Deci & Ryan, 2008). According to SDT, autonomous motivation is fostered by support from the perceived social environment created by significant others (e.g., coaches). An autonomy-supportive context is a key facet of the social environment that considers the participant's perspective, promotes choice and decision-making, provides a rationale for the task to be undertaken, acknowledges potential difficulty, and which uses non-controlling language (Ryan & Deci, 2000). In contrast, a controlling environment would entail pressuring language, exertion of excessive personal control, induced deadlines, rewards and threats, and display intimidation techniques that control participant's behaviour (Bartholomew, Ntoumanis, & Thøgersen-Ntoumani, 2009). Sport research has consistently found significant others (e.g., coaches) that create autonomy supportive environments promote autonomy, which in turn, predicted optimal functioning (e.g., Reinboth, Duda, & Ntoumanis, 2004) and sport performance (e.g., Hooyman, Wulf, & Lewthwaite, 2014). The findings from the sport SDT-based literature also demonstrate implications of an interpersonally controlling environment on reducing self-determined behaviour (or promoting controlled regulation), and subsequent diminished psycho-physiological functioning (Bartholomew, Ntoumanis, Ryan, Bosch, & Thøgersen-Ntoumani, 2011).

An Integrated Motivational Model

Previous sport studies have attempted to integrate HMAM (Elliot & McGregor, 2001), with SDT towards predicting well-being in sport. Vansteenkiste, Mouratidis, and Lens (2010) were the first group of researchers to adopt and empirically test this

proposal, focusing on unravelling the previous controversial findings surrounding OAp goals. They reported that OAp goal pursuit for autonomous reasons was beneficial for well-being, relating positively to affect and vitality, whereas the controlled reasons underlying OAp goals related positively to negative affect. This approach was further explored in sport (e.g., Vansteenkiste, Mouratidis et al., 2014) and other achievement contexts such as education (e.g., Michou, Vansteenkiste, Mouratidis, & Lens, 2014).

Vansteenkiste, Lens et al., (2014) eventually developed a conceptual model for integrating achievement goal theory with SDT, resulting in an enriched HMAM. They argued that autonomous and controlled regulations now play a moderating role in the relationship between goals and outcomes. As such, it was proposed these regulations would relate differentially to cognitive, affective, and behavioural outcomes, explaining variance in addition to that accounted for by the strength of the endorsement of achievement goals themselves. A growing body of research, albeit correlational, examined the concomitants of the motivational context underpinning achievement goal pursuit (e.g., Delrue et al., 2016; Gaudreau & Braaten, 2016). Firstly, Benita, Roth, and Deci (2014) demonstrated that mastery goals (self-referenced only) predicted more positive emotional outcomes, such as self-reported interest and enjoyment on a hand-writing task, when adopted in an autonomy-supportive as opposed to an autonomy-suppressive (low autonomy-support) context. In extending this initial work in education, Benita, Shane, Egali, and Roth (2017) reported (1) other-goals yielded better performance than self-goals (study one), (2) favoring self- and task-goals over other-goals with respect to pressure/tension experienced and (3) the benefits of promoting task-, self- and other-referenced goals in an autonomy-supportive context, compared to an autonomy-suppressive context, on performance and emotional experience. Overall, these results suggested that while pursuit of other-goals may promote better

performance engagement than self-goals, they also lead to more negative emotions. However, it must be noted, task- and self-referents were not directly compared (researchers compared self-goals to other-goals in study one and task-goals to other-goals in study two) and so conclusions on validating the differentiation of mastery goals to their task- and self-competence referents could not be drawn. Furthermore, much evidence exists to suggest that low autonomy support is not the same as high control and so, this study does not accurately incorporate the motivational concepts from SDT.

Examining the motivational context under which approach-goal pursuits occur is important. Based on the work above (Benita et al., 2017), as far as approach-goals are concerned the specific goal referent may not matter for determining well-being and performance so long as the reasons for pursuing approach goals are regulated in an autonomy-supportive environment. Nevertheless, the potential interactive effects between achievement goals and the motivational context could shed new theoretical insights in explaining the historical equivocal findings for PAp goals whilst revealing the most appropriate context and goal to pursue to achieve optimal functioning. It must be noted that none of the aforementioned experimental studies tested all three approach goals under different contexts simultaneously, nor used SDT's distinction of autonomy-supportive vs controlling motivational contexts. In extending this line of work, and to the best of our knowledge, we are the first to examine the simultaneous effects of the three-approach goals under these different motivational contexts. Therefore, our objective was to ascertain the effects of pursuing approach-based achievement goals induced under different motivational conditions on the psycho-physiological functioning and performance of novice sport participants.

Beyond indices of well-being and performance, SDT and AGM approaches have seldom considered predicting physiological markers of healthy functioning among

sport participants. Therefore, we were also interested in examining an individual's physiological functioning, specifically their appraisal and response to a stressful situation (e.g., competitive sport task). It is assumed and empirically supported that achievement goals and the motivational context play a role in determining how an athlete cognitively appraises a potentially stressful performance (Adie et al., 2008, 2010; Jones, Meijen, McCarthy, & Sheffield, 2009; McGregor & Elliot, 2002; Quested et al., 2011). Lazarus and Folkman (1984) differentiated between two types of cognitive appraisal: (1) a challenge state is experienced when an individual has sufficient resources available within their environment to meet the perceived demands of a task and (2) a threat state occurs when personal resources fail to cope with task requirements, deeming psychological harm potentially imminent. To provide an account of physiological functioning in the unfolding stress process, researchers often monitor stress response via the assessment of cardiovascular reactivity (indexed by heart rate: HR and blood pressure: BP; see Turner, Jones, Sheffield, Barker, & Coffee, 2014). A challenge response is characterized by an increase in cardiac activity along with a decrease in peripheral vascular resistance (Jones et al., 2009). In contrast, a threat response is also characterized by increases in cardiac activity and either no change or an increase in peripheral vascular resistance which as a result typically causes blood pressure to rise (Blascovich & Mendes, 2000). So, despite being relatively understudied in sport psychology and achievement goal literature, the seldom work that does exist has demonstrated clear relations between the stress experience and indicators of cardiac activity. On these premises, and informed by such existing work (e.g., Turner et al., 2014), the current study decided to focus on HR and BP. Due to the accessibility of these objective measures (in comparison to secretory immunoglobulin A [S-IgA] or cortisol) and their potential to be easily administered alongside self-report,

psychological instruments (i.e., Challenge and Threat Construal Measure [McGregor & Elliot, 2002]), an opportunity existed to triangulate data, allowing for an enhanced understanding of an athlete's optimal and diminished psycho-physiological functioning. By examining the motivational context underpinning achievement goal adoption, we sought to better understand why individuals cognitively appraise situations as a challenge, whilst others view it as a threat, and how this differentially affects their psycho-physiological functioning and performance. This will be the first study to adopt such a design, exploring individuals' physiological well-being using objective measures within this integrated conceptual framework.

The Current Research

The aim of our study was to investigate the effects of pursuing approach-based achievement goals induced under different motivational conditions on the psycho-physiological functioning and performance of novice basketball players. Based on past literature, we tentatively hypothesized that (1) pursuit of an OAp, relative to SAp and TAp goals, would lead to reduced physiological functioning (e.g., higher HR & BP recordings), psychological functioning (e.g., increased threat appraisals and higher state-anxiety,) and performance; (2) OAp goal pursuit would be exacerbated under a controlling motivational context, and (3) pursuing approach-based achievement goals under an autonomy-supportive compared with a controlling context would result in enhanced physiological functioning (e.g., improved CV reactivity), psychological functioning (e.g., increased challenge appraisals, task enjoyment and perceived competence), and performance, regardless of goal type pursued.

2.3   Methods

Design and Participants

Employing a 3 x 2 (Goal (task-, self-, other-approach] x Context [autonomy support/controlling context]) experimental design, 114 male (n = 62) and female (n = 52) novice basketball players (M_{age}= 23.53; SD = 4.56 years) from a large University in the West Midlands, UK, volunteered for the study. Only participants reporting none (n = 57) or limited recreational experience (n = 57) were entered into the study to control for initial basketball ability. To facilitate engagement with the achievement task used in the experiment, young adult participants with a competitive sporting background were selected.

Procedures and Experimental Manipulations

Following University ethical approval, the lead researcher with help from the Sports Performance Unit (SPU) contacted organised sport clubs within their University with a view to participating in the experiment. The experiment was conducted by the lead researcher, a confederate (qualified basketball coach) and a trained research assistant in an indoor sports hall. Upon arrival, participants received verbal and written instructions concerning the experiment and their rights to withdraw. After providing written consent, participants underwent a preliminary health screening including cardiovascular assessment. All participants were declared fit to continue.

The cardiovascular assessment of participants' resting heart rate (HR) and blood pressure (BP) also served as a baseline measure for CV reactivity and was followed by the first trial of the experimental task (a basketball shooting task). Participants were then randomly allocated to one of six experimental conditions prior to attempting their second trial of the basketball shooting task: (1) task-approach autonomy-supportive (TAp-AS; [n=20]), (2) task-approach-controlling (TAp-Con; [n=19]), (3) a self-approach autonomy-supportive (SAp-AS; [n=19]), (4) self-approach controlling (SAp-

Con; [n=20]), (5) other-approach autonomy-supportive (OAp-AS; [n=18]) , (6) other-approach controlling (OAp-Con; [n=18]).

The experimental (induced goal-context) manipulations were presented via online audio-visual instructions. In the first instance, all participants watched a pre-recorded video of the confederate who helped initiate the background and motivational context of the experiment. Participants were informed that they had been selected at random by the SPU to take part in an audit of motor skills among young adults run in conjunction the University sport science department. This deception was used to help set-up the experimental manipulations. Participants were under the pretense that they were being recorded performing a basketball shooting task. Each audio-visual presentation notified participants that their performance on the achievement task would be filmed for evaluative reasons by the SPU. This video also functioned to create the context (through subtle variations in the language and expressions used by the confederate) and to introduce the goal.

Subsequent instructions for inducing each goal were administered via the same online presentation. In doing so, language that reinforced either an autonomy-supportive (e.g., 'You are invited to adopt…', 'Your recommended goal is…' or 'Please consider if you would like to…') or controlling (e.g., 'You must…' and 'You have to…') context was used to initiate reasons underpinning goal adoption. Two minor context deceptions were incorporated for the controlling condition: (1) participants were informed that their participation in the investigation would only be valuable to the extent they had to demonstrate successful goal pursuit, and (2) individuals were notified by the confederate and later reminded by the lead researcher that their second trial would be timed.

Participants received the following instructions depending on the experimental condition they were randomly allocated to:

TAp-AS goal[3].

'In this next trial, your recommended goal is to try to master the technique of the set-shot. You are invited to watch a video demonstration of this skill. The video demonstration is an opportunity to focus on mastering the three key elements of this skill. So, in your own time, please consider if you would like to adopt this goal'.

TAp-Con goal.

'In this next trial, you should aim to master the technique of the set-shot. You will now watch a video demonstration of this skill. You must now perform the task again'.

SAp-AS goal.

'In this next trial, your recommended goal is to perform better than your previous attempt. In your own time, please consider if you would like you to adopt this goal to see if you can do better than you did the last time'.

SAp-Con goal.

'In this next trial, your goal should be to perform better than your previous attempt. You must now perform the task again'.

OAp-AS goal[3].

'You are invited to study Figure 1 below. In this next trial, your recommended goal is to try to outperform other players of a recreational standard. In your own time, please consider if you would like to adopt this goal. This may seem challenging, but

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[3] Participants in the TAp and OAp goal conditions also received additional information to help create the manipulations: (1) TAp goal groups (expert video demonstration of the set-shot technique) and (2) OAp goal groups (a graph displaying fabricated data of other participants completing this task as a performance referent).

others have been able to do it. You are invited to play again and try to better the 50%

shooting average of your peers'.

OAp-Con goal.

'In this next trial, your goal is to outperform other players of a recreational

standard. You should study Figure 1 below to determine the average percentage

shooting success of recreational level players on this task. You must now perform the

task again'.

Immediately following the manipulation delivery, participants were instructed

they had a two-minute period of time to mentally reflect on their goal for the upcoming

task (see Turner et al., 2014). During this two-minute period, HR was continually

monitored followed by a BP recording. Participants then completed a manipulation

check for their goal condition and a stress appraisal measure prior to their second

performance trial. Next, participants repeated the shooting task under the different

experimental conditions. The principal experimenter verbally reinforced the goal-

context condition before participants performed the second and fourth set of shots

during the second performance trial. Final recordings of physiological data were

measured immediately post-task along with self-reported measures for the context

manipulation check, goal attainment and indices of psychological functioning. All

participants were debriefed at the end of the experiment which lasted approximately 35

minutes in total.

Measures

Manipulation checks. Immediate verbal and written confirmation following

inducing the manipulations was obtained to ascertain participants had understood and

followed the goal they had been assigned to. We also administered three adapted items

from the 3 x 2 Achievement Goal Questionnaire for Sport (AGQ-S; Mascret, Elliot, &

Cury, 2015) at the end of the experiment. These items captured TAp *('My experimental goal was to master the shooting technique')*, SAp *('My experimental goal was to perform better on this task than I did previously')*, and OAp *('My experimental goal was to outperform my peers')* goals. Scores were recorded on a 7-point Likert-scale ranging from 1 ("Strongly disagree") to 7 ("Strongly agree"). Items were selected based upon their high-performing factor loadings and internal consistency (Mascret et al., 2015).

Similar to Benita et al., (2014), a 4-item modified version of the Experimental Climate Questionnaire (ECQ; adapted from Williams & Deci, 1996) was administered to assess the degree to which participants felt their goal had been presented in an autonomy-supportive (e.g., *"I felt the experimenters offered me choice to accept my goal"*) versus controlling manner (e.g., *"I felt pressured by the experimenters to pursue my goal"*). Scores were recorded on a 7-point Likert-scale ranging from 1 ("Not at all true") to 7 ("Very true").

Cardio-Vascular Reactivity (CVR). To measure cardio-vascular change as a response to stress, Heart Rate (HR) and Blood Pressure (BP) were obtained at four intervals throughout the experiment: 1) rest (T1), 2) pre-manipulation (T2), 3) immediately post-manipulation (T3), and 4) immediately post-task (T4). HR data were measured using a Polar FT1 Heart Rate Monitor (Polar Electro Oy, Kempele, Finland). HR data were recorded for a total of five minutes throughout the experiment; one minute at T1 and T2, 2 minutes at T3 during the mental preparation phase (see Turner et al., 2014) and 1 minute at T4. HR data were collected after every 15 seconds per minute monitored. At the same intervals, participant's blood pressure readings were obtained using an Omron Intelli-Sense Automatic Blood Pressure Monitor (M6 Comfort: Omron Healthcare Co., Ltd., Kyoto, Japan).

Performance. The basketball shooting task consisted of two trials (pre- and post-manipulation) of 25 set-shots towards the hoop from five marked positions along a semi-circle: markers 1 & 5 = 4.06m either side of the center of the hoop and 0.61m 'forward', markers 2 & 4 = 2.11m either side of the center of the hoop and 1.88m 'forward', and marker 3 = 3.63m directly 'forward' from the center of the hoop. A scoring system (based upon Hardy and Parfitt's [1991] scale) was developed with a higher score indicating a better performance; 3 points were awarded for a 'swoosh' (successful basket that touches the net only), 2 points for hitting the backboard or rim and into the basket, 1 point for hitting the backboard or rim and missing, and 0 points for a complete miss.

Cognitive Appraisals of Stress. An adapted 8-item version of the challenge and threat construal measure (McGregor & Elliot, 2002) was used to assess how participants appraised the second basketball shooting task. Participants responded to the stem "How do you feel about completing the next basketball set-shot task?" along a 7-point Likert-scale ranging from 1 ("Not at all true of me") to 7 ("Very true of me"). Example items for the challenge and threat include "*I view this shooting task as a positive challenge*" and "I view performing this shooting task as a threat". The challenge and threat construal measure has demonstrated excellent factorial validity in sport (e.g., Adie et al., 2008).

Competitive State Anxiety. The cognitive (8 items; e.g., '*I had self-doubts*') and somatic (8 items, e.g., '*I felt tense in my stomach*') anxiety subscales of the Competitive State Anxiety Inventory-2 (CSAI-2; Martens, Burton, & Vealey, 1990) were used to capture anxiety states experienced during the second performance trial. Items were rated on a 7-point Likert-scale from 1 ("Not at all true of me") to 7 ("Very true of me").

Past research has found the CSAI-2 to yield excellent predictive validity (Martens, Burton, & Vealey, 1990).

Enjoyment. An adapted 5-item measure based upon the enjoyment subscale of the Intrinsic Motivation Inventory (IMI; McAuley, Duncan, & Tammen, 1989) was employed to assess individual's enjoyment of the basketball shooting task (e.g., *'I enjoyed doing this activity very much'*). Scores were recorded on a 7-point Likert-scale ranging from 1 ("Not at all true") to 7 ("Very true"). This subscale has previously demonstrated acceptable internal consistency (e.g., McAuley et al., 1989).

Competence. A 5-item measure based upon the Perceived Competence subscale of the IMI (McAuley et al., 1989) was used to assess participants' degree of basketball ability following their second basketball shooting task (e.g., *'I think I was pretty good at this task'*). Scores were recorded on a 7-point Likert-scale ranging from 1 ("Not at all true") to 7 ("Very true"). This subscale has previously generated very good psychometric properties in sport research (e.g., Morris & Kavussanu, 2008).

Goal attainment. A single item measure was developed to assess to what extent participants felt they had achieved their adopted goal in the experiment. Scores were recorded on a 7-point Likert-scale ranging from 1 ("Not at all") to 7 ("Completely").

2.4   Results

Manipulation Checks

The first goal manipulation test demonstrated that, when asked, each participant correctly identified the goal condition under which they had been allocated. Secondly, a series of one-way ANOVA's confirmed that our intended TAp ($F_{(2, 111)} = 964.04$, p<.001, $\eta^2 = .95$), SAp ($F_{(2, 111)} = 866.17$, p < .001, $\eta^2 = .94$), and OAp ($F_{(2, 111)} = 860.96$, p < .001, $\eta^2 = .94$) goal manipulations had been successful (see Table 2).

Thirdly, a MANOVA confirmed the effectiveness of our autonomy-support (F $(1, 112)$ = 3080.13, p < .001, η^2 = .97) and controlling context (F $(1, 112)$ = 2207.53, p < .001, η^2 = .95) manipulations (see also Table 2).

Descriptive Statistics

Tables 3-5 presents the descriptive statistics for indices of physiological and psychological functioning, and performance. The measures employed to capture indices of psychological functioning exhibited relatively high levels of internal reliability (α =.70 - .89), with the exception of the challenge appraisal subscale (α = .47). A problematic item (i.e., "I am thinking about what it will be like if I do well in this task") was removed and resulted in the measure reaching an acceptable level of internal consistency (α = .70).

Main Analyses

Achievement goals and motivational context effects on psycho-physiological functioning and performance.

Physiological Functioning. A series of 3 x 2 x 4 (Goal [TAp/SAp/OAp] x Context [autonomy-supportive, controlling] x Time [T1, T2, T3, & T4]) mixed-design ANOVAs were conducted to examine effects on cardiovascular reactivity (indexed by HR, systolic and diastolic BP). A significant two-way interaction emerged for the effects of goal and time on diastolic BP, F $(6, 324)$ = 2.18, p = .044, η^2 = .06. Closer inspection of the interaction revealed that those participants in the OAp goal group (M=70.19, SD=10.36) had a significantly (p < .05) higher diastolic BP recording than those in the SAp (M=65.54, SD=7.39) goal group only at T4. No further main or interaction effects emerged.

Table 2

Descriptive Statistics concerning the Manipulation Checks for Goal and Motivational Context.

Variables	Experimental Manipulations		
	Goal		
	Tap	Sap	OAp
Goal			
TAp	6.87 (.34)$_a$***	1.90 (.79)$_b$	1.39 (.60)$_b$
Sap	1.69 (.86)$_b$	6.92 (.35)$_a$***	1.39 (.64)$_b$
OAp	1.41 (.68)$_b$	1.41 (.82)$_b$	6.86 (.35)$_a$***
	Context		
	AS	Con	
Context			
AS	6.62 (.46) $_a$***	1.46 (.53) $_b$	
Con	1.48 (.63) $_b$	6.44 (.48) $_a$***	

Notes. Subscript letters represent statistically significant differences between conditions. Rows that share the same subscript letter, do not differ significantly. TAp = task-approach; SAp = self-approach; OAp = other-approach; AS = autonomy-supportive; Con = controlling.
***$p < .001$.

Table 3

Descriptive Statistics for indices of Physiological Functioning across the Six Experimental Conditions.

Variables	Experimental Conditions					
	Tap		Sap		OAp	
	AS	Con	AS	Con	AS	Con
Heart Rate						
T1	70.05 (11.65)	70.74 (10.85)	68.58 (12.19)	65.35 (12.15)	69.72 (9.57)	73.89 (11.59)
T2	82.30 (14.56)	83.47 (14.53)	78.42 (10.42)	80.60 (12.92)	81.67 (13.68)	86.72 (12.61)
T3	76.85 (11.96)	79.74 (12.83)	75.89 (12.91)	76.80 (14.63)	79.22 (11.40)	82.33 (12.67)
T4	82.70 (14.46)	87.32 (15.29)	78.05 (9.38)	82.95 (14.88)	81.83 (14.46)	92.50 (13.80)
Blood Pressure						
Systolic						
T1	122.30 (17.57)	114.58 (11.00)	108.37 (16.52)	116.05 (17.75)	111.78 (20.64)	112.28 (15.08)
T2	115.75 (15.35)	115.42 (14.12)	107.84 (12.98)	115.40 (19.36)	111.39 (17.72)	114.72 (12.89)
T3	111.45 (12.05)	111.32 (14.00)	103.21 (13.55)	110.60 (18.98)	107.33 (19.03)	112.28 (14.88)
T4	114.20 (14.50)	116.84 (13.27)	105.37 (14.42)	115.45 (15.78)	111.00 (16.17)	115.11 (14.69)
Diastolic						
T1	73.55 (9.11)	69.58 (7.25)	66.95 (9.33)	70.95 (9.89)	72.17 (8.72)	70.56 (9.15)
T2	69.55 (6.72)	66.42 (7.83)	66.21 (9.17)	68.90 (11.07)	71.67 (8.13)	69.94 (10.44)
T3	91.00 (6.29)	66.16 (7.10)	67.79 (8.07)	68.85 (7.32)	70.50 (9.06)	70.61 (10.85)
T4	71.05 (6.20)	67.11 (6.58)	63.53 (7.38)	67.55 (7.02)	69.50 (9.15)	70.89 (11.67)

Notes. TAp = task-approach; SAp = self-approach; OAp = other-approach; AS = autonomy-supportive; Con = controlling.

Table 4

Descriptive Statistics for Indices of Psychological Functioning across the Six Experimental Conditions.

Variables	Experimental Conditions					
	Tap		Sap		OAp	
	AS	Con	AS	Con	AS	Con
Appraisals						
Challenge	5.74 (.53)	5.50 (.51)	5.96 (.77)	5.96 (.70)	6.11 (.48)	6.00 (.97)
Threat	1.29 (.50)	1.96 (.98)	1.50 (.52)	1.44 (.64)	1.93 (.81)	1.79 (.76)
Anxiety						
Cognitive	2.29 (1.14)	3.47 (1.23)	3.50 (1.17)	3.46 (1.43)	3.98 (1.22)	4.12 (1.66)
Somatic	2.59 (.58)	3.00 (.96)	2.93 (.70)	3.03 (.73)	3.33 (.57)	3.40 (1.09)
Enjoyment	5.81 (1.02)	5.22 (.92)	5.21 (1.07)	5.39 (1.21)	5.11 (.74)	4.74 (1.62)
Competence	3.67 (.94)	3.23 (1.22)	2.72 (1.24)	3.17 (1.58)	2.69 (1.37)	2.86 (1.04)

Notes. All study variables were measure along 7-point-likert scales. TAp = task-approach; Sap = self-approach; OAp = other-approach; AS = autonomy-supportive; Con = controlling.

Table 5

Descriptive Statistics for the Six Experimental Conditions for Goal Attainment and Performance.

Variables	Experimental Conditions					
	Tap		Sap		OAp	
	AS	Con	AS	Con	AS	Con
Goal Attainment	4.50 (.89)	3.68 (1.29)	3.37 (1.92)	3.75 (2.05)	2.72 (1.45)	2.89 (1.49)
Points Scored						
Trial 1	25.70 (11.03)	25.84 (6.96)	29.11 (5.74)	28.40 (7.98)	26.67 (4.80)	27.11 (6.29)
Trial 2	29.80 (8.54)	23.47 (9.19)	32.79 (4.79)	29.80 (6.44)	28.11 (4.35)	30.06 (5.77)

Note. TAp = task-approach; SAp = self-approach; OAp = other-approach; AS = autonomy-supportive; Con = controlling.

There were also significant two-way effects between context and time on HR, $F_{(3, 324)} = 8.88$, $p < .001$, $\eta^2 = .16$ and systolic BP, $F_{(3, 324)} = 3.92$, $p = .012$, $\eta^2 = .07$. Specifically, statistically significant differences (all p's $< .05$) on HR: (C:M=87.42, SD=14.95 vs. A-S: M=80.88, SD=12.92) and systolic BP (C: M=115.81, SD=14.39; A-S: M=110.25, SD=15.21) only emerged at T4, with controlling conditions recording a significantly higher HR and systolic BP than their autonomy-supportive counterparts.

Psychological functioning. A series of 3 x 2 (Goal x Context) ANOVAs were conducted on stress appraisals, anxiety, task enjoyment and perceived competence. A significant interaction, $F_{(2, 108)} = 3.73$, $p = .027$, $\eta^2 = .07$, revealed that participants in the TAp-Con condition (M=1.96, SD=.98) appraised the shooting task as significantly more threatening ($p < .05$) than their counterparts in the TAp-AS condition (M = 1.29; SD = .50). Subsequent findings revealed only main goal effects for challenge appraisals, $F_{(2, 108)} = 4.33$, $p = .015$, $\eta^2 = .07$, cognitive anxiety, $F_{(2, 108)} = 7.37$, $p = .001$, $\eta^2 = .12$, somatic anxiety, $F_{(2, 108)} = 4.95$, $p = .009$, $\eta^2 = .08$ and perceptions of competence, $F_{(2, 108)} = 3.02$, $p = .05$, $\eta^2 = .05$. As can be seen in Table 6, the findings show the TAp goal group reported significantly lower cognitive anxiety ($p = .001$), somatic anxiety (p = .007) and higher perceptions of competence ($p = .04$) than the OAp goal group only. Furthermore, the OAp group recorded significantly (p = .02) higher challenge appraisals (M=6.06, SD=.76) than the TAp goal (M=5.62, SD=.53) condition only.

Performance. A 3 x 2 x 2 repeated measures ANOVA was utilized to examine the effects of goal, context and time on pre and post-task performance. The findings revealed a significant interaction, for the effect of context and time on performance, $F_{(1, 108)} = 4.69$, $p = .03$, $\eta^2 = .04$. Specifically, participants under an autonomy-supportive context, regardless of approach goal followed, significantly ($p < .001$) improved their performance from pre- (M=26.82, SD=7.84) to post-shooting (M=30.26, SD=6.45)

Table 6

Main Effects of Goal Condition on Indicators of Psychological Functioning.

Variables	Experimental Manipulations		
	Goal		
	TAp	SAp	OAp
Challenge Appraisals	5.62 (.53)$_b$	5.96 (.73)	6.06 (.76)$_a$*
Threat Appraisals	1.62 (.83)	1.47 (.58)	1.86 (.78)
Cognitive Anxiety	2.87 (1.31)$_a$*	3.48 (1.29)	4.05 (1.44)$_b$
Somatic Anxiety	2.79 (.80)$_a$**	2.98 (.70)	3.36 (.86)$_b$
Competence	3.46 (1.10)$_a$*	2.95 (1.43)	2.77 (1.20)$_b$

Note. Different subscript letters represent significant differences between conditions. TAp = task-approach; SAp = self-approach; OAp = other-approach.
*$p < .05$; **$p < .01$.

task. Additionally, a significant main effect of goal was observed, $F_{(2, 108)} = 3.63$, $p =$ .03, $\eta^2 = .06$, demonstrating that those participants pursuing a SAp goal (M=31.26, SD=5.82) significantly (p = .03) outperformed their counterparts in the TAp goal condition (M=26.72, SD=9.31). There were no significant differences ($p > .05$) in performance between the SAp and OAp goal groups.

Finally, a 3 x 2 (Goal x Context) ANOVA on goal attainment was conducted. The findings revealed a significant main effect for goal only, $F_{(2, 108)} = 6.36$, $p = .002$, $\eta^2 = .11$. Specifically, participants performing within a TAp goal condition reported higher goal attainment (M=4.10, SD=1.17) than those pursuing an OAp goal ($M = 2.81$, $SD = 1.45$). The analyses revealed no other significant findings for goal attainment ($p > .05$).

2.5   Discussion

Based on the arguments of Vansteenkiste, Lens et al. (2014), our experimental work tested the potential interactive effects of approach-based achievement goals and the motivational context on the psycho-physiological functioning and performance of novice basketball players. More specifically, we investigated if TAp, SAp, and OAp goals induced under autonomy-supportive and controlling motivational contexts differentially impact upon an individual's cardiovascular reactivity, psychological well-being, and motor skill performance. Our experimental findings demonstrated limited support for the integration of the HMAM (Elliot et al., 2011) and SDT (Ryan & Deci, 2000) in a sport setting. Instead, our findings demonstrated evidence for the unique effects of approach-based goals and the motivational context in explaining the physiological and psychological functioning of participants executing a novel sports task.

Physiological Functioning

Within the context of this study, a primary interest was in participants physiological responses to potentially stressful situations (i.e., demonstrating successful performance of the motor task), which served as an indicator of (sub)optimal functioning. In an attempt to advance the body of literature exploring the effects of the HMAM and SDT on physiological functioning in sporting situations (e.g., Delrue et al., 2016; Vansteenkiste et al., 2010), our findings provide interesting new insights with respect to CV reactivity. Partially supporting our first hypothesis (1a), results revealed that participants pursuing an OAp goal recorded a significantly higher spike in their diastolic BP at T4 compared to a SAp goal. It has been theoretically proposed and subsequently supported in research that individuals focused on approach goals, particularly those in pursuit of a SAp goal, are more likely to view a demanding and potentially stressful event positively. This has resulted in individuals exerting physiological patterns in line with a challenge state (i.e., an increase in cardiac activity along with a decrease in peripheral vascular resistance; Jones et al., 2009). However, the relationship between OAp goals and a challenge state are more unclear. Within our study, OAp goal pursuit was associated with a significant increase in diastolic BP (compared with SAp goals) at T4, a pattern indicative of a physiological response to a threat. This provides an extension to support existing literature reporting similar findings for cognitive appraisals (e.g., Adie et al., 2008). As the definition of OAp goals concerns outperforming fellow competitors, it is suggested that this condition may be interpreted as threatening as participants were all basketball novices.

Secondly, in support of our third hypothesis (3a), it was evident participants performing under a controlling (compared to autonomy-supportive) context experienced significantly increased HR and systolic BP levels at T4, posing a

compromise to their healthy physiological functioning. The facets of a controlled environment (i.e., external pressures, controlling language, intimidation techniques and a lack of personal endorsement) do not lend themselves towards satisfaction of the three basic psychological needs (autonomy, competence, and relatedness), that have been proposed in theory and supported in literature (e.g., Reinboth et al., 2004) to underpin adaptive motivational processes (i.e., autonomous regulation and ensuing well-being). As demonstrated in our findings, a controlling context elicits a stress response, represented by a physiological pattern indicative of threat, and it seems reasonable to suggest this occurs as a result of the basic psychological needs not being satisfied. However, it is important to clarify, no measure of basic need satisfaction was employed within this study design, and so this presents a fruitful opportunity for future researchers to explore further.

Our novel findings suggest potentially harmful consequences of a controlling environment and, separate to this, OAp goal pursuit towards an achievement task, on CV reactivity. They are, however, in line with a host of previous research reporting the maladaptive nature of controlled motivation on psychological functioning (e.g., Bartholomew et al., 2009; Vansteenkiste et al., 2010) as well as the potential disadvantages of OAp goal pursuit (for a review see Papaioannou et al., 2012). It is therefore imperative practitioners independently consider both the type of goal and the environment they create for their athlete's goal pursuit in order to encourage optimal physiological functioning, especially immediately post-performance. Specifically, goal pursuit based on mastery competence, particularly SAp goals and separately, an autonomy-supportive context can ensure a more regulated physiological pattern, avoiding any short- and long-term maladaptive consequences (i.e., stress, dropout) that may negatively impact well-being and performance (Bartholomew et al., 2011; Quested

et a., 2013). Researchers should seek to replicate these findings within an alternative sport context to enhance our understanding of the individual and (potential) goal complex effects and their relationship with physiological well-being functioning.

Psychological Functioning

Inconsistent with our first (1b) and second hypothesis, our findings revealed that pursuit of a TAp goal under a controlling context is most problematic; participants in this condition appraised the task as significantly more threatening than their A-S counterparts, shedding new light on the AGT-SDT integration. This finding indicates that participants focused on striving to develop skill and task mastery (i.e., TAp goal adoption) are more vulnerable to viewing performance as a threat when pursuing this type of goal under a controlling context relative to autonomy supportive. One explanation may concern that participants were worried about their performance on the basis that they felt compelled to learn the task, and because they were under the impression they were being timed and evaluated; these conditions were not conducive to learning and/or skill development which is a key referent for success in a TAp goal condition. Additionally, participants were basketball novices and so to feel time-pressured into a pursuing a single goal where their referent is to develop skill mastery, may well account for these increased perceptions of threat regarding their task performance. In the autonomy support condition, participants not only endorsed the goal but were also provided with free time to recall the demonstration and technique used to perform the task, and thus, deemed the achievement situation to be less threatening than their controlled counterparts.

Regarding our main goal effects, as expected, our findings suggest that pursuit of a TAp goal will result in lower cognitive and somatic anxiety and higher perceptions of competence when compared to an OAp goal, indicating its salience for optimal

functioning. Achievement goal researchers have reported when in pursuit of a task-goal, individuals devote attentional resources to the inherent aspects of the activity, rather than adopt a normative standard for competence evaluation, as when in pursuit of OAp goals (Spray et al., 2006). Focusing on the inherent components of a skill can facilitate optimal functioning particularly with respect to novel tasks (Spray et al., 2006). Our findings are in line with previous research that has also reported similar findings for the psychological benefits of TAp goal pursuit (Elliot et al., 2011).

Inconsistent with our expectations (hypothesis 1b), OAp goal conditions recorded significantly higher challenge appraisals than the TAp groups. On reflection, the relation of OAp goal pursuit with challenge appraisals is not surprising considering (1) our appraisal measure included items directly focused on performance, for which OAp goals, by definition, are a key predictor, and (2) the debate in early literature surrounding the (mal)adaptive nature of these goals. Previous research across differing achievement domains have also found similar relations (Adie et al., 2008; McGregor & Elliot, 2002). However, within our study, despite approaching the task with a positive outlook, these individuals pursuing an OAp goal still experienced the highest cognitive and somatic anxiety throughout their performance, and afterwards, perceived themselves to be least competent, in comparison with the TAp goal group. As active sports participants, it is reasonable to suggest that our population sample in pursuit of an OAp goal naturally viewed this novel competitive task as positive and as an opportunity for personal growth. However, this finding should be interpreted with caution. Practitioners should be aware that although it appears there are immediate benefits pre-performance of OAp goal pursuit in terms of perceiving the task as a challenge, there also exists hidden costs post-performance. Our findings suggest heightened anxiety (an indicator of ill-being) coupled with low perceptions of

competence are related to OAp goal pursuit and previous research has documented that in both the immediate and long-term, these factors are (potentially) detrimental to an individual's psychological functioning (Adie et al., 2010; Reinboth & Duda, 2004).

Incongruent with our hypothesis (1b), we did not find any statistically significant findings to indicate that TAp and SAp goal pursuit would lead to a more enjoyable experience than those performing under an OAp condition. Previous literature has often reported positive associations between MAp goals and enjoyment in sport (e.g., Vansteenkiste, Mouratidis et al., 2014) and across other achievement domains such as education (e.g., Benita et al., 2014). However, in such studies, the population sample used has been in line with the task performed (i.e., in Vansteenkiste, Mouratidis et al., [2014], researchers followed volleyball players over the course of their competitive season whilst Benita et al., [2014] used college students to complete an educational task). As a result of their natural interest and investment in the activity, participants in these studies also demonstrated enhanced engagement, leading to greater levels of enjoyment during performance. Although we recruited competitive adult sport participants, our criteria also stipulated basketball novices and as a result, it is plausible that none of our participants had an inherent passion for or affiliation to the sport which may explain why we found no goal-context influence on task enjoyment. Furthermore, from a conceptual viewpoint, these studies framed their investigation within the 2 x 2 AGM (Elliot & McGregor, 2001), exploring an omnibus MAp goal. Therefore, these studies do not exclusively differentiate between the self and task competence components and their individual contributions as highlighted by the 3 x 2 AGM (Elliot et al., 2011), meaning their goal measure may have been assessing different constructs. This makes drawing comparisons in our results and those reported in prior studies difficult.

Performance

As hypothesized (3c), our findings showed individuals pursuing approach-based goals within an autonomy-supportive environment significantly improved their shooting pre-to post-performance. Thus, the results show that the type of approach-based goal did not influence performance under this condition if they assimilated its value. In line with other sport research (Hooyman et al., 2014; Reinboth et al., 2004; Spray et al., 2006) our findings highlight the importance of providing choice and a rationale for goal-directed achievement behaviour. Additionally, in agreement with most of the existing literature (Delrue et al., 2016; Lochbaum & Gottardy, 2015; Spray et al., 2006) we found support for the adaptive nature of SAp (relative to TAp) goals, on performance indicators, as participants recorded a significantly higher score on the shooting task. This finding is not surprising as SAp goals are more focussed on task outcome (i.e., the result), compared to TAp goals which place emphasis on task mastery. These findings firstly demonstrate the importance of splitting this former MAp goal into separate competence referents (Elliot et al., 2011), at least when considering influences on performance indices. Secondly, although they remain an understudied goal, research has identified the potential prominence and importance of a SAp goal among sport participants (Delrue et al., 2016) considering that improving upon previous performance is a key factor influencing motivational processes and our findings lend support to this claim. Additionally, we observed individuals in pursuit of TAp goals within our study reported comparatively higher perceptions of goal attainment relative to participants adopting an OAp goal (although we did not observe any significant interaction or main effects). This finding is of interest, firstly because TAp goal participants recorded the poorest shooting performance and secondly, considering our earlier goal-context interaction on cognitive appraisals (i.e., individuals performing

within the TAp-Con condition appraised the task as most threatening). This could be explained in terms of how performance referents were differentially measured. In pursuit of OAp goals, participants were instructed to score at least 13 baskets, however, we additionally employed a scoring system based on point allocation from 0-3 (see measures section; i.e., we did not measure performance by absolute scores). On the other hand, goal attainment was assessed in relation to feeling a sense of mastery. To extend on this, within our study design, TAp goal participants were exposed to a short video demonstration of how the basketball set-shot skill should be performed but had limited to no experience regarding the kinesthetics of the movement pattern or sport-specific knowledge of how to translate the demonstrated technique accurately into their performance as they were novices (McMorris, 2004). Without this expertise, it is likely TAp goal participants assumed they adequately replicated the three-step technique execution, resulting in their relatively high goal attainment reports – their goal focus after all was on mastery of the set-shot skill, not shooting accuracy. Furthermore, despite feeling pressured and threatened by the task within a controlling motivational context, generally TAp participants still perceive themselves to have performed adequately towards achieving their allocated goal.

Based upon these findings, we suggest practitioners seeking performance benefits from sports participants should consider creating an autonomy-supportive context, whereby individuals feel supported in their actions, valued in offering their opinions, and understand the rationale underpinning behaviour engagement (i.e., why it is important). Separate to this, practitioners should also consider the specific goal to promote, especially when working with individuals approaching a novel task situation. SAp goal pursuit yields an immediate performance benefit which is encouraging

although future research should seek to replicate these initial findings over an extended timeframe to explore the potential long-term effects.

Additional Limitations and Future Directions

Despite being one of the first studies to experimentally test the integration of AGM and SDT constructs (see also Benita et al., 2014; 2017; Spray et al., 2006) in sport, our findings have several limitations. First, our work only drew upon the effects of approach-based goals (TAp, SAp, and OAp) as part of the 3 x 2 AGM (Elliot et al., 2011). Although our findings called into question the combined influence of the achievement goals and motivational context on psycho-physiological functioning and performance, avoidance motivation was not considered. Future research may benefit from examining the effects of both approach and avoidance dimensions of achievement goals adopted under autonomy-supportive and controlling contexts in a single study. An alternative approach could be to ascertain if the approach-avoidance dimension of each goal investigated separately under different motivational contexts influences psychological well-being and physical markers of health in sport. It is suggested this could be particularly relevant to the other-based goals (i.e., OAp and other-avoidance [OAv] goals), especially considering the historically equivocal findings surrounding the OAp goal and its utility in achieving optimal performance and functioning. Secondly, we did not directly measure participant's underlying reasons for achievement goal pursuit. Similar to other research (Benita et al., 2017) we assumed that as a result of our context manipulations, participants regulated their goal for either autonomous or controlling reasons. Current literature has yet to explore and measure both the contexts and reasons underpinning goal adoption in a sport setting and so this would be a valuable avenue for future research. On this note, a third limitation involves the multidimensional manipulation of autonomy-supportive (e.g., providing a choice,

acknowledging difficulties and using non-controlling language) and controlling (e.g., pressuring language, excessive personal control and inducing threats) motivational contexts. Thus, we cannot provide clarity on which dimension(s) were responsible for the positive and negative effects of autonomy-support and control respectively. Fourth, there may be alternative indicators of physiological functioning, particularly in response to stress, future research could consider. For example, skin conductance and respiration or immunological indicators such as cortisol and secretory immunoglobulin A (S-IgA) may be particularly informative regarding potential mechanisms through which social-psychological processes differentially impact an individual's healthy functioning. Similarly, there could be other indices of psychological functioning to account for, more salient to this type of design (considering our population sample and task set-up) that we did not consider and it should be noted, the present study did not address well-being from an emotional perspective providing a fruitful avenue for future research to explore. Additionally, other mediators (e.g., measures of need satisfaction), could be included as the three basic needs are viewed as playing a significant role in mediating achievement goal approach and the social environment with well-/ill-being (Adie et al., 2008, 2010). Finally, this research was confined to a laboratory environment using novice athletes. Although it is important to clarify our intended focus was on testing theoretical principles and the integration of two prominent frameworks of motivation in understanding psycho-physiological functioning and performance in an achievement situation rather than investigating applied practice. Nevertheless, a question exists concerning ecological validity and to what extent of our findings can be generalized beyond sport performers invested in a novel motor skill. Within this, it should be noted, that based on our a priori power analysis, we fell slightly short of suggested sample size and so this may have contributed to the possibility of

type two error. Future research may consider replicating our experimental findings with a large, sport-specific sample performing a real (i.e., a more meaningful) rather than simulated achievement task and for a longer duration of time. In doing so, participants would be performing within their natural environment where they have developed a deep and purposeful connection to their chosen sport, consequently resulting in enhanced task engagement (Benita et al., 2014).

Conclusion

In summary, this work extends a recent line of research seeking to explore how the integration of tenets of the 3 x 2 AGM (Elliot et al., 2011) and SDT (Deci & Ryan, 1985) interact to influence psychophysiological functioning and performance outcomes. Contrary to the majority of sport-based correlational literature investigating the integration of these prominent motivation theories, our experimental findings suggest it may be more fruitful to employ these two frameworks separately. Our findings also point towards considering the effects of different types of approach-based achievement goal pursuits on indices of psycho-physiological functioning and performance. In that respect, our findings provide further support for the separation of the former mastery goal, into self- and task-referents, at least with regards approach-based goal pursuit within the 3 x 2 AGM (Elliot et al., 2011). Likewise, it was revealed the motivational context created can itself directly impact physiological functioning and performance. Whilst there were no adaptive consequences reported across variables measured for the combined goal and context effects, there was evidence to suggest when goal-context interactions are maladaptive for psychological functioning (i.e., pursuit of a TAp goal under a controlling context will result in individuals appraising the task as significantly more threatening than those performing within an AS environment). To reiterate, this is, to the best of our knowledge, the first study to

experimentally examine the influence of the motivational context underpinning the adoption of the three-approach goals simultaneously within a single design. The examination of individuals' physiological well-being using objective measures is also an original contribution to the AGT-SDT literature. Taking this into consideration, further experimental replication of our work is necessary before drawing firm conclusions or practical implications regarding the consequences of integrating these two motivational frameworks within sport.

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Chapter 3

3   **The Effects of Other-Based Achievement Goals and Motivational Context on the Optimal Psycho-Emotional Functioning of Novice Performers in a Table Football Competition**

3.1   Abstract

Objectives: Drawing from an integrated motivational model (Vansteenkiste, Lens, Elliot, Soenens, & Mouratidis, 2014), this study tested the impact of induced other-based achievement goals under different motivational contexts on the psychological and emotional functioning, and performance of novice table football players.

Design: A 2 x 2 (Goal [other-approach/avoidance] x Context [autonomy-supportive/ controlling]) experimental design was employed.

Method: 152 novice participants (M_{age} =19.74; SD=3.08) were randomly assigned to one of the four experimental conditions to play in a five-minute competitive table football match. Team managers delivered a pre-game and half-time team talk to induce and reinforce the goal manipulations in either an autonomy-supportive or controlling manner. Indices of psychological (self-efficacy) and emotional (hope and hopelessness) functioning were measured at specific intervals throughout the experiment. Additionally, team (goal difference score) and individual (self-rating measure) performance was assessed.

Results: ANOVAs revealed no significant goal-context interactions or main goal effects. However, results show a significant main effect of motivational context, such that participants operating within (1) an autonomy-supportive compared to controlling context, reported significantly higher levels of self-efficacy ($p < .05$) and perceptions of performance ($p < .001$), and (2) a controlling context, experienced greater levels of hopelessness ($p < .001$) than those in the autonomy-supportive condition.

Conclusion: Our findings provide no support for Vansteenkiste, Lens et al., (2014) integrated model of motivation. However, they do demonstrate the importance of considering the competitive environment within which sports participants perform. Results are discussed in relation to their unique theoretical and practical utility.

3.2 Introduction

For many athletes competing in team sports, the goal for engaging in competition is to directly outperform opponents in the game to win, or to at least avoid losing. This absolute standard of competence evaluation has been consistently documented in both anecdotal and empirical (e.g., Lochbaum & Gottardy, 2015; Vansteenkiste, Mouratidis, & Lens, 2010) evidence to be the most salient achievement strivings for teams. For example, renowned American Football coach, Vince Lombardi was once quoted as saying "Winning isn't everything, it is the only thing". Former National Basketball Association (NBA) star Kobe Bryant has also alluded to how important performance outcome was during his career, stating "I focus on one thing, and one thing only – that's trying to win as many championships as I can". In certain sports settings, particularly within a professional or elitist environment, the demands and pressures associated with this competitive level mean athletes on occasions are set up not to focus on winning, but rather to avoid losing (Halvari & Kjormo, 1999; Turner et al., 2013). The achievement goal frameworks (e.g., Dweck, 1986; Elliot, 1999; Nicholls, 1984) have demonstrated how these competence-based pursuits, coined other-approach and other-avoidance goals differentially effect achievement patterns and the psycho-emotional functioning of athletes (e.g., Lochbaum & Gottardy, 2015).

Recently, researchers have addressed the important role the social environment can additionally play in shaping the consequences of these goal pursuits. Self-determination theory (SDT; Deci & Ryan, 1985) has proved valuable for studying the impact of the motivational context within which sport participants can fully function. Individually, these two prominent theoretical frameworks have been applied extensively to enhance our understanding of the motivational processes underpinning the psychological functioning of participants in the sport domain. Despite previous

attempts to combine the tenets of each theory towards enhancing the predictive utility of achievement goal and SDT-related constructs, researchers have conducted this work in the absence of an integrated framework.

Following recent theoretical developments, Vansteenkiste and colleagues (2014) have proposed and empirically supported a conceptual model integrating the achievement goal approach with SDT (e.g., Michou, Matos, Gargurevich, Gumus, & Herrera, 2016; Vansteenkiste, Mouratidis, Van Reit, & Lens, 2014). To advance the line of inquiry surrounding the utility of other-based goals the purpose of the current study was to ascertain whether the motivational context underpinning other-approach (OAp) and other-avoidance (OAv) achievement goal adoption had differing effects on the psychological and emotional functioning, and performance of participants competing in a table football match.

The Achievement Goal Approach in Sport

In the last four decades, achievement goal approaches (Dweck, 1986; Elliot, 1999; Elliot & McGregor, 2001; Nicholls, 1984) have provided an influential framework for explorations of motivation. The original dichotomous approach differentiated between two primary goals: (1) mastery goals, which focus on acquiring and developing competence, and (2) performance goals, which focus on demonstrating one's competence by outperforming others. Over the years, the theory has evolved (for a recent review, see Senko et al. 2011). One notable shift has occurred in the definition of goals. Early conceptualizations construed achievement goals positively, towards attaining success and defined these constructs as a combination of the 'what' (i.e., aim or outcome sought by the individual) and the 'why' (i.e., the individual's underpinning reasons for engaging with that behaviour; Dweck 1986; Nicholls 1984). Such definitions saw the links between achievement goals and various psychological and

achievement outcomes as clear and straightforward – it has been well documented across both experimental and field studies in sport that mastery goals were better linked to more adaptive outcomes than performance goals (e.g., Adie, Duda, & Ntoumanis, 2010; Dewar, Kavussanu, & Ring, 2013; Lochbaum & Gottardy, 2015).

In advancing theory, the original dichotomous achievement goal model was first revised by Elliot & Harackiewicz (1996), to develop the trichotomous framework whereby the performance goal construct is divided to include an approach-avoidance dimension, leading to three separate goals: mastery, performance-approach (PAp), and performance-avoidance (PAv). A second revision presented the hierarchical model of achievement motivation (HMAM; Elliot & McGregor, 2001) whereby the mastery goal construct was also split by the approach-avoidance elements of motivation, and so resulted in a fourth goal to the trichotomy: mastery-avoidance (MAv). The HMAM sought to create a narrower and more precise definition of goals, defining them strictly as aims (Elliot and Thrash 2001), not a combination of aims and reasons. The most recent progression of the achievement goal frameworks proposed a 3 x 2 achievement goal model (AGM; Elliot, Murayama, & Pekrun, 2011) which redefined mastery goals based upon their distinct competence referents (these were now referred to as self- and task-based goals) and renamed the performance goal as an 'other-based goal'. This resulted in six distinct achievement goal constructs which differ on the basis of how competence is defined and valenced: (1) self-approach (SAp; striving to improve upon previous performance), (2) self-avoidance (SAv; striving to avoid performing any worse than previous performance), (2) task-approach (TAp; striving to achieve the task demands, e.g., correctly executing the skill technique), (4) task-avoidance (TAv; striving to avoid demonstrating task-based incompetence), (5) other-approach (OAp;

striving to outperform competitors), and (6) other-avoidance (OAv; striving to avoid performing poorly in comparison to others).

This research exclusively focuses on OAp and OAv goals from the 3 x 2 AGM (Elliot et al., 2011). To be clear, these constructs are defined in the exact same way as PAp and PAv as they are known within the HMAM (Elliot & McGregor, 2001).

The Debate Surrounding Other-Approach Goals in Sport

As previously stated, literature stemming from the dichotomous achievement goal model literature (e.g., Dweck, 1986) demonstrated clear support for the pursuit of mastery compared to performance goals towards experiencing optimal functioning. However, research soon emerged whereby an opposing pattern of relations for the performance goal findings in the sport-based literature occurred. A rather more inconsistent pattern of results has evidenced performance goals to be related (and unrelated) to both adaptive and maladaptive outcomes (e.g., Dewar & Kavussanu, 2012; Spray, Wang, Biddle, & Chatzisarantis, 2006).

The development of the achievement goal approaches (from the dichotomous to the 3 x 2 AGM) aimed to address these ambiguities by conceptualizing achievement goals to be defined strictly as aims (excluding the reasons element) that are differentially valenced (i.e., approach vs avoidance). Researchers began gathering evidence to show that when the reason component is excluded from their definition, PAp goals can often be as adaptive as mastery goals. For example, in sport research, PAp goal pursuit has been positively linked to performance (Halvari & Kjørmo, 1999), increased feelings of vitality (Li, 2010), positive affect, and satisfaction (Gaudreau & Braaten, 2016). Indeed, these findings corroborate with theoretical propositions (Elliot & Conroy, 2005), However, in other studies, they remain positively associated with extrinsic motivation (Nien & Duda, 2008) and negative affect (Adie et al., 2010), but

unrelated to intrinsic motivation (e.g., Adie & Jowett, 2010; Conroy, Kaye, & Coatsworth, 2006) and enjoyment (Morris & Kavussanu, 2009). Literature has also highlighted the associations between achievement goals and self-efficacy (i.e., an individual's beliefs in their capability to meet task demands and execute the required performance; Bandura, 1997). Based upon the importance of competence to both of these constructs, it is unsurprising previous research (largely in the education domain) has demonstrated clear links, with PAp goals serving to positively influence experiences of self-efficacy (e.g., Diseth 2015; Huang, 2016). PAv goals have been consistently reported in sport to be associated with maladaptive outcomes such as lower positive affect and self-efficacy, increased worry and anxiety, and decreased performance (see Papaioannou, Zourbanos, Krommidas, & Ampatzoglou, 2012).

The majority of research in this area has been correlational and so prevents researchers from concluding causality, however, an exception does exist within the physical education literature. Work by Cury and colleagues (e.g., Cury, Elliot, Sarrazin, Da Fonseca, & Rufo, 2002) experimentally investigated PAp and PAv goals induced among participants performing a basketball dribbling activity. In support of prior correlational literature, the detrimental nature associated with PAv goals revealed individuals performing within this goal condition experienced undermined intrinsic motivation, increased state anxiety, and reduced task absorption, when compared with PAp and mastery goal conditions. Interestingly, PAp and mastery goals revealed no differences in level of intrinsic motivation experienced, demonstrating that even within evaluative settings, where performance is judged by others, PAp goals can lead to some positive effects.

Research in alternative achievement settings (e.g., education) have also reported contrasting trends with respect to the influence of other-based goals on studied

variables. For example, Elliot et al., (2011; study two) investigated undergraduate students with regards to their course exams and reported OAp goals to demonstrate positive relations with exam performance and learning efficacy whereas OAv revealed a negative association with exam performance and intrinsic motivation but were a positive predictor of worry about exams. Similarly, Diseth (2015) reported OAp goals to positively predict self-efficacy and academic achievement.

Therefore, based upon these findings in existing literature, it would appear that PAp goals are somewhat adaptive when considering short-term outcomes (e.g., they predict performance well), but usually at a cost to the athlete's welfare long-term (Adie et al., 2010; Elliot & Moller, 2003). Further, PAv goals positively relate to a host of maladaptive outcomes.

Achievement Goals and Emotional Functioning

Achievement goal frameworks have utility in enhancing researchers understanding of the motivational processes underpinning subjective well-being (SWB). SWB is commonly operationalised as the presence of positive affect, and the absence of negative affect (Diener, 1984). As such, much of the literature has relied on measures of affect as an index of an individual's (sub)optimal functioning. However, in sport, it is well documented that participants experience variations in specific emotional experiences due to the dynamic environment associated with competition and much less work has focused on exploring this particular dimension of well-being.

By definition, emotions and affect represent two different concepts. Emotions are defined as "relatively brief but intense experiences activated by cognitive appraisal of a situation" (Lane & Terry, 2000, p. 17), whereas affect is a "broad rubric that refers to all things emotional" (Rosenberg, 1998, p. 247). Based upon this, researchers (e.g., Jones, Lane, Bray, Uphill, & Catlin, 2005) have argued measuring specific emotions

may be superior to assessing a composite score of affect (Jones et al., 2005). This is because the more generic and broad construct of affect, (potentially) obscures insightful information with respect to relationships between achievement goals and emotional experiences

Pekrun (1992) developed a taxonomy of emotions, and those most relevant to the sporting environment are achievement emotions which are defined on the basis of their associations to achievement activities and/or outcomes (Pekrun, Goetz, Frenzel, Barchfield, & Perry, 2011). Two dimensions of particular importance for achievement emotions were identified as object focus and valence. Object focus categorises emotions as either (1) activity-related, (e.g., enjoyment, boredom, anger) or (2) outcome-related, inclusive of both prospective (e.g., anticipatory feelings of hope, anxiety, and hopelessness) and retrospective (e.g., pride and shame) emotions. The valence dimension concerns differentiating positive (adaptive) versus negative (maladaptive) achievement emotions. Sport research investigating the presence of emotions among sport participants has indeed revealed a wide-ranging spectrum of experiences (e.g., Martinent, Campo, & Ferrand, 2012; Nicholls, Hemmings, Clough, 2010). For the purposes of this study, we exclusively focused on prospective and retrospective outcome related emotions.

The presence of varying emotional experiences in team sports has been well-documented in a host of correlational studies. For example, Japanese field hockey players reported experiences of excitement, pride, shame, and anxiety before and after their World Cup competition (Kerr, Wilson, Bowling, & Sheahan, 2005). Further, across many team-based, collegiate sports, athletes reported happiness, excitement, and dejection among the most commonly experienced emotions before and after varsity competition (Allen, Jones, & Sheffield, 2009).

Previous literature has seldom assessed the unique pattern of relations assumed to exist between achievement goals and specific emotions. Research by Dewar and Kavussanu (2012) in a competitive team sport environment started to bridge this gap, revealing athletes in pursuit of a mastery goal, were more likely to experience an adaptive emotional experience indexed by increased feelings of happiness, pride, and hope (and less dejection and shame) relative to those following a performance goal. Later experimental work (Dewar, Kavussanu, & Ring, 2013) found the ego-orientated group to experience greater pre-competition excitement and anxiety than the task-oriented group on an agility task.

From a conceptual viewpoint, these findings are embedded within early motivation theories (i.e., the dichotomous frameworks), and so focus more on motivational climates, rather than specific achievement goal pursuit. As such, goals were not defined in accordance with the approach-avoidance valence dimension and so cannot explicitly contribute to the debate surrounding the utility of PAp goals. However, in adopting the 2 x 2 AGM (Elliot & McGregor, 2001) with tennis players, Puente-Díaz (2013) revealed the positive influence of PAp goal pursuit on increased feelings of hope prior to performance. This trend replicated that found in education, with students reporting increased hope following PAp achievement strivings before undertaking an academic test (Pekrun, Elliot, & Maier, 2009). However, within physical education, researchers have not documented such positive emotional experiences for individuals in pursuit of a PAp goal relative to those striving to demonstrate mastery competence (Lochbaum & Stevenson, 2014). Authors found PAp goals resulted in positive associations with less experiences of pride, greater frustration and reduced perceptions of success.

To the best of our knowledge, no experimental studies exist within the team-based, sport context exclusively focusing on OAp and OAv goals and their influence on the specific emotional experiences. Based on existing literature, we chose to exclusively focus on participant's experiences of hope and hopelessness as a prospective and retrospective outcome-activity emotion respectively. It was assumed the inherent competitive nature connected to other-based goals and the associated importance of the performance outcome (Lochbaum & Gottardy, 2015), could have the potential to instigate these emotional experiences in participants. Hope is defined as a feeling of expectation and desire for a particular thing to happen whilst hopelessness as the opposing emotion can be described simply as a feeling or state of despair (Pekrun, 1992). Therefore, our first study aim sought to understand to what degree participants pursuing OAp and OAv goals could contribute to the emotional functioning and performance of sports participants taking part in a competitive sport situation. Our first set of hypotheses predicted that (1a) OAp goal pursuit would demonstrate positive associations with performance and could positively influence (mal)adaptive emotional well-being, and (1b) OAv goal pursuit would relate to reduced performance, lower feelings of hope pre-match and greater experiences of hopelessness post-competition.

Similar to the controversy surrounding PAp goals on various outcome measures, the achievement motives influencing achievement goal pursuit have been widely studied in literature. The need for achievement (NAch; the motive to succeed) and fear of failure (FF; the motive to avoid failure), have been most commonly examined in previous research and it has been well documented that PAp goals are influenced by both motives (Elliot, 1999). However, within the HMAM, it has been proposed that the endorsement of achievement goals may be influenced by other antecedents, namely perceived environmental factors (e.g., the motivational context). As such, this variable

may not only trigger a goal but also help shape its consequential effects (Elliot & Thrash, 2001). These antecedent-goal combinations are referred to in literature as 'goal-complexes', and recently, researchers have claimed that any one achievement goal could have different underlying antecedents (i.e., environmental factors which consequently may affect how the goal behaves; Elliot, 1999; Michou, Mouratidis, Lens, & Vansteenkiste, 2013). Until recently, few had considered exploring this goal-complex approach. Therefore, it has been proposed, to better explain and understand the complex relationships surrounding other-based (formally PAp and PAv) goals, researchers could extend this line of enquiry, testing goal complexes, incorporating key tenets from SDT's concepts of the underlying motivational context.

Self Determination Theory

A complimentary theoretical framework relevant to understanding competence-based motivation, performance, and the healthy functioning of sport participants is Self-Determination Theory (SDT; Deci & Ryan, 1985; Conroy, Elliot, & Coatsworth, 2007). SDT (Ryan and Deci 2000) emphasizes the various reasons (or motives) individuals have for their behaviours (i.e., in this case goal pursuits) and considers how these relate to psychological health. SDT differentiates between two primary types of behavioural regulation: (1) autonomous and (2) controlled. Research across various contexts has found autonomous motivation to be associated with higher adaptive consequences than controlled regulation (for a review, see Deci & Ryan, 2008) and so, much of the research in the SDT tradition has examined factors in the social environment that either facilitate or diminish autonomous regulation. According to SDT, autonomous motivation is fostered by support from the perceived social environment created by significant others (e.g., team managers). An autonomy-supportive context is a key facet of the social environment that considers the

participant's perspective, promotes choice and decision-making, provides a rationale for the task to be undertaken, acknowledges potential difficulty, and which uses non-controlling language (Ryan & Deci, 2000). In contrast, a controlling environment would entail pressuring language, exertion of excessive personal control, induced deadlines, rewards and threats, and display intimidation techniques that control participant's behaviour (Bartholomew, Ntoumanis, & Thøgersen-Ntoumani, 2009). Sport research has consistently found significant others (e.g., team managers and/or coaches) that create autonomy supportive environments promote autonomy, which in turn, predict healthy psychological functioning such as enhanced well-being (indexed by greater positive affect), subjective vitality, and better performance (Gagne, 2003; Hooyman, Wulf, & Lewthwaite, 2014; Reinboth, Duda, & Ntoumanis, 2004). Controlled regulation on the other hand, has been continually linked with detrimental outcomes, such as increased ill-being (indexed by heightened negative affect) and poor task performance (for a review, see Deci & Ryan, 2000).

Limited work within the sport domain has examined an individual's emotional experiences associated achievement goal pursuit under autonomy-supportive or controlling contexts. The second aim of the present research was to investigate whether autonomy-supportive or controlling motivational contexts differentially influenced sport participants performance and emotional well-being when engaging in a team competition. Our second set of hypotheses predicted that: (2a) autonomy supportive environments would lead to increased feelings of hope and resultant performance, and less experiences of hopelessness, and (2b) controlling environments would demonstrate positive associations with less hope, reduced performance, and increased feelings of hopelessness.

Integration of Theories

Based on SDT's differentiation of motivation regulations, a growing body of research has attempted to integrate AGA's (e.g., Elliot & McGregor, 2001), with SDT (Deci & Ryan, 1985) towards predicting well-being and performance in achievement settings (Benita, Roth, & Deci, 2014; Gaudreau and Braaten 2016; Gillet, Lafrenière, Vallerand, Huart, & Fouquereau, 2014; Spray et al., 2006; Vansteenkiste et al., 2009; Vansteenkiste, Mouratidis, & Lens, 2010). The main challenge facing researchers trying to integrate AGA's and SDT in sport surrounded the role of competence and this was often overlooked during early attempts to combine theoretical perspectives. To clarify, in the original achievement goal approaches (e.g., Dweck, 1986; Nicholls, 1984) competence was assumed to play a moderating role between the prediction of achievement goals and their relations with achievement outcomes. However, in SDT (Deci & Ryan, 1985; Ryan & Deci, 2000), competence is viewed a need that requires satisfied if optimal functioning is to result (Ryan & Deci, 2002).

Initial work led by Spray et al., (2006) conducted an experimental study exploring the effects of induced performance goals in autonomy supportive and controlling contexts on participant's enjoyment and achievement patterns after completing a golf-putting task. Authors observed no significant interaction effects, with main effects largely emerging from the motivational context. To elaborate, the autonomy-supportive context predicted better outcomes than the controlling context across all examined variables. Despite the encouraging nature of this study design embracing the notion of motivation integration within an experimental study, from a theoretical perspective, this work was anchored with the early dichotomous model of achievement goals, and so, did not differentiate between aims and reasons when defining goals, an obvious limitation when considering the current theoretical

progression. Further, Spray et al., (2006) investigated participants completing a task most representative of an individual sport and so the application to team-based athletes cannot be concluded.

Sport-based literature since has embraced an alternative approach to theoretical integration, focusing on combining the HMAM with SDT to largely focus on the autonomous and controlled reasons underlying achievement goal pursuit. The first to explore this goal-complex notion was Vansteenkiste, Mouratidis, & Lens, (2010). Examining a group of soccer players, authors reported that the more autonomous or volitional reasons athletes had for endorsing PAp goals, the more energized they felt, alongside experiencing greater positive and less negative affect. On the other hand, soccer players who felt psychologically pressured or controlled to outperform their opponent during the game reported somewhat more negative affect. These findings were supported in alternative team-based sports settings (e.g., volleyball; Vansteenkiste, Mouratidis, Van Reit, & Lens, 2014) and across achievement contexts such as education (e.g., Michou, Vansteenkiste, Mouratidis, & Lens, 2014).

These findings are interesting and help to shed light on the ongoing discussion surrounding the adaptive or maladaptive nature of these goals because they indicate that the observed differences among athletes psychological functioning may not be a function of interpersonal differences in PAp goals but rather a function of the reasons for which these goals are endorsed. Despite this, a clear limitation of this body of literature (e.g., Michou et al., 2014; Vansteenkiste et al., 2010; Vansteenkiste, Mouratidis et al., 2014) is that research was conducted in the absence of a theoretically grounded guiding framework. Acknowledging this Vansteenkiste, Lens et al., (2014) developed a conceptual model for integrating achievement goal theory with SDT. They proposed any one goal could lead to somewhat different processes and outcomes,

depending on its accompanying reasons, or the motivational context within which it was adopted. As such, motivation regulations (i.e., autonomous vs controlled) could play a moderating role in the relationship between goals and outcomes. It was suggested these regulations would consequently relate to cognitive, affective, and behavioural outcomes in their own unique way, explaining variance in addition to that accounted for by the strength of the endorsement of achievement goals themselves.

Guided by Vansteenkiste, Lens et al., (2014) framework, Gaudreau and Braaten (2016) examined the goal pursuits of student athletes from a range of individual and team-based sports. Researchers found the associations between PAp goals and perceived goal attainment, sport satisfaction and positive affect were stronger for athletes pursuing these goals with high level of autonomous goal motivation. Additionally, they highlighted controlled goal motivation of PAp goals was negatively associated with positive affect and sport satisfaction but positively associated with negative affect. More recently in education, Benita et al., (2017), integrated key tenets of the 3 x 2 AGM with SDT's concepts of the motivational context and experimentally explored university students engaging with a computer game. They found (1) OAp goals yielded better performance when drawing comparisons with SAp goals (study one), (2) OAp goals led to a detrimental emotional experience, and (3) the performance benefits of promoting OAp goals in an autonomy-supportive context, compared to an autonomy-suppressive (i.e., controlling) context. Although encouraging results that demonstrate advancements in previous work in terms of research design, this study focused exclusively on OAp goals in education. Therefore, it remains unanswered: (1) whether the consistently reported maladaptive nature of OAv goals could be somewhat alleviated if pursued under the more adaptive autonomy-supportive context and (2) how OAp and OAv goals will behave in an alternative achievement setting (i.e., sport)

depending on the environment they are adopted within and consequently, how this impacts psychological and emotional functioning, and performance.

Taken together, the attempts to integrate theoretical motivational perspectives yield promising results that demonstrate support for Vansteenkiste, Lens et al., (2014) model. However, with respect to studied outcomes, most of the sport-based research focuses on motivational processes influencing subjective well-being as indexed by positive affect (e.g., Vansteenkiste et al., 2010) and so obscures insights into their effects on achievement emotions. Further, greater experimental work is required in general, but specifically in sport, before drawing firm conclusions on the validity of the goal-complex notion towards enhancing our understanding of the motivational processes underpinning psycho-emotional functioning and performance.

Therefore, the third and final aim of the present research was to investigate the potential interaction between OAp and OAv achievement goals and the motivational context under which they are adopted in explaining their relationship with psychological and emotional functioning, and performance, the first study to experimentally do so. Our third set of hypothesis expected (3a) pursuing OAp achievement goals under an autonomy-supportive condition compared to controlling would be most conducive towards enhancing psychological (increased self-efficacy) and emotional functioning (elevated feelings of hope), and performance; (3b) OAv goal pursuit would be exacerbated under a controlling motivational context (i.e., increased feelings of hopelessness and low levels of self-efficacy, hope and performance).

3.3 Methods

Participants

The sample consisted of male ($n = 72$) and female ($n = 80$) novice table football players ($M_{age} = 19.74$; $SD = 3.08$) who volunteered to take part in this study, conducted

at a large University in the West Midlands, U.K. As a pre-requisite for the study, opportunist sampling was employed and individuals were recruited on the basis they were currently involved in organised sport. This was deemed to be important as they should be accustomed to the competitive nature of a sporting environment and therefore invest greater efforts into this task whereby the definition of the goal they had to pursue was concerned with either outperforming (OAp) or avoid being beaten by (OAv) their opponents. Subjects also reported their recent table football playing experience[4] as more than one year ago (n = 1), once in the last year (n = 83), once in the last six months (n=29) and once in the last month (n = 25).

Design and Procedure

Following University ethical approval, online (e.g., SONA) and snowballing sample methods were used to recruit participants into the study. All participants consented prior to taking part in the competition.

The experiment took place in a laboratory setting and was conducted by the lead researcher and six[5] trained research assistants. The experimental task was a table football match (see Sage & Kavussanu, 2007). Participants competed in pairs (2 vs 2) in a five-minute game, made up of two x two and half minute halves with a two-minute half-time interval for a team-talk. Individuals were matched and subsequently tested in all-male or all-female groups prior to arrival in an attempt to avoid gender effects arising (Sage & Kavussanu, 2007). Employing a 2 x 2 (Goal [other-approach/other-avoidance] x Context [autonomy support/controlling context]) design, participants were randomly allocated to one of the following four experimental conditions (1) other-approach, autonomy-supportive (OAp-AS), (2) other-approach, control (OAp-Con), (3)

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[4] To participate in this study, individuals should have competed no more than once in the last month.
[5] It should be noted that at any one time, only two trained researchers were required to conduct the experiment alongside the lead researcher.

other-avoidance, autonomy-supportive (OAv-AS), (4) other-avoidance, control (OAv-Con).

Upon arrival, individuals were introduced to the study and received verbal instructions concerning their participation and the study purpose. The role of the lead researcher was outlined (to act as a referee) and each team was allocated a manager. At this point, the two research assistants acting as confederates in this role were introduced. Subsequently, participants completed a self-rating measure of their table football ability and demographic information before the lead researcher verbally identified the three main rules of the game which are officially recognized by the International Table Soccer Federation; (1) no spinning of the rods, (2) no jarring, sliding or lifting the table and (3) no handling of the ball within the playing area unless the ball goes dead. After verbal clarification of their understanding of these rules, participants took part in a five minute practice session to familiarise themselves with the field of play.

After the practice session was complete, the competitive teams were formally introduced, met with their team manager and were subsequently separated into individual meeting rooms, during which delivery of the experimental manipulation began. Dependent on the experimental condition, team managers verbally delivered the following instructions:

OAp-AS:

"For this match, it is possible to measure your success in different ways. What do you think these different ways are? I acknowledge that you might have your own personal goals, but for this game, how would you feel about aiming to outperform your opponents? I understand trying to outperform your opponents in the game may be difficult, but how do you think you can achieve this goal? As previously discussed, one

way to be successful in the game is: 'To try and score more goals than your opponents'.

Is there anything else you would like to discuss before we start?"

OAp-Con:

"In this match, you must aim to beat your opponents. The only way you can do this is if you score more goals than they do. Every time you score a goal, I will reward each of you with an entry into a prize draw to win £100. It is very important to me to win as a manager, so you must achieve this goal. If you do not achieve this goal, you will not be entered into the prize draw[6]. You must now confirm you understand your required goal and will pursue it throughout the match."

OAv-AS:

"Okay we know the opposition have similar table football experience to you, but they look quite good. Sometimes, when playing a match, it is good to think of the different ways to avoid losing to your opponents. What do you think these different ways are? I acknowledge that you might have your own personal goals, but for this game, how would you feel about trying to avoid losing to your opponents? I understand trying to avoid being beaten by your opponents in the game may be difficult, but how do you think you can achieve this goal? As previously discussed, one way to avoid being beaten in the game is: 'To concede less goals than your opponents'. Is there anything else you would like to discuss before we start?"

OAv-Con:

"In this match, you must aim to avoid being beaten by your opponents. The only way to do this is: 'To concede less goals than they do'. Every time you concede a goal, I will penalise each of you by withdrawing one entry from the prize draw to win

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[6] Participants within controlling conditions were under the impression that should they not achieve their goal, they would not be entered into the prize draw – this was a minor deception included to reinforce the motivational context via use of rewards. All participants, irrespective of experimental condition and goal achievement (or not), were entered into a prize draw at the end of the testing phase.

£100. It is very important to me not to lose as a manager, so you must achieve this goal. If you do not achieve this goal, you will not be entered into the prize draw. You must now confirm you understand your required goal and will pursue it throughout the match."

Immediately following the instructions, subjects completed self-report measures for goal pursuit (manipulation check), self-efficacy, and hope before competing in the table football task. During play, both team managers observed play only from the side-line. During the half-time period, participants received a team talk from their manager in their respective meeting rooms during which the experimental manipulations were reinforced. Like the initial delivery of manipulations, team managers operating within an autonomy-supportive context encouraged their players to engage in an open discussion. Regarding their first half performance, questions such as "How do you think it is going?" and "Would you like to swap positions?" were employed to gain insight into the participants' perspective and offer them a choice in deciding their role for the second half in pursuit of their goal. Contrastingly, team managers acting within a controlling context utilised threatening language and intimidation techniques (e.g., shouting) in addition to phrases such as "You must…", "You're not playing well", "I expect more from you", and "You're letting me down[7]".

The second half resumed thereafter and following the final two and halve minutes of play, participants were issued with a multi-section questionnaire incorporating a goal and context manipulation check and measures for individual perceptions of performance and hopelessness.

All participants were fully debriefed at the end of the experiment. Each testing phase lasted approximately 30 minutes.

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[7] A full list of half-time instructions and bank statements are in the appendices of this thesis.

Measures

Ability[8]. To assess participant's perceptions of their table-football ability pre-match, a one-item measure was generated. Participants responded to the stem *"I would rate my table football ability as"* indicating their perceptions of their ability as either (1) "Low", (2) "Medium" or (3) "High".

Manipulation Checks. Firstly, in order to ensure participants were invested in and fully understood their achievement goal pursuit, team managers sought verbal confirmation. Following this, individuals responded to two items generated from the 3 x 2 Achievement Goal Questionnaire-Sport (AGQ-S; Mascret, Elliot, & Cury, 2015), capturing the OAp (*"My goal is to outperform my opponents"*) and OAv (*"My goal is to avoid being beaten by my opponents"*) goals. This same measure was also administered post-task to provide additional evidence that participants had continued to pursue their allocated goal throughout the duration of the competitive table-football match. Scores were recorded on a 7-point Likert-scale ranging from 1 ("Strongly disagree") to 7 ("Strongly agree").

Secondly, similar to Benita et al., (2017), an adapted 2-item version of the Experimental Climate Questionnaire (ECQ) was used to assess the degree to which participants felt supported versus controlled by the experimenter during the testing phase. Definitions for autonomy-supportive and controlling contexts were provided and participants rated the following items (1) *"I felt my manager was autonomy-supportive in the goal I adopted"* and (2) *"I felt my team manager was controlling in the goal I had to adopt"* on a 7-point Likert-scale ranging from 1 ("Not at all true") to 7 ("Very true").

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[8] Although all participants recruited had limited table football experience, this measure ensured teams were evenly matched in terms of ability, making the contest as fair as possible.

Self-efficacy. Grounded in the work of Bandura (1977), two 11-item measures, individually tailored to OAp and OAv goal pursuits were generated to assess participant's beliefs in their ability to (1) be successful by performing to a certain standard (i.e., to indicate to what extent they were confident they could score the number of goals listed; OAp goal) and (2) achieve their goal by indicating to what extent they were confident they could avoid conceding the number of goals listed (OAv goal). The stem for the OAp measure read, *"How confident are you that you could score…"*: (1) 1 goal, (2) 2 goals, (3) 3 goals and so on and so forth to item (11) More than 10 goals. The stem for the OAv measure read, *"How confident are you that you will avoid conceding…"*: (1) 10 goals, (2) 9 goals, (3) 8 goals and so on and so forth to item (11) 0 goals. Participants rated their level of confidence on a Likert-scale ranging from 0 ("Not confident at all") to 100% ("Highly confident I can do this"). This scale was designed based upon Bandura's (2006) guidelines for constructing tailored self-efficacy scales.

Emotional Functioning. Two subscales of the Test Emotions Questionnaire (TEQ; Pekrun, Goetz, Perry, Kramer, & Hochstadt, 2004), a sub-section of the Achievement Emotions Questionnaire (AEQ; Pekrun, Goetz, Frenzel, Barchfeld, & Perry, 2011) were used to assess how hopeful (8 items, e.g., *"I have great hope that my abilities will be sufficient"*) and hopeless (11 items, e.g., *"I had lost all hope that I had the ability to do well on this task"*) participants felt prior to and after competing in the table football task respectively. Scores were recorded on a 7-point Likert-scale ranging from 1 ("Disagree") to 7 ("Agree"). These subscales of the TEQ has previously demonstrated acceptable levels of internal consistency and validity (Pekrun, Goetz, Titz, & Perry, 2002).

Performance[9]. The number of goals scored and conceded by each team was recorded and consequently a goal difference score was calculated to represent an objective measure of team performance. Participants also completed a subjective self-rating of their perception of their individual performance post-task. A one-item measure was generated, and subjects responded to the stem *"How well do you think you performed during the game?"* across a 5-point Likert Scale ranging from 1 ("Poor") to 5 ("Excellent").

3.4   Results

Manipulation Checks

The first goal manipulation test revealed that each participant on each team confirmed (verbally) they understood their goal for the upcoming game when asked by their team manager. Secondly, a MANOVA (see Table 7) confirmed that our intended OAp ($F_{(1, 150)} = 113.03$, $p<.001$, $\eta^2 = .89$) and OAv ($F_{(1, 150)} = 95.85$, $p<.001$, $\eta^2 = .39$) goal manipulations had been successful pre-task, and again post-task: OAp ($F_{(1, 150)} = 191.33$, $p<.001$, $\eta^2 = .56$) and OAv ($F_{(1, 150)} = 183.76$, $p<.001$, $\eta^2 = .55$). Thirdly, a MANOVA confirmed the effectiveness of our autonomy-support ($F_{(1, 150)} = 291.58$, $p<.001$, $\eta^2 = .66$) and controlling context ($F_{(1, 150)} = 258.46$, $p<.001$, $\eta^2 = .63$) manipulations (see also Table 7).

Descriptive Statistics

Table 8 presents the descriptive statistics for indices of psychological and emotional functioning, and performance. Furthermore, the scales used to measure self-efficacy ($\alpha = .96$), hope ($\alpha = .90$), and hopelessness ($\alpha = .95$), all demonstrated excellent reliability.

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[9] The football table was a Mightymast Leisure Gemini Model that included 11 playing figures per team and two goals. Two chutes situated at either side of the half-way line dispensed the balls into play.

Main Analyses

Other-based goals and motivational context effects on psychological and emotional functioning, and performance.

Psychological Functioning. A 2 x 2 (Goal x Context) ANOVA was conducted on self-efficacy. No significant goal-context interaction was observed, $F_{(1, 148)} = 2.68$, $p = .10$. However, there was a significant main effect for the motivational context only, $F_{(1, 148)} = 3.88$, $p = .04$, $\eta^2 = .03$. Specifically, results revealed participants within an autonomy-supportive motivational context, reported greater levels of self-efficacy pre-task than their counterparts performing under a controlling condition.

Emotional Functioning. A series of 2 x 2 (Goal x Context) ANOVA's were conducted on hope and hopelessness. Firstly, regarding hope, analysis revealed no significant goal-context interaction effects $F_{(1, 148)} = .72$, $p = .40$, $\eta^2 = .01$. Furthermore, no significant main effects were found for goal, $F_{(1, 148)} = 2.06$, $p = .15$, $\eta^2 = .01$ or context $F_{(1, 148)} = 3.36$, $p = .07$, $\eta^2 = .02$. Secondly, with reference to hopelessness, no significant goal-context interaction emerged $F_{(1, 148)} = .14$, $p = .70$, $\eta^2 = .001$. However, analysis revealed a significant main effect for the motivational context only, $F_{(1, 148)} = 24.52$, $p < .001$, $\eta^2 = .14$. Specifically, results revealed participants within a controlling motivational context, reported greater levels of hopelessness post-task than their counterparts performing under an autonomy-supportive condition.

Performance. A series of 2 x 2 (Goal x Context) ANOVA's were conducted on performance data, including team goal difference scores recorded at full-time (FT) of the table football game, and individual self-report ratings for performance. Regarding the score line, analysis revealed no significant goal-context interaction, nor main goal or context individual effects at FT, ($F_{(1, 172)} = .000$, $p = 1.00$, $\eta^2 = .000$; $F_{(1, 72)} = .39$, $p = .54$, $\eta^2 = .01$; $F_{(1, 72)} = 2.19$, $p = .14$, $\eta^2 = .03$ respectively).

Table 7

Descriptive Statistics concerning the Manipulation Checks for Goal and Motivational Context.

Variables	Experimental Manipulations	
	Goal	
	OAp	OAv
Goal: Pre-task		
OAp	6.38 (1.39)***	3.38 (2.10)
OAv	3.05 (2.37)	6.18 (1.48)***
Goal: Post-task		
OAp	6.25 (1.63)***	2.42 (1.78)
OAv	2.39 (1.98)	6.28 (1.52)***
	Context	
	AS	Con
Context		
AS	5.95 (1.48)***	1.80 (1.51)
Con	2.53 (1.80)	6.49 (1.17)***

Notes. Subscript letters represent statistically significant differences between conditions. Rows that share the same subscript letter, do not differ significantly. OAp = other-approach; OAv = other-avoidance; AS = autonomy-supportive; Con = controlling.
***$p < .001$.

Table 8

Descriptive Statistics for Indices of Psychological and Emotional Functioning, and Performance across the Four Experimental Conditions.

Variables	Experimental Conditions			
	OAp		OAv	
	AS	Con	AS	Con
Psychological				
Self-Efficacy	50.35 (17.49)	39.75 (17.96)	50.07 (15.50)	48.57 (17.41)
Emotional				
Hope	5.19 (1.00)	4.73 (1.06)	4.80 (1.03)	4.63 (1.16)
Hopelessness	1.71 (.88)	2.58 (1.45)	1.73 (.67)	2.74 (1.49)
Performance				
GD: HT	.16 (3.37)	-.42 (3.44)	.42 (3.44)	-.16 (3.37)
GD: FT	.58 (5.53)	-1.42 (6.24)	1.42 (6.24)	-.58 (5.53)
Self-rating	3.53 (.95)	2.97 (1.03)	3.53 (1.06)	2.87 (.99)

Notes. Self-efficacy was measured along a Likert scale ranging from 0 – 100%. Indices of emotional functioning were measure along 7-point-likert scales. OAp = other-approach; OAv = other-avoidance; AS = autonomy-supportive; Con = controlling; GD = goal difference; HT = half-time; FT = full-time.

Once again, there was no significant goal-context interaction observed for individual's self-perceptions of their performance, $F_{(1, 148)} = .10$, $p = .75$. However, results unveiled a significant main effect of the context only, $F_{(1, 148)} = 13.71$, $p < .001$, $\eta^2 = .09$. Specifically, results revealed participants within an autonomy-supportive motivational context, perceived themselves to have performed better than their counterparts performing under a controlling condition.

3.1   Discussion

Drawing upon Vansteenkiste, Lens et al.'s (2014) framework, our experimental work tested the potential interactive effects of other-based achievement goals and the motivational context on the psychological and emotional functioning, and performance of novice table football players. More specifically, we investigated if OAp and OAv goals induced under autonomy-supportive and controlling motivational contexts differentially impact upon an individual's experiences of self-efficacy and hope pre-game, in addition to their performance, and feelings of hopelessness post-game when participating in a table football competition. Our experimental findings demonstrate no support for the integration of the HMAM (Elliot et al., 2011) and SDT (Ryan & Deci, 2000) in a sport setting. Instead, our findings provide strong evidence for the unique effects of the motivational context in explaining the psychological and emotional functioning, and performance of participants competing within a novel sports situation.

A primary interest of this study was to address the previous equivocal findings surrounding OAp goals through exploring how the environment can play an informative role in enhancing our understanding of when they can be (mal)adaptive. Contrary to expectations, findings revealed neither achievement goal construct (OAp or OAv) revealed any direct effects on study outcomes leading researchers to reject the first set of hypotheses (and consequently researchers rejected hypothesis three as there were no

goal-context interactions observed). These unexpected findings disagree with most of the existing literature but may be understood in a number of ways. Firstly, from a theoretical perspective, it has been suggested that the influence of SDT constructs (i.e., social environment) have a stronger influence in explaining the majority, if not all the variance associated with motivational processes, so much so that any potential goal effects that might exist become void (Deci & Ryan, 2000). These proposals have received widespread supported in empirical work (see Gaudreau and Braaten, 2016; Vansteenkiste et al., 2010; Vansteenkiste, Smeets et al., 2009) and so it appears plausible, our findings with novice table football players have further affirmed Deci & Ryan's (2000) claims. Along these lines, the ambiguity surrounding OAp goals and their inconsistent relations with outcome variables, often demonstrating positive associations with maladaptive consequences (e.g., increased anxiety, worry, stress, burnout etc.) have led researchers to conclude based on previous studies (e.g., Ntoumanis, 2001), that the pursuit of other-based goals (even OAp goals) would be primarily motivated by controlling reasons or delivered in a controlling manner (Vansteenkiste et al., 2010). Afterall, by definition, their main concern surrounds performance outcome only, rather than growth, improvement, and mastery. Therefore, it seems probable that the controlling motivational context induced in the present study, had an overriding effect, above and beyond the pressures already inherently associated with other-based goal influences.

Furthermore, variations in the approach to research design taken between the present study and existing literature may additionally explain our lack of direct goal effects. For example, considering the definition of other-based goals is grounded in a normative standard of competence (i.e., involves a desire to outperform others [OAp], or at least to avoid doing any worse than others [OAv]), we employed individuals

actively engaging with sport as it was assumed they would possess the inherent competitive nature, naturally associated with these goals. However, our recruitment criteria also stipulated table football novices and as such, our behavioural measure may have been perceived as a competition with little meaning to our subjects. This is where the present research differs from previous literature who have explored these goal pursuits and documented direct effects on various indices of psychological functioning and performance. To explain, other researchers have examined these goal strivings among participants operating within their natural sporting environment. For example, Vansteenkiste et al., (2010) focused on soccer players from provincial to professional status, whilst Vansteenkiste Mouraitidis, et al., (2014) worked with volleyball players over the course of their competitive season. It seems plausible then to suggest that none of our participants had an inherent passion for or affiliation to table football in which they had limited experience and as a result, lacked true engagement with the task, which may explain why we found no significant goal effects on any of our studied variables.

Moreover, the non-significant goal findings in this experiment, could have also resulted from the relatively short task-engagement, which lasted only five minutes (two x two and a half minute halves). It could be argued that to fully endorse an achievement goal, a longer period of time is required, especially when the task to be performed is a novel sporting situation for the participants. Benita et al., (2017) have also suggested this may well be the case as they reported far less interactive and unique significant effects than originally expected on their computer-game task with university students. It is possible the lack of time to fully endorse their relevant goal in this study, limited the psychological, emotional, and performance impacts of the task, in a way that might have prevented the emergence of between-group differences. Future studies would do well to use longer duration tasks.

In partial support of our second set of hypothesis, and grounded within the theoretical propositions of SDT, our results demonstrate the importance of considering the motivational context underpinning achievement goal pursuit towards impacting an individual's well- and ill-being. Our findings extend previous experimental work investigating autonomy-supportive and controlling motivational contexts (e.g., Benita et al., 2014; 2017) to test these concepts in an alternative achievement environment (i.e., sport), yet still support existing literature that reports the importance of creating an autonomy-supportive (compared to controlling) context. Specifically, our findings highlight the positive psychological (increased self-efficacy) and perceived performance consequences that arise from engagement with an autonomy-supportive environment. This interpersonal context is posited to have revealed such positive relations through the satisfaction of the three basic psychological needs (autonomy, competence and relatedness). These needs have been proposed in theory and supported in literature (e.g., Reinboth et al., 2004) to underpin adaptive motivational processes (i.e., autonomous regulation, challenge-seek behaviour, and ensuing well-being). However, this is an assumption and should be interpreted with caution, as to clarify, no measure of basic need satisfaction was included here, but this does present a fruitful opportunity for future researchers to explore further.

In contrast, it was evident participants performing under a controlling (compared to autonomy-supportive) context experienced significantly increased feelings of hopelessness post-competition, posing a compromise to their healthy emotional functioning. Considering the facets of a controlled environment (i.e., the provision of rewards, intimidation strategies, external force, controlling language, and an absence of personal endorsement), it is clear these do not lend themselves towards satisfaction of the three basic psychological needs. It therefore seems reasonable to

suggest, these findings regarding hopelessness occur because of the basic psychological needs not being satisfied.

Thus, it is evident contextual events play a key role in supporting or inhibiting the internalization process and our results lend support to these assertions. Consequently, we suggest socializing agents (i.e., coaches, managers, sport psychologists etc.) especially consider the environment they create when working with their athletes or sports performers. Specifically, we advise establishing an autonomy-supportive environment to operate within and encourage interacting with sport participants in a way which offers choice, engages them in an open dialogue, uses encouraging language, acknowledges their perspective and the potential task difficulties, rather than pressuring individuals to think or act in particular ways.

Rejecting our third hypotheses, our findings revealed no support for the interactive effects of the theoretical concepts from AGM and SDT. This may be explained through the different motivational viewpoints these frameworks operate from (Ntoumanis, 2001). Despite both being leading theories of motivation, conceptually, their focuses are different and so perhaps, at least in this novel sports situation, they cannot be integrated to explain combined effects. To expand on this, the central tenets of AGM surround goal pursuit in relation to ability, achievement and performance (i.e., how people evaluate their competence or incompetence and direct their behaviour accordingly towards attaining a specified outcome). SDT on the other hand, places greater focus on the actual motivational processes, well-being and persistence associated with the individual (i.e., how social and cultural factors facilitate or undermine people's sense of volition and initiative, in addition to their healthy functioning and the quality of their performance). As a result of placing our participants in a novel situation, competing in an activity with very limited prior experience,

individuals may have had immediate concerns surrounding their perceived competence and abilities to succeed in the situation, a central tenet of AGM. Thus, for our sample, performance outcome perhaps did not carry the same importance for them as if it were a task affiliated with their own, personal sporting endeavours and therefore offers an explanation as to why we failed to observe any interactive effects.

Taken altogether, it seems reasonable to suggest that the findings of the present study agree with the arguments of Deci & Ran (2000) and reflect the crucial role the motivational context plays in explaining the motivational processes impacting psychological and emotional well-being, and perceptions of performance among our table-football competitors.

Additional Limitations and Future Directions

As one of the first research groups experimentally investigating the integration of AGM and SDT constructs (see also Benita et al., 2014; 2017; Spray et al., 2006) in sport, this work advances current literature, however, there are several limitations to highlight. First, from a conceptual viewpoint, our work only drew upon the effects of other-based goals (OAp and OAv) as part of the 3 x 2 AGM (Elliot et al., 2011). Despite our findings calling into question the combined influence of the achievement goals and motivational context on psychological and emotional functioning, and performance, we cannot generalize these findings to the other goal constructs of the model (i.e., self- and task-based goals). Future research may benefit from examining the effects of self- and/or task-approach and avoidance dimensions of achievement goals adopted under autonomy-supportive and controlling contexts on indicators of optimal and diminished functioning and performance in sport. For example, it has been reported in recent literature that the self-based goals are an understudied achievement pursuit and as such, they are worthy of more extensive investigation (Delrue et al., 2016) Considering the

competitive arena associated with sport, whereby athletes are often motivated to improve upon previous performances or at least avoid doing any worse than before (Roebuck et al., 2018); this is especially relevant to the sport of running), it makes sense for future research to advance current literature in this way. Secondly, from a measurement perspective, so far in this thesis, focus has been placed upon examining the role of the motivational context and so has not directly assess the reasons underpinning individual's achievement goal pursuit and this is an area that warrants future investigation. Like other research (Benita et al., 2017), it is assumed that because of our context manipulations, participants would regulate their goal for either autonomous or controlling reasons, depending on the environment they were performing within. Current literature has yet to explore and measure both the reasons and context underlying goal adoption in a sport setting and so this would be a worthwhile avenue for future research. On this note, another limitation involves the multidimensional manipulation of autonomy-supportive (e.g., providing a choice, encouraging the participants perspective and thoughts to be heard, acknowledging difficulties, and using non-controlling language) and controlling (e.g., pressuring language, excessive personal control, rewards, and inducing threats) motivational contexts. Thus, we cannot provide clarity on which dimension(s) were responsible for the positive and negative effects of autonomy-support and control respectively. Additionally, collecting data on participants' psychological and emotional experiences was time-fixed. Therefore, this did not allow for a recording in potential fluctuations or variations from participant's original feelings of self-efficacy and hope prior to their first half performance, to what they were experiencing during the half-time interval, before undertaking the second half of the table-football match. Future researchers may wish to include measured variables as time-varying to account for these possible

changes in experiences regarding a sporting competition. Moreover, there may be alternative indicators of psychological and emotional functioning more salient to this type of design (considering our population sample and task set-up) that we did not consider and which future research could explore (e.g., enjoyment, happiness and pride could all be relatable, positive indicators of emotional well-being whereas, anxiety and anger could prove useful when examining the implications of goal pursuit on emotional ill-being). Further, researchers may want to consider supporting the more commonly implemented self-report measures with more objective markers of healthy functioning. For example, skin conductance, cardiovascular reactivity, respiration, or immunological indicators such as cortisol and secretory immunoglobulin A (S-IgA) have previously demonstrated an informative role regarding how social-psychological processes differentially impact an individual's healthy functioning. Lastly, regarding future measurement proposals, although this study was focused on exploring achievement goal pursuit at a situational level, it may be valuable for research replicating this work, to also consider taking an account of participant's individual goal dispositions. Despite our successful goal manipulations, our insignificant unique goal and goal-context findings were surprising, and so it would be interesting to uncover if individuals natural goal orientations interacted with our manipulations to cause any effects. Third, regarding our research design approach, the nature of this research design meant the work was confined to a laboratory environment using novice table-football competitors. Although it is important to clarify our intended focus was on testing theoretical principles (i.e., possible integration of AGM and SDT), and to address the previous controversial findings surrounding other-based (specifically OAp) goals, towards enhancing our understanding of what contributes to optimal (and diminished) functioning in an achievement situation in sport – we were not focused on investigating

applied practice. Nevertheless, a question exists concerning ecological validity and to what extent our findings can be generalized beyond sport performers invested in a novel motor skill. Future research may consider replicating our experimental findings with a large, sport-specific sample performing a real (i.e., a more meaningful), rather than simulated achievement task and for a longer duration of time. In doing so, participants would be performing within their natural environment where they have developed a deep and purposeful connection to their chosen sport, consequently resulting in enhanced task engagement (Benita et al., 2014).

Conclusion

This work contributes to a recent line of research seeking to explore the potential integrative possibilities (i.e., the notion of goal-complexes) of tenets of the 3 x 2 AGM (Elliot et al., 2011) and SDT (Deci & Ryan, 1985), and the impact they have on an individual's psychological and emotional functioning, and performance in a novel, competitive, sports task. Unlike most of the sport-based correlational literature investigating the integration of these prominent motivation theories, our experimental findings suggest it may be more valuable to employ these two frameworks separately. As such, we did not find any significant goal effects in this study, rather, our findings demonstrate the importance of considering the motivational context underpinning goal pursuit, as the environment created can cause differential influences upon participants functioning. From our work, it can be concluded that autonomy-supportive contexts lend themselves to more adaptive consequences, with participants experiencing greater levels of self-efficacy pre-game and better perceptions of how they performed post-competition. Controlling environments on the other hand, caused individuals increased feelings of hopelessness post-task. The significance of the motivational context, over and beyond the goal pursuit itself has been highlighted in previous work and so our

findings contribute and lend support to this emerging line of inquiry. To be clear, this is to the best of our knowledge, the first study to experimentally investigate other-based goal pursuit adopted within autonomy-supportive and controlling environments in sport, and our examination of discrete emotions from a prospective and retrospective viewpoint provide an original contribution to the literature. Future replication work is therefore required before drawing firm conclusions and practical applications regarding the consequences of integrating these two prominent motivation frameworks within sport.

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4   **Self-based goals, underlying reasons, performance and emotional well-being among parkrunners: A prospective design**

4.1   Abstract

The current study tested a temporal sequence of hypothesized relationships between self-based goals and their underlying reasons > stress appraisals > performance and emotional well-being among parkrunners. The paper subsequently tested a (conditional) process model examining whether autonomous motivation would moderate the indirect relationship of self-based goals in the prediction of emotional functioning and performance via stress appraisals. Using a prospective design, 324 UK parkrunners (111 males and 213 females; M_{age} = 45.27; SD = 10.73 years) completed online measures of self-based goals and reasons for goal pursuit 7 days (T1), along with stress appraisals 24 hours (T2), prior to their next parkrun in the UK. Performance data and indices of emotional well-being were obtained post-parkrun (T3). Structural Equation Modelling analyses provided partial support for the hypothesized model. More specifically, the findings revealed that T1 self-determined reasons underpinning a self-approach goal positively predicted T2 challenge appraisals and T3 pride. T1 self-determined reasons for pursuing a self-avoidance goal corresponded to reduced T3 performance and shame. T2 challenge and threat appraisals were found to positively relate to T3 pride. Finally, results revealed the slower parkrunners ran, the more shame they felt post-event. T2 challenge and threat appraisals were found to mediate the relationship between T1 self-determined reasons underlying a self-approach goal and T3 pride. Analysis failed to support a conditional process model. Our findings suggest the intensity of pursing a self-based goal does not matter at all, but the underlying reasons are a key driver influencing parkrun appraisal and ensuing performance and emotional well-being.

4.2   Introduction

Engaging with running is assumed to result in a variety of well-documented benefits that span emotional, psychological, physical, and social enhancements for an individual. Greater feelings of happiness, improvements in self-esteem, mood and physical appearance, and developed confidence through interactions with others are commonly reported to be among the most prevalent outcomes reported in research (e.g., Nezlek et al., 2018; Wolf & Wohlfart, 2014), however, one critical factor contributing to our understanding of runners' experience is their motivation to participate in the first place. "Every time I go out and race, it's a goal to go out and run faster than I've ever done before". These words spoken by former marathon, half marathon and cross country world champion Paula Radcliffe represent the achievement pursuits of many individuals competing within organised running events. Individuals striving for personal improvement and gaining a sense of accomplishment is readily stated in research to be one of the most important motivations for runners (see Roebuck et al., 2018 for a review).

One initiative known to promote mass participation in running events is parkrun. With almost 150,000 events and over 2 million registered runners in the U.K. alone, parkrun attracts novice to elite runners to take part in a weekly, timed, 5K event. For parkrunners, improving upon previous performances and striving to achieve personal best (PB) times appear to be of great importance, just like they are to those competing on a more global, elitist scale (e.g., Paula Radcliffe), with over five million personal bests (PBs) recorded since its creation in 2004. It therefore appears organised, endurance running events, ranging from 5km to (ultra)marathon provide a salient setting for researchers to study the concomitants of self-based goals, yet this is area that remains underexplored within the parkrun community (Bell & Stephenson, 2014).

Drawing from an integrated theoretical model (Vansteenkiste, Lens, Elliot, Soenens, & Mouratidis, 2014), the present research utilized a longitudinal design to examine self-based goal pursuits (adopted from the 3 x 2 Achievement Goal Model [AGM], Elliot, Murayama, & Pekrun, 2011) and their underlying reasons (adopted from Self-Determination Theory [SDT], Deci & Ryan, 1985) on the emotional well-being and performance of parkrunners. We also explored the possible moderating role of the reasons underlying self-based goal pursuit on these outcomes, as well as the potential mediating effects of stress appraisals.

Achievement Goal Approach

Achievement goals refer to the aim, purpose, or focus of a person's achievement behaviour (Kaplan & Maehr, 2007). They represent future-based possibilities that respond to changes in the person as well as the situation. The Achievement Goal Approach (AGA; e.g., Dweck, 1986, Elliot, 1999; Elliot et al., 2011) has permitted the study of competence-based pursuits in achievement settings for over the past four decades. During this time, the number of goals under examination has steadily increased from two, (i.e., the dichotomous model; Dweck, 1986; Nicholls, 1984) to three (i.e., the trichotomous model; Elliot & Harackiewicz, 1996), to four (i.e., the 2 x 2 framework; McGregor & Elliot, 2001) to the most recent conceptualization which identifies six achievement goals (i.e., 3 x 2 Achievement Goal Model [AGM]; Elliot et al., 2011). Achievement pursuits within the dichotomous model were classified as either mastery goals (where purpose is to develop in relation to self- and task-based competence) or performance goals (striving to demonstrate normative competence). Both mastery and performance goals are valenced positively, as approach goals (i.e., concentrating on attaining success). Elliot and Harackiewicz (1996) later extended the dichotomous model through the incorporation of an avoidance valence dimension (i.e., focused on

aiming to avoid failure). In the trichotomous achievement goal model, the performance goal construct is split by approach-avoidance valence, leading to three separate goals: mastery, performance-approach (PAp), and performance-avoidance (PAv). Further theoretical advancement led to the development of the 2 x 2 achievement goal model (McGregor & Elliot, 2001), whereby the mastery goal construct was also bifurcated by approach-avoidance valence, and so resulted in a fourth goal to the trichotomy: mastery-avoidance. Each of the goals in these models have demonstrated a distinct pattern of antecedents and consequences.

For the purpose of this study, researchers drew upon certain constructs within the 3 x 2 AGM (Elliot et al., 2011). The development of this theoretical perspective focused on distinguishing between the two standards of competence represented in the omnibus mastery goal (i.e., self- and task-based standards of evaluation). This framework therefore distinguishes six achievement goals based upon how competence is (1) defined and (2) valenced. Regarding definition, competence can be categorized in accordance to a (a) a self-referenced (i.e., evaluating competence in relation to previous performance), (b) a task-referenced (i.e., measuring competence against absolute task demands), or (c) an other-referenced (i.e., assessing competence on the basis of an individual's performance compared to others), standard. As before, valence is classified as either being approach or avoidance focused. When crossing both dimensions of competence, six distinct achievement goals are operationalized: 1) a self-approach (SAp) goal focuses on the attainment of self-based competence (e.g., improving upon previous performance); 2) a self-avoidance (SAv) goal focuses on the avoidance of self-based incompetence (e.g., avoiding performing worse than previous attempt); 3) a task-approach (TAp) goal relates to the attainment of task-based competence (e.g., mastering the task requirements); 4) a task-avoidance (TAv) goal

relates to the avoidance of task-based incompetence (e.g., avoid performing the task incorrectly); 5) an other-approach (OAp) goal is associated with the attainment of other-based competence (e.g., to outperform competitors); and finally 6) an other-avoidance (OAv) goal is associated with the avoidance of other-based incompetence (e.g., avoiding performing worse than competitors).

This research exclusively focuses on SAp and SAv goals. To date, self-based achievement goals have received very little attention, most likely due to their recent conceptualization and empirical distinction from task-based goals (Elliot et al., 2011). Previously viewed together as an omnibus mastery goal (i.e., collapsing self- and task-based standards of competence), the recent theoretical development to distinguish between these two goals has received empirical support, primarily within the education domain. Self- and task-based goals have shown varying relations with a host of consequences when testing undergraduate students preparing for their end of semester exam (Elliot et al., 2011). Specifically, TAp goals were a positive predictor of intrinsic motivation, learning efficacy, and absorption in class, whereas SAp goals were unrelated to each of these variables. SAp goals were however, a positive predictor, whereas SAv goals were a negative predictor of energy in class. Further, experimental work in education by Benita, Shane, Elgali, & Roth (2017) highlighted SAp goals to be positively associated with less experiences of pressure and tension.

Although the 3 x 2 AGM has received support some in the sport domain (e.g., Lower & Turner, 2016; Mascaret, Elliot, & Cury, 2015), limited evidence exists testing the implications of pursuing self-based goal constructs. This is unfortunate, considering for most athletes aiming to improve upon (or at least striving to avoid doing any worse than) their previous performance is a key factor influencing motivational functioning and ensuing well/ill-being (Martin, 2006). Empirical research has further supported the

notion that participants engaging with distance limited events (i.e., running events ranging from 5km to ultramarathons where the aim of completing is to do so in the shortest possible time) hold a drive to improve upon their previous performances. In research focusing on female ultrarunners, it was reported a primary goal pursuit for participants revolved around personal achievement, more specifically finishing a distance within a given time (Krouse, Ransdell, Lucas, & Pritchard, 2011). For some women, a time goal meant making the cut-off time to complete the race, and for others, it was about completing a previously raced course in a faster time. Later research conducted among half-, full-, and ultra-marathon runners across genders and different ability groups (i.e., recreational vs serious; Hanson, Madaras, Dickie, & Buckworth, 2015; Kruger & Saayman, 2013), replicated this pattern of findings as PB strivings were at the forefront of all achievement pursuits. Furthermore, Delrue et al., (2016) explored achievement pursuit with competitive runners (taking part in a 20km event). Utilising the dominant goal method for assessing achievement pursuits (Van Yperen, 2006), researchers reported the commonly ranked most important goal for athletes participating in a running event was the self-approach goal, closely followed by a self-avoidance goal.

Interestingly, across all of these studies, the competitive element of participation (i.e., attempts to outperform, or avoid doing any worse than, your opponents) was rated amongst some of the lowest influencing motivational factors. This further alludes to the salience of self-based goals in running; individual's goal endorsements place greater focus on the self, growth, and development, rather than concerns with fellow competitors and it has therefore been suggested for runners at least, a sense of autonomous motivation underpins achievement strivings (Roebuck et al., 2018).

With their immediate and most obvious source of self-based competence

feedback being time serving as an indicator of performance success/failure, it seems reasonable to suggest SAp and SAv goals carry high ecological validity among the running community (Krouse et al., 2011). It is expected this would be no different among those engaging with parkrun. The notion and evidence highlight the salience of self-based goal pursuits among running populations. However, one shortcoming of this literature surrounds the absence of a theoretical framework in which to study goal pursuits. Although past researchers focus on constructs similar to self-based (particularly the SAp) goal constructs, they were not exclusively operationalised in this way and this has limited the possibility of studying achievement among this group. As a result, the 3 x 2 AGM (Elliot et al., 2011) remains understudied among runners, and sport more widely.

In addition to enhancing our understanding of the various achievement goal pursuits, it has been well-documented that AGA's have demonstrated important influences on cognitive, affective, and behavioural outcomes (e.g., enjoyment, anxiety, stress, positive and negative affect, and performance). Therefore, these theoretical perspectives provide an insight into how motivational processes ultimately impact an individual's (un)healthy functioning and performance.

Achievement Goals, Emotional Functioning and Performance

From their initial development, achievement goal frameworks have provided useful insights into the motivational processes underpinning subjective well-being (SWB). SWB is commonly operationalised as the presence of positive affect, and the absence of negative affect (Diener, 1984). However, researchers (e.g., Jones, Lane, Bray, Uphill, & Catlin, 2005) have suggested this somewhat broad definition (possibly) obscures insightful information with respect to relationships between achievement goals and specific emotions that exists in achievement contexts, particularly sport. After

all, by definition, emotions and affect are two different concepts. Emotions are defined as "relatively brief but intense experiences activated by cognitive appraisal of a situation" (Lane & Terry, 2000, p. 17), whereas affect is a "broad rubric that refers to all things emotional" (Rosenberg, 1998, p. 247). Measuring specific emotions may be superior to assessing a composite score of affect because this can capture the variations in specific emotional experiences of competing individuals (Jones et al., 2005).

Pekrun (1992) and colleagues (Pekrun, Elliot & Maier, 2006; Pekrun, Goetz, Titz, & Perry, 2002) developed a taxonomy of emotions. Pertinent to the sporting environment are achievement emotions, defined as "emotions that are directly linked to achievement activities or achievement outcomes" (Pekrun, Goetz, Frenzel, Barchfield, & Perry, 2011, p. 37). Pekrun (1992) identified two dimensions of particular importance for achievement emotions as object focus and valence. Object focus categorises emotions as either (1) activity-related, (e.g., enjoyment of learning, boredom experienced during learning, and anger about learning task demands) or (2) outcome-related, inclusive of both prospective outcome emotions (e.g., anticipatory outcome emotions such as hope, anxiety, and hopelessness relating to upcoming success or failure) or retrospective outcome emotions (for instance feelings of pride and shame following success and failure). The valence dimension concerns differentiating positive (adaptive) versus negative (maladaptive) achievement emotions. Sport research has generally investigated the presence of emotions of sport participants has indeed revealed a wide-ranging spectrum of experiences (e.g., Martinent, Campo, & Ferrand, 2012; Nicholls, Hemmings, Clough, 2010). For the purposes of this study, we exclusively focused on outcome related emotions.

The relationship between achievement goals and affect as an indicator of well-being are well-researched within the sport literature, however, the link between

achievement goal pursuit and emotional well-being has received much less attention, specifically at a situational level. A notable exception is the work conducted by Dewar and Kavussanu (2012); researchers found athletes in pursuit of a task-based goal, were more likely to experience happiness, pride, and hope (and less dejection and shame) post-performance relative to those following an other-based goal within a competitive team sport environment. Later experimental work (Dewar, Kavussanu, & Ring, 2013) found the ego-orientated group to experience greater pre-competition excitement and anxiety than the task-oriented group on an agility task. Some research has also investigated the relation of achievement goals to emotions in the Physical Education (PE) class (e.g., Mouratidis, Vansteenkiste, Lens, & Auweele, 2009). Results revealed task-involved individuals were positively related to positive activating emotions (i.e., pride, hope and enjoyment) and inversely related to negatively valenced emotions (i.e., anxiety, anger, shame, hopelessness and boredom). Ego-involved participants exhibited a mixed picture as they were positively associated with pride and all the negative emotions, a pattern central to the debate surrounding the utility of these goals in the literature. To briefly extend on this, ego (or performance) goals have revealed inconsistent relations with indices or well- and ill-being as a result of the way in which they are defined within theory (i.e., positively focused on attainment [approach-valenced], but dependent on outperforming competitors to experience success). Providing further support for these findings, Lochbaum and Stevenson (2014) manipulated achievement goal contexts (mastery, performance approach, and performance-avoidance) with PE students performing a novel sports task. Researchers revealed participants in pursuit of a mastery goal (combined self- and task-competence referents) reported greater experiences of pride, less frustration and enhanced perceptions of success compared to the other-based goal pursuit individuals.

Although these studies provide encouraging findings for the achievement motivation and emotion literature within the physical domain, from a conceptual viewpoint, they are embedded within early motivation theories (i.e., the dichotomous and trichotomous frameworks), focusing on motivational climates, rather than specific achievement goal pursuit. In that respect, researchers have not yet explicitly tested the goal constructs of the most recent 3 x 2 AGM (Elliot et al., 2011), specifically self-based goals which remain under-researched. Therefore, conclusions cannot be drawn on whether a similar pattern of findings would entail for these constructs which we focus on in the present research. Moreover, the limited work existing exploring emotional experiences has focused on athletes' goals operating within team sports (e.g., Dewar & Kavussanu, 2012), so less is known about how individual sport participants function as a result of their self-based goal pursuits in competition.

Similar to emotional well-being, seldom work has examined the implications of self-based goals exclusively on performance using the 3 x 2 AGM (Elliot et al., 2011) to examine how self-based goal pursuit impacts achievement patterns. In sport, Delrue et al., (2016) reported a significant and positive association between SAp goals and aspired time, and also SAp goals and faster race time in relation to individuals in pursuit of a SAv goal among a sample of long distance runners. A primary limitation of this work however, relates to how researchers implemented their goal measurement. By incorporating the dominant achievement goal method (Van Yperen, 2006), Delrue and colleagues (2016) did not directly assess participant's endorsement of self-based goals, rather looked at these alongside endorsement of other-based goals. More literature exists within education, however, an inconsistent pattern of findings between SAv goals and achievement/performance outcome has emerged here. For example, David (2014) showed that SAv goals negatively related to test performance whilst Luftenegger et al.

(2016) directly contrasted this, revealing significant and positive correlation between SAv goals and achievement. Moreover, Gillet et al., (2017) found no relation between both SAp or SAv goals and achievement (indexed by passing or failing the semester) among their sample. These equivocal findings may be explained through the cultural differences in population samples tested, distinct educational subjects explored, and the various indicators employed to assess achievement/performance.

To fill current voids in the literature and in an attempt to provide a greater, consistent understanding of the motivational processes in sport, our first aim was to understand to what degree participants pursuing SAp and SAv goals could contribute to the performance and emotional experiences among parkrunners. We chose to exclusively focus on parkrunners experiences of pride and shame as retrospective emotions, when reflecting on how they felt post-event about their performance. Pride is defined as a feeling or deep pleasure or satisfaction derived from one's own achievement whilst shame as the direct opposing emotion can be described as a feeling of humiliation or distress caused by the consciousness of failure (Pekrun, 1992). When reflecting on previous literature that highlights the relevance of personal achievement and satisfaction for participants involved within the running community, it was expected these two emotions would be highly salient among our parkrunners (e.g., Krouse et al., 2011; Roebuck et al., 2018). Our first hypothesis therefore, was that individuals in pursuit of a SAp goal, would run a faster time, as well as experiencing greater feelings of pride and less shame post-parkrun. Due to the known detrimental effects associated with avoidance goals in sport (see Papaioannou, Zourbanos, Krommidas, Ampatzoglou, 2012) we tentatively expected those in pursuit of a SAv goal to experience less pride and more shame post-parkrun. Based on mixed findings in education and sport literature, we also tentatively assumed SAv goals would be

inversely related to performance (i.e, parkrun time).

According to Elliot's perspective of the AGA (1999, 2005) it was proposed there were varying reasons underpinning goal pursuit, and these reasons may not only activate goal pursuit but also help shape their consequential effects (Elliot & Thrash, 2001). Therefore, the same goal may function differently based on the underlying reasons for pursuing it. This idea involves disentangling all reasons from the goal, exclusively defining them as aims, and then recombining the aim (i.e., the goal) with each unique reason, a special type of interaction coined "goal complexes" in the achievement goal literature (Senko & Tropiano, 2016). Based upon this reconceptualization, researchers have been presented with an opportunity to more rigorously address the regulation of achievement goals, investigating potential different types of reasons underlying any one goal, rather than isolating and comparing the two elements (Senko & Tropiano, 2016). However, the notion of goal complexes remains under-researched within AGA and sport-based research, with existing work focussing mostly on goal antecedents, not how combined goal complexes influence well-being. One framework that has application to studying the reasons that may drive sport participants achievement goal pursuits is SDT (Deci & Ryan, 1985). In order to extend this line of enquiry, this study will assess the potential moderating role of reasons underlying self-based goals on indicators of performance and emotional well-being.

Self-Determination Theory

A complimentary motivational framework providing us with an insight into different reasons that may energise an individual's achievement goal pursuit is Self-Determination Theory (SDT; Deci & Ryan, 1985). One of the central tenets of this theory is that (goal-directed) behaviour is regulated by either autonomous or controlling motivation (i.e., the reasons underpinning an individual's goal pursuit). Autonomous

motivation refers to behaving with free volition, engaging with an activity because of the interest, fun and challenge it provides. In contrast, controlling forms of regulation represent behaviour that is performed to avoid feelings of personal guilt and shame, or because of external contingencies (e.g., for a reward or to avoid punishment). Based on theoretical propositions, it is assumed autonomous regulation will lead to a more adaptive and optimal form of athlete functioning, whilst controlling regulation is expected to result in diminished functioning. The majority of research in this field has consistently found autonomous forms of regulation to be associated with higher adaptive consequences, such as greater persistence, more positive affect, enhanced performance, and well-being (Deci & Ryan, 2008). Controlled regulation on the other hand, has been continually linked with detrimental outcomes, such as increased ill-being, negative affect and poor task performance (for a review, see Deci & Ryan, 2000).

To reduce the complexity of our hypothesised model and consistent with other SDT researchers (e.g., Ciani, Sheldon, Hilpert, & Easter, 2011; Spray & Wang, 2001), we created a relative autonomy index (RAI) to reflect our second study aim which was to examine whether more or less autonomous reasons underpinning goal pursuits would influence parkrunners time and emotional well-being by. Our second set of hypotheses expected findings to demonstrate (a) positive relations between more self-determined reasons with performance (i.e., to run a faster parkrun time) and pride, (b) negative relations between less self-determined reasons and performance (i.e., to run a slower parkrun time) and pride, and (c) positive links between less self-determined reasons and shame.

Goals, Underpinning Reasons, Well-Being and Performance

Previous sport studies have attempted to integrate AGA's (e.g., Elliot & McGregor, 2001), with SDT (Deci & Ryan, 1985) towards predicting well-being and performance

in sport. Among the first to explore this goal-complex notion using amateur soccer players, was a study by Vansteenkiste, Mouratidis, & Lens, (2010). The authors reported autonomous reasons underlying OAp goals to be positively associated with well-being (e.g., subjective vitality and positive affect) whereas underlying controlling reasons yielded a positive relationship with negative and undesirable outcomes such as immoral functioning (aggressive play). This approach has been further expanded in sport (e.g., Vansteenkiste, Mouratidis, Van Reit, & Lens, 2014) and other achievement contexts such as education (e.g., Michou, Vansteenkiste, Mouratidis, & Lens, 2014).

Early work, although informative, was conducted in the absence of a guiding theoretical framework. Acknowledging this limitation, Vansteenkiste, Lens et al., (2014) developed a conceptual model for integrating achievement goal theory with SDT. They argued any one goal could lead to somewhat different processes and outcomes, depending on its accompanying reasons, and as such, autonomous and controlled regulations could play a moderating role in the relationship between goals and outcomes. It was proposed these regulations would then relate differentially to cognitive, affective, and behavioural outcomes, explaining variance in addition to that accounted for by the strength of the endorsement of achievement goals themselves. For example, SAp goal pursuit for autonomous reasons is likely to be positively associated with adaptive outcomes, however, should the same goal be pursued for controlling reason, it is assumed to be positively related to pressure and less desirable outcomes. A growing body of research, albeit correlational, examined the concomitants of reasons underpinning achievement goal pursuit (e.g., Delrue et al., 2016; Gaudreau & Braaten, 2016). Firstly, Gaudreau & Braaten (2016) concluded that autonomous reasons underlying the OAp and the omnibus mastery-approach goal related to increased positive affect and subjective performance among athletes from various sporting

contexts. Controlled reasons of these goals on the other hand were related to less positive and more negative affect. Moreover, the interaction of reasons and achievement goals strengthened the positive association between mastery-approach goals and goal attainment, satisfaction, and positive affect. The above findings of work testing this goal-complex idea, though encouraging, from a conceptual viewpoint are all framed within the 2 x 2 AGM (Elliot & McGregor, 2001) whereby the mastery goal remains an omnibus construct, and so which may mask over potential associations between self-based goals only with studied outcomes. Furthermore, researchers focused on subjective well-being as an outcome, potentially concealing findings that may result from the interaction of goals and their underlying reasons on achievement emotions. Finally, previously literature has investigated approach-based goals only.

Delrue et al., (2016) did however, adopt tenets of the 3 x 2 AGM (Elliot et al., 2011) to test the reasons underpinning specific self- and other-based goal constructs in runners. Researchers reported that the reasons component of motivation proved an additional predictive asset next to the goal component. Specifically, researchers reported autonomous reasons underpinning SAp goal pursuit emerged as a positive predictor of aspired time as well as need satisfaction, and actual performance.

Taken together, such findings are consistent with several previous sport studies providing further support for the importance of considering the reasons underlying goal pursuit and the unique role they play in predicting outcomes (e.g., Gaudreau & Braaten, 2016; Vansteenkiste et al., 2010). Despite acknowledging the commonly reported detrimental effects linked with avoidance goals, it warrants further investigation now, when additionally considering the underlying reasons of these goals, if their effects could become less harmful or possibly beneficial (if pursued for autonomous reasons) or even exacerbated if pursued for controlling reasons. Taking all of the above into

consideration, the third aim was to test a goal-context interaction. Our third set of hypotheses assumed SAp goals would ensure greater adaptive consequences (i.e., increased performance and pride, and reduced shame) when pursued for more self-determined reasons, and less benefits if pursued for less autonomous reasons. We also proposed the negative connotations of a SAv goal (i.e., reduced performance and pride, and heightened shame) would be much greater if pursued for less self-determined (i.e., more controlling) reasons, as opposed to autonomous reasons.

The Mediational Role of Cognitive Appraisals

Another objective of the study was to understand the psychological mechanisms that may explain the link between self-based goals and their underlying reasons in predicting the 5km performance and subsequent emotional well-being among a sample of parkrunners. Currently, little is known regarding such mechanisms, but one potential process by which achievement goals might influence athletes' emotional welfare concerns variability in their cognitive appraisals of stressful events in the sport domain (Adie, Duda, & Ntoumanis, 2008). According to Lazarus and Folkman (1984), individual differences exist in cognitively appraising the demands presented in the objective environment and these differences can be categorized as either a challenge or threat. A challenge state is experienced when an individual has sufficient resources available within their environment to meet the perceived demands of a task, viewing the situation as an opportunity for growth or mastery, whereas a threat state occurs when personal resources fail to cope with task requirements, deeming psychological harm potentially imminent. It is assumed and empirically supported in sport settings that achievement goals play a role in determining how an athlete cognitively appraises a potentially stressful performance (e.g., Adie et al., 2008, 2010; Jones, Meijen, McCarthy, & Sheffield, 2009; McGregor & Elliot, 2002) and also, that cognitive

appraisals are relevant to personal well-being and performance (e.g., Giacobbi, Tuccitto, & Frye, 2007; Jones et al., 2009). It has been previously demonstrated in empirical research within the running community that autonomous reasons underpinning SAp goal pursuit emerged as a positive predictor of challenge appraisals (Delrue et al., 2016). Further, researchers found controlled reasons ungirding SAp goals yielded somewhat mixed findings with participants appraising the race as both a challenge and a threat. Interestingly, a significant interaction between SAv goal pursuit and controlled motivation in the prediction of pre-race threat appraisals emerged, indicating that runners holding a SAv goal, while standing under pressure, were especially vulnerable to perceive the race as threatening. It appears from this finding that the detrimental effects of avoidance goals are exacerbated when pursued for controlling reasons, at least when appraising an upcoming sporting event.

The fourth aim of this study was therefore to explore the potential mediating role of stress appraisals between the achievement goal approach and underlying reasons in predicting performance and emotional well-being. Our fourth set of hypotheses expected: (a) SAp goals and more self-determined reasons, to be positively associated with challenge appraisals, (b) SAv goals and less self-determined reasons, to be positively related to threat appraisals, (c) challenge appraisals to positively impact performance and experiences of pride, and negatively relate to shame, (d) threat appraisals would demonstrate negative associations with performance and pride, and positive links with increased shame, and (e) appraisals to play a mediating role between goals and/or reasons, with performance and indices of emotional functioning, with positive consequences expected to ensue for SAp goals and/or autonomous reasons via challenge on performance and pride, and detrimental consequences anticipated for SAv goals and/or controlling reasons via threat negatively impacting performance and

positively relating to experiences of shame. The hypothesized model is depicted in figure one.

The Moderating Role of Reasons

The moderating role hypothesis which forms part of Vansteenkiste, Lens et al's (2014) framework has seldom been explicitly tested in research. One recent study aiming to address this notion, albeit in education, revealed the relation between OAp goals and goal attainment to be moderated by autonomous goal motivation (Gillet, Lafreniere, Vallerand, Huart, & Fouquereau 2014). Precisely, OAp goals were more strongly related to higher goal attainment for students with greater compared to lower autonomous goal motivation, however, these findings were not replicated in their follow-up studies within work settings (Gillet et al., 2014), leaving evidence scant and inconsistent. Extending the work of Delrue et al., (2016), our final aim concerns exploring a conditional process model to examine moderated-mediation (i.e., considering the potential moderating role of reasons on SAp and SAv goals and their relation to performance and emotional well-being among parkrunners). Our fifth hypothesis for this research expects more self-determined (autonomous) reasons to moderate the relationship between SAp goals and challenge appraisals, towards positively impacting performance and pride. It was tentatively hypothesised less self-determined (controlled) reasons could moderate the relationship between SAv goals and threat appraisals, towards negatively impacting performance and positively influencing shame.

Present Research

For the first time in the sport-based AGA-SDT literature, the present study adopted a longitudinal prospective design to exclusively focus on self-based goals (approach and avoidance) as they have been previously ranked the most important goal

for athletes participating in a running event (e.g., Delrue et al., 2016; Krouse et al., 2011; Roebuck et al., 2018). Additionally, we decided to sample a wide-ranging ability of participants. In addition to addressing previous design limitations we targeted a shorter distance event, namely a 5km parkrun, and sought to extend current work by adopting a longitudinal-prospective design. Specifically, we hypothesized a series of relationships between goals and their reasons in predicting performance and well-being. Finally, we sought to conduct an in-depth exploration of goal complexes (i.e. the interaction of goals and their reasons) in predicting stress appraisals, emotional well-being, and performance. Within this we were interested in gaining a greater understanding of the processes that may occur through an alternative mediator, cognitive appraisals of stress (i.e., challenge and threat), for which achievement motivation has been widely empirically supported to play a key role in influencing (e.g., Jones et al., 2009). Our hypothesized pathways are depicted in figure three below.

4.3   Methods

Participants

In the present study, 324 male (n=111) and female (n=213) participants (M_{age}=45.40; SD=10.79) volunteered for the study, running in 203 parkrun events across the U.K. It was a requirement that all participants entering into the study had completed at least one parkrun previously. On average participants reported running three times per week (M=3.09; SD=.63) and being coached (M=1.96; SD=.20) and affiliated with a club (M=1.68; SD =.47) for nearly two years.
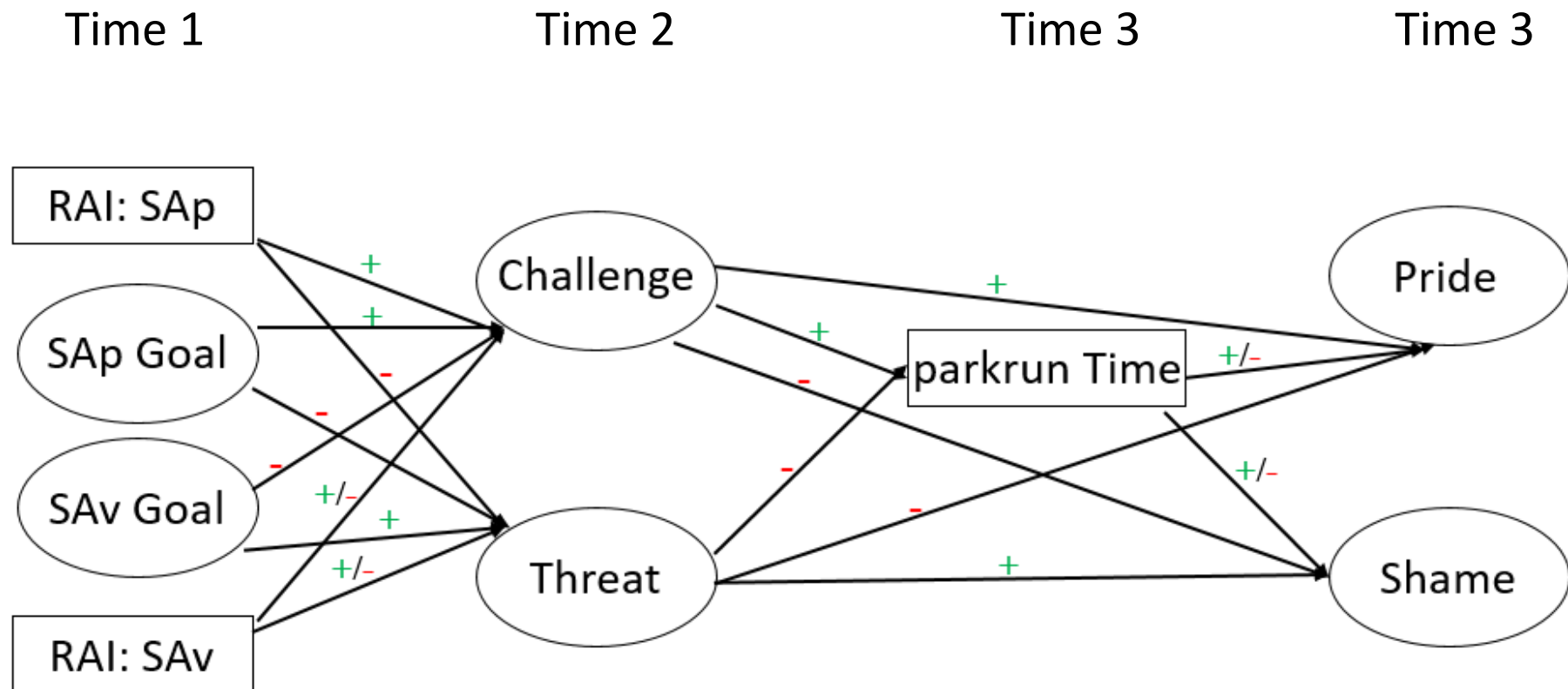
Figure 3. The hypothesised model; expected pathways.
Note. SAp = self-approach goal; SAv = self-avoidance goal; RAI_SAp = relative autonomy index underpinning self-approach goals; RAI_SAv = relative autonomy index underpinning self-avoidance goals.

Design and Procedures

Following institutional and parkrun ethical approval, the study was advertised on Parkrun U.K.'s social media platforms. Interested participants were directed to online participant information detailing the purpose and requirements of the study. Following digital consent, participants were prompted to and completed a series of short questionnaires in the lead-up and shortly following a parkrun. At Time 1 (T1; 7 days pre-parkrun), self-approach and avoidance goals and reasons for adopting these goals were measured. At Time 2 (T2; 24 hours pre-parkrun), challenge and threat appraisals of the parkrun competition were assessed. Finally, at Time 3 (T3; post-parkrun), self-reported pride and shame were captured along with a measure of objective performance. Complete data across the three time points was obtained for 324 participants (i.e., 77% retention rate). The average time to complete the entire questionnaire was approximately 20 minutes.

Measures

In addition to listing the measures incorporated within this study, the factorial structure of each scale is also reported. This was examined prior to testing the hypothesised model, via confirmatory factor analysis (CFA) using structural equation modelling (Mplus version 7; Muthén & Muthén, 1998). In accordance with Hu and Bentler (1999), a good fitting factor model was indicated when the chi-square (X^2) revealed a non-significant value (i.e., p >.05), comparative fit index (CFI) was close to or above .95, and the root mean square error of approximation (RMSEA) values with 90% confidence intervals (CI's) fell below .06 respectively plus a test of close fit.

Self-Based Goal Pursuits. Two modified subscales from the 3 x 2 Achievement Goal Questionnaire for Sport (AGQ-S; Mascret, Elliot, & Cury, 2015) were employed to measure the extent to which participants reported pursued pre-parkrun self-based

goals seven days prior to the event. Participants were presented with the stem, "In my next parkrun, I would find it most important to…" followed by six items relating to SAp (3 items, e.g., "…*perform better than I have done previously*") and SAv (3 items, e.g., "…*avoid doing worse than I normally do in this event*") goals. Participants responded to the 6 items along a 7-point Likert-scale ranging from 1 ("Strongly disagree") to 7 ("Strongly agree"). These subscales have previously yielded excellent internal consistency scores (Elliot et al., 2011). In the present study, the CFA revealed this scale to be a good-fitting model for our data: X^2 (8) = 14.71; $p > .07$; CFI = .99; RMSEA = .05 (.00 - .09).

Reasons Underlying Self-Based Goal Pursuits. The procedure employed to measure reasons replicates that used in prior sports research focusing on the reasons underlying individuals' achievement goals (e.g., Vansteenkiste et al., 2010; 2014). Immediately after each of the six goal items, parkrunners were asked to identify the extent to which they pursued SAp and SAv goals for: 1) intrinsic reasons (1 item; e.g., "*Because of the challenge, fun and enjoyment it provides me*"), (2) identified reasons (1 item: "*Because I really believe it is an important goal to have*"), (3) introjected reasons (1 item: "*Because I would feel ashamed and guilty if I did not*"), or (4) external reasons (1 item: "*Because others expect me to*"). Individuals responded to items along a 7-point Likert-scale ranging from 1 ("Strongly disagree") to 7 ("Strongly agree"). This short version measure of goal regulations has demonstrated acceptable psychometric properties in sport (Delrue et al., 2016).

To represent reasons as more or less self-determined, the RAI was constructed by assigning a weight to each of the motivation subscales depending on their placement on the self-determination continuum (external regulation, -2; introjection, -1; identification, +1; and intrinsic motivation, +2) and then summing these weighted

scores so that higher scores reflect stronger self-determined motivation. Although this strategy essentially obscures any possible independent effects we may observe of the two primary types of motivation within SDT, that is, autonomous motivation (i.e., identified and intrinsic) and controlled motivation (i.e., external and introjected), it has been used on many occasions (Gillet, Vallerand, Amoura, & Baldes, 2010; Lutz, Lochbaum, & Turnbow, 2003).

Cognitive Appraisals of Stress. An adapted 8-item version of the challenge and threat construal measure (McGregor & Elliot, 2002) was employed to assess participants' appraisal of their 5K parkrun 24 hours pre-event. Individuals responded to the stem "How do you feel about completing tomorrow's 5K parkrun?" along a 7-point Likert-scale ranging from 1 ("Not at all true of me") to 7 ("Very true of me"). Sample items from the challenge and threat measure were *"I view this parkrun as a positive challenge"* and *"I view performing this parkrun as a threat"*. The challenge and threat construal measure has yielded satisfactory internal consistency and predictive validity in sport settings (e.g., Adie et al., 2008). In the present study, the CFA revealed this scale to be an acceptable-fitting model for our data: X^2 (28) = 464.81; $p < .001$; CFI = .92; RMSEA = .08 (.06 - .10).

Post-parkrun Emotional Well-being. The pride and shame subscales of the Achievement Emotions Questionnaire (AEQ; Pekrun, Goetz, Frenzel, Barchfeld, & Perry, 2011), were adapted to the current research context to assess positive and negative emotional well-being post-parkrun. More specifically, participants responded along a 7-point likert-scale (1 = Not at all true of me; 7 = Very true of me) measuring to what extent they felt pride (10 items; e.g., *"I was proud of how well I ran the parkrun course"*) and shame (10 items; e.g., *"I felt humiliated"*) post-parkrun. These two subscales of the AEQ have demonstrated excellent internal reliability (Pekrun et al.,

2011). In the present study, the CFA revealed this scale to be a good-fitting model for our data: X^2 (160) = 516.25; $p < .001$; CFI = .95; RMSEA = .08 (.08 - .09).

Performance. All courses are accurately measured to equate to a running distance of 5km. Upon registering to participate in parkrun, participants are issued with a unique barcode that will later act as a marker for indicating their finish time and position on any subsequent parkrun they participate in (i.e., our performance measure). As participants cross the line, they are issued a token with a position number on it which is scanned alongside their unique barcode. This data is then uploaded onto the parkrun system and analysed, matching times to runners before being publicised. For the present study, researchers accessed this data online and cross-checked it with finish times participants had recorded on their questionnaire before converting the time into minutes.

4.4   Results

Overview of the Main Analyses

SEM analyses (Mplus version 7; Muthén & Muthén, 1998) was used to test the hypothesised model (see figure three above). It has been previously suggested, in order to test a comprehensive theoretical model with SEM, a reduction of the number of indicators per latent factor is necessary, especially when the sample size is not very large compared to the number of variables in the model (Marsh, Richards, Johnson, Roche, & Tremayne, 1994). A partially disaggregated approach, in which latent factors, pride and shame, were defined using parcels (i.e. the sum or the average of several items measuring the construct) as opposed to all ten items indicated on each original measure, was implemented (Coffman & MacCallum 2005). Compared with item-level data, models based on parcelled data (a) are more parsimonious, (b) have fewer chances for residuals to be correlated or dual loadings to emerge, and (c) lead to reductions in

various sources of sampling error (MacCallum, Widaman, Zhang, & Hong, 1999). In sum, our indicators of emotional well-being (i.e., pride and shame), were each represented by three parcels. We used a completely disaggregated approach to assess SAp and SAv goals and challenge and threat appraisals as latent variables, whilst the RAI's representing the reasons underpinning a SAp and SAv goal, and parkrun time, were included in the model as observed variables. As previously discussed in the methods section, fit indices and cut-off criteria followed the approach earlier specified, guided by Hu & Bentler (1999).

To test the hypothesised mediation pathways, researchers examined indirect effects by interpreting the associated confidence intervals (CIs; MacKinnon, 2008) based on 1000 bootstrap replications. In order to test moderation, interaction terms were created and tested in Mplus.

Descriptive Statistics and Zero Order Correlations

Table 9 presents the descriptive statistics, internal reliability scores and correlation matrix for the study variables. All data was deemed to be normally distributed with skewness and kurtosis data ranging between <|2|. On average, participants reported (1) moderate mean scores (i.e, just above the midpoint), for parkrunners endorsement of either a SAp or SAv goal, (2) consistently high mean scores for more self-determined reasons underlying goal pursuit and pride, and (3) low average scores when considering achievement goal pursuit for less self-determined reasons and shame.

The Hypothesised Model

Examination of the full hypothesised model revealed it to be an excellent fit for the data, X^2 (197) = 393.25; $p < .001$; CFI = .96; RMSEA = .05 (.05 - .06).

Table 9

Correlations and Descriptive Statistics for Achievement Goals, RAI's, Appraisals, Emotional Well-Being and Performance.

Variables	1	2	3	4	5	6	7	8	9
Goals									
1. Sap	-								
2. SAv	.53**	-							
Reasons									
3. RAI_Sap	.43**	.17**	-						
4. RAI_SAv	.27**	.34**	.73**	-					
Outcomes									
5. Challenge Appraisals	.33**	.22**	.37**	-.10	-				
6. Threat Appraisals	-.02	.07	-.04	.26**	.29**	-			
7. Pride	.18**	.05	.26**	.07	.37**	.04	-		
8. Shame	.05	.13*	-.04	.10	-.16**	.12*	.40**	-	
9. Performance	-.10	-.09	-.15**	.05	-.07	.10	-.06	.14*	-
M	4.80	4.55	10.05	8.70	5.83	1.57	4.80	1.30	30.27
SD	1.27	1.50	4.60	5.00	.85	.88	1.23	.71	6.56
A	.85	.90	.93	.95	.72	.72	.94	.92	-

Note. SAp = self-approach goal; SAv = self-avoidance goal; RAI_SAp = relative autonomy index underpinning self-approach goals; RAI_SAv = relative autonomy index underpinning self-avoidance goals; *M* = mean; *SD* = standard deviation; α = alpha coefficient.
* *p* < .05; ** *p* <.01.
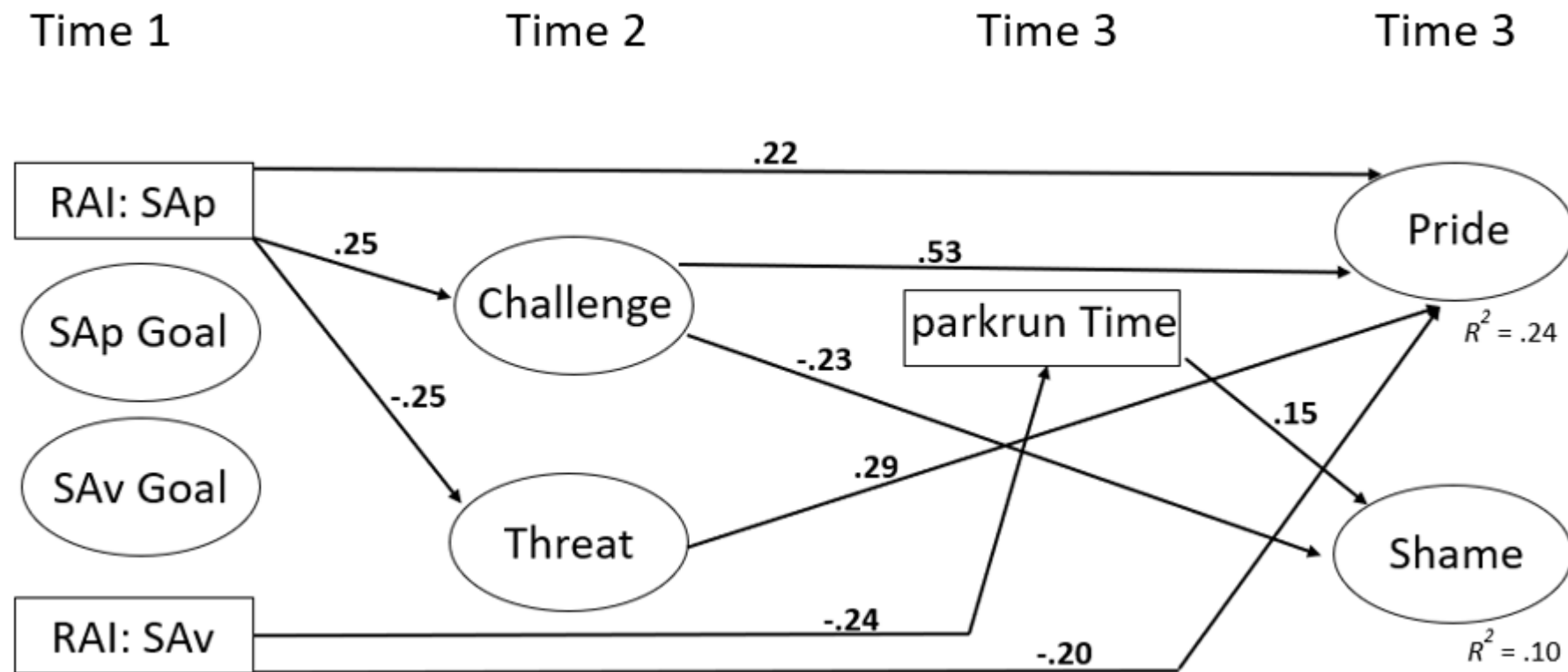
Figure 4. The hypothesised model; significant pathways.
Note. SAp = self-approach goal; SAv = self-avoidance goal; RAI_SAp = relative autonomy index underpinning self-approach goals; RAI_SAv = relative autonomy index underpinning self-avoidance goals.

The model is represented in figure four. Analysis revealed no significant relationship between goal pursuit and any of the studied outcomes. There were, however, significant, positive associations between the more self-determined reasons underlying SAp goal pursuit with challenge and pride. In turn, challenge appraisals were also positively and negatively related to subsequent feelings of pride and shame respectively. Furthermore, the more self-determined reasons underlying SAp goal pursuit were directly, negatively related to threat appraisals. The less self-determined reasons underlying SAv goal pursuit significantly, negatively impacted parkrun time and pride experienced as expected. Surprisingly, results revealed positive associations between threat appraisals and pride. Finally, parkrun time positively related to participants experiences of shame. The variance explained by the predictor variables was challenge ($R^2 = .17$), threat ($R^2 = .08$), pride ($R^2 = .24$) and shame ($R^2 = .10$).

Moderation Effects

Next, we tested for the potential moderating effects of the reasons underlying goal pursuit between SAp and SAv goals with cognitive appraisals of stress and subsequent performance, pride, and shame. In particular, interaction terms were created for the RAI's tied directly to their goal pursuit (i.e., RAI_App x SAp goals; RAI_Av x SAv goals) and included in the model. Results suggested a significant moderating effect only of RAI_App on the relationship between SAp and threat (-.03, p<.001). However, in this model the path from SAp to threat resulted as significant and positive (.27, p<.01) despite the non-significant correlation between these two latent variables (-.04, p=.61). Hence, the result from the interaction analyses has been considered as a statistical artefact and as such has not been further discussed.

Mediational Effects

Our final analysis tested a process model by examining the role of cognitive appraisals of stress (i.e., challenge and threat) in the relationship between goal pursuit and their underlying reasons with indicators of performance and emotional well-being. Two indirect, significant pathways emerged indicating the presence of mediation. Firstly, we observed the mediating role of challenge appraisals between the reasons underlying SAp goals and pride $\beta = 04$; $p < .05$. Secondly, we observed the mediating role of threat, also between the reasons underlying SAp goals and pride, $\beta = -.26$; $p < .05$.

4.5   Discussion

Drawing upon the potential integrative possibilities of the AGA and SDT (Vansteenkiste, Lens et al., 2014), and extending the work of Delrue et al., (2016), we sought to examine individual's pursuit of self-based achievement goals and their underlying reasons in influencing the anticipatory stress appraisals, and in turn, performance and emotional well-being of participants in the lead-up to and completion of a parkrun. Furthermore, we were interested in testing the potential moderating role of the reasons underlying self-based goal pursuit on performance and emotional well-being as well as the mediating effects of stress appraisals. Our findings demonstrated there is evidence for the unique relations of the direct effects of more or less autonomous reasons underlying self-based goals in explaining how parkrunners cognitively appraise a 5km, and their consequential performance and emotional well-being experiences. There were no moderating effects of the reasons underpinning goal pursuit and no direct goal effects. However, results do reveal the mediating role of cognitive appraisals of stress between underlying reasons of self-based goal pursuits with indices of emotional well-being.

The Hypothesised Model

Extending previous research on the integration of the AGA and SDT (Vansteenkiste, Lens et al., 2014), the present study sought to examine whether the reasons underlying achievement goal pursuit played any predictive role in our hypothesised sequence of temporal relationships. Findings led researchers to reject the first set of study hypotheses, as achievement goal pursuit revealed no direct effects on any study outcomes (and consequently researchers rejected hypothesis three as there were no goal-context interactions observed). These unexpected findings may be explained through the arguments proposed by Deci & Ryan (2000). They suggest when exploring the construct of reasons underpinning achievement goal pursuit, this dimension explains the majority of, if not all motivational processes influencing performance and well-being, to the point that any potential goal effects that might exist become annulled. These proposals have received widespread supported in empirical work (see Gaudreau and Braaten, 2016; Vansteenkiste et al., 2010; Vansteenkiste, Smeets et al., 2009) and so it appears probable, our findings among parkrunners have further affirmed Deci & Ryan's (2000) claims.

Rather, all our direct effects on study variables stemmed from the 'why' component of motivation (i.e., the reasons), leading researchers to partially support the second set of hypotheses. Similar to Delrue et al., (2016), we firstly observed self-determined motivation was characterized by an overall positive pattern. That is, in partial agreement with hypotheses two (a) and four (a), the more self-determined participants were in regulating their SAp goals, the more likely they were to appraise the 5km parkrun as a challenge and experience pride, and less likely they were to perceive this event to be threatening. The facets underpinning more self-determined (or autonomous) reasons (i.e., volitionally endorsing a goal, placing value upon the outcomes of participation

etc.) lend themselves towards satisfaction of the three basic psychological needs (autonomy, competence, and relatedness). Delrue et al., (2016) supported this theoretical proposition in their research and it would appear from our findings that individual's adaptive emotional well-being experiences occur as a result of goal pursuit for more self-determined reasons which in turn lends itself to basic psychological needs satisfaction (Deci & Ryan, 2000). However, it is important to clarify, no measure of basic need satisfaction was employed within this study design.

Partially rejecting hypothesis two (a), self-determined reasons underlying SAp goals did not reveal any significant relations with performance (i.e., parkrun time). Perhaps, when considering the nature of parkrun and its promotion as "a run, not a race", it is plausible that individuals attributed greater importance on their running experience and sense of emotional well-being rather than overall performance. This finding is in disagreement with the majority of existing literature who reveal positive links between autonomous motivation and performance (e.g., Gaudrau & Braaten, 2016; Vansteenkiste, Mouratidis et al., 2014) and the results of Delrue et al., (2016), however, it may be further explained through differences in study design and measurement. Firstly Delrue et al., (2016) drew from a population of experienced, competitive runners for whom it has been well-documented that achieving an improved performance is a key requirement for feeling successful (e.g., Roebuck et al., 2018). In contrast, parkrun attracts runners from a variety of backgrounds, including non-competitive, novice runners for whom performance improvement holds importance (as demonstrated through their goal pursuit choices) but possibly, may not be as essential or crucial compared to those regularly competing. Secondly, Delrue et al., (2016) exclusively tested autonomous reasons underpinning goal pursuit, whereas in this study, we focused on more or less self-determined reasons representing an account of

the level of autonomy participants felt regarding their achievement goal pursuit. Although the RAI measurement method has been utilised in previous research (e.g., Ciani et al., 2011; Spray & Wang, 2001), it does not accurately signify the contributions of SDT's constructs and so despite influencing emotional well-being constructs, this may have impacted the lack of associations observed with performance which was measured in a different manner.

In partial agreement with hypothesis two (b), we also observed direct relations between the reason underlying SAv goal pursuit with parkrun time and pride, such that the less self-determined individuals' reasons were for the pursuit of a SAv goal, the slower they ran and less pride they experienced post parkrun. When considering the characteristics of less self-determined goal striving (e.g., coercion, external rewards and constraints, a lack of values with their goal etc.), it seems theoretically sound to propose that, as a result of the pressure individuals found themselves under pursuing a SAv goal, they ran parkrun in a slower time than their previous attempt (i.e., failing to achieve either goal) and as a result experienced less pride post-event. Noticeable, there were no significant relations between less self-determined reasons for either SAp or SAv goal pursuit and shame within our findings. This finding agrees with results reported by Delrue et al., (2016) who reported similar observations with controlled motivation underpinning self-based goal pursuit. To explain this, it is possible the detrimental effects expected of less self-determined (or controlled) motivation might be more readily pronounced in a different sporting environment (e.g., a competitive context or within a team sport such as soccer or basketball, where a bad performance may cost a player's spot on the team). In this situation, failure under pressure has more immediate ramifications, and so may come with a higher personal cost to player's well-being. To extend this explanation even further, less self-determined motivation in running may

have fewer implications on short-term outcomes like performance and shame, but rather, might develop over time in the form of dropout. A similar pattern of relationships has been observed in handball (Sarrazin, Vallerand, Guillet, Pelletier, & Cury, 2002). For example, drop out is less likely in a parkrun where the distance is shorter compared to a marathon, and parkruns are accessible to attempt nationwide for free every single week. Alternatively, any effects expected or observed from less self-determined motivation may be partly due to the type of achievement goal to which they are tied. Previous literature shows that controlled reasons underlying 'suboptimal' goals (i.e., other-based goals) yield strong negative patterns (Vansteenkiste et al., 2010), while controlled reasons for 'more adaptive' goals (i.e., self- or task-based goals) do not carry these negative effects (Vansteenkiste, Mouratidis, et al., 2014). Although runners in pursuit of a SAv goal adopted an avoidance focus, which is typically known in sport research to be more negative, its competence referent is related to the self and not comparison against others, which may cancel out any ill effects such as shame.

The present findings also yielded interesting results with respect to cognitive appraisals that warrant discussion. In partial agreement with hypothesis four (c), challenge appraisals yielded significant, positive associations with adaptive emotional well-being (but not performance), however, this pattern was also observed for threat appraisals to adaptive emotional well-being. It appears therefore, that irrespective of the fact an individual appraised the task as either a challenge or a threat, they would experience enhanced feelings of pride post-parkrun. The relation between challenge and pride was expected and theoretically makes sense, after all, if an individual identifies themselves to possess sufficient resources available within their environment to meet the perceived demands of a task and views the situation as an opportunity for growth or mastery, it has been supported in research that this challenge appraisal will positively

impact well-being (Giacobbi, et al., 2007; Ntoumanis & Biddle, 1998). However, observing the same relations from threat appraisals to pride was unexpected. This may be explained through the fact that we measured pride retrospectively, after the parkrun had been completed. To that end, it seems reasonable to suggest, that although prior to taking part in the event, parkrunners viewed the activity as threatening, upon successful completion, they could reflect upon their achievement with pride, having effectively overcome doubts regarding their ability to cope with the task. Along these lines, it seems noteworthy to mention that just because an individual perceives a task to be threatening, that does not necessarily undermine the importance they assimilate to their achievement strivings (Lazarus & Folkman, 1984). So, upon attaining their important achievement goal successes, individuals reflect on their performance with pride. Finally, although not explored in this study, it seems plausible to suggest that, despite initially perceiving the parkrun to be threatening, participants employed effective coping strategies throughout their performance which permitted them to eventually experience more positive emotions. Lazarus and Folkman (1984) defined coping as "constantly changing cognitive and behavioural efforts to manage specific external and/or internal demands that are appraised as taxing or exceeding the resources of the person" (p. 141). Research in sport does exist exploring the connections between coping and emotions, with findings highlighting coping could generate adaptive emotions despite facing or operating within stressful situations (e.g., Nicholls et al., 2010). It should be noted, these are tentative interpretations of this finding and as such, requires deeper exploration in future research.

Furthermore, rejecting hypothesis four (d), we observed no significant associations between threat to performance or shame. This was surprising given the positive associations demonstrated in previous literature between threat appraisals and

sub-optimal functioning (e.g., Giacobbi et al., 2007; Ntoumanis & Biddle, 1998). Explanations for this may emanate from a measurement and behavioural perspective. Firstly, regarding the measurement of appraisals, this instrument was administered 24hours prior to the parkrun starting. Although recognised as being in relatively close proximity to the event, many things (stemming from personal, environmental, psychological and emotional adjustments) can change during that time for a participant which ultimately could influence their performance in a more positive manner. Furthermore, changes in cognitive and behavioural efforts during performance related to potentially engaging with effective coping strategies previously discussed, could have dominated any possible negative effects of threat appraisals by readjusting focus on a more positive outlook of possessing an ability to successfully cope with the environmental demands.

A final, interesting result emerged from the findings which was not previously hypothesised. There was a significant, positive association between parkrun time and shame, such that, the higher participants parkrun time (i.e., the slower they ran), the more shame individuals experienced. Despite our findings largely suggesting parkrunners experiences of the event are more directed towards their emotional well-being, rather than their performance, it does appear that when individuals recognise they have not achieved their desired goal (i.e., time), this has a detrimental impact upon their emotions.

The (Mediating) Effects of Cognitive Appraisals

According to Lazarus (1999), cognitive appraisals of a stressful event are proposed to mediate the demands of the objective environment on cognitions, emotions and behaviour. Investigating the assumption that achievement goals serve as a perceptual framework for interpreting the objective environment (McGregor & Elliot,

2002), we explored the potential mediational effects between self-based goal pursuit and their underlying reasons to performance and emotional well-being via parkrun appraisals. Partially supporting our second hypothesis, we observed the mediating effects of cognitive appraisals of stress between the reasons underlying SAp goal pursuit and pride. More specifically, our findings appear to suggest that the more self-determined participants reasons were for SAp goal pursuit (i.e., having a focus on successfully improving previous performances for the pleasure and personal importance it will bring), the more likely they were to experience pride through viewing their parkrun via increased perceptions of challenge, and lower perceptions of viewing the parkrun as a threat to their self. Our findings go beyond existing literature examining the mediating role of cognitive appraisals (e.g., Adie et al., 2008; Kavussanu et al., 2014), providing evidence of the association between reasons underlying goals and emotion well-being via appraisals, where previous research has tended to only focus on the achievement goal pursuit. When considering the mediational findings for SAp goal pursuit, this study demonstrates that it is the regulation underlying this goal, not the goal per se that is influential in determining positive, retrospective emotional experiences via the higher challenge and lower threat appraisals. As past work has reported, our findings support the supposition that the underlying reasons for goal pursuit explain more variance for studied outcomes above and beyond those relations from the achievement goal alone (Delrue et al., 2016; Gaudreau & Braaten, 2016; Gillet et al., 2017). Not only do our novel mediational findings further support and extend this work, they open a potential new line of inquiry, identifying an alternative motivational construct influencing challenge and threat states in athletes (i.e., reasons), to those originally proposed in theory (i.e., achievement goals; see Jones et al., 2009 for a summary). Although our results highlight the positive benefits of more self-determined

reasons when endorsing SAp goals and suggest cognitive mechanisms by which these reasons may facilitate a parkrunners emotional well-being, as a novel finding within this context, they should be interpreted with caution in the interim. That is, it is suggested future research is first required to investigate and confirm these relations further before drawing firm conclusions.

The Moderating Role of Reasons

Rejecting our fifth hypothesis the lack of evidence for the potential moderating role of reasons underpinning goal pursuit may be explained in a number of ways. Firstly, by forming a composite RAI score to reflect more or less self-determined reasons for achievement strivings, our study did not exclusively test SDT's constructs of autonomy and control and therefore distinct reasons cannot exert any (potential) moderating role. Previous literature (see Gjesdal, 2017), although not studying reasons, did differentiate between SDT's distinct forms of regulation (e.g., intrinsic vs extrinsic) and observed moderating effects. Further, the scores reflected in the composite RAI variables, did not indicate extremely high pursuit for either more or less self-determined reasons. According to Gsjedal (2017), relatively low levels of self-determined reasons reported may have contributed to the lack of moderating effects. Finally, the absence of moderating findings could be attributed to the fact the main analyses of the present research revealed no direct relations of achievement goals to any of our studied outcomes.

Limitations and Future Directions

Despite theoretically advancing previous work (e.g., Delrue et al., 2016) to test a model of moderated-mediation, and examining alternative outcome measures, our research has several limitations that should be considered. First, from a conceptual viewpoint, our study focused only on self-based goals (i.e., SAp and SAv). We cannot

therefore infer that the same pattern of relationships exist between task- and other-based goals and their underlying reasons on appraisals, indices of emotional well-being and performance. It is difficult from a study design perspective, to fully examine (all six goals from) the most recent conceptualisation of achievement goals (i.e, the 3 x 2 AGM; Elliot et al., 2011), especially if additionally considering investigating underlying reasons. However, a fruitful avenue for future research would be to adopt a multi-study approach (see Benita et al., 2014, 2017). Furthermore, when considering the type of achievement goals and the sporting context under investigation, there may be other indicators of emotional well- and ill-being researchers could investigate in the future. In the present study, researchers focused on outcome-related emotions, however, activity-related emotions could play a key role in these motivation relations. For example, enjoyment and happiness could be relatable indicators of optimal emotional functioning whereas, boredom, anxiety, and anger could prove useful when examining the implications of goal pursuit on emotional ill-being among runners. Second, the correlational nature of our prospective study design means causality cannot be inferred from the current findings. Future research should consider a cross-lagged panel design, to explore in greater depth, potential recursive relationships between variables with each other over time. Third, in line with study design and according to supporting theory and research (Gjesdal, 2017; Vansteenkiste, Lens et al., 2014), we placed both achievement goals and reasons alongside each other when testing our hypothesised and mediation models. However, there is new research that exists to suggest that underlying reasons may act as an antecedent for goal pursuit (see Vansteenkiste, Lens et al., 2014). Although we tested this model, we did not find any significant relationships. Nevertheless, future research may look to adopt and test this approach in varying sport settings or consider alternative antecedents (e.g., Elliot 1999). In the context of SDT,

the environment (i.e., autonomy-supportive vs controlling) operating under goal pursuit could be examined as an alternative construct to observe how the social conditions within which one pursues goals, can influence experiences of emotional well-being and performance. Fourth, from a measurement perspective, collecting data on participants' achievement goal pursuit in the present study was time-fixed (T1) as were all additional variables studied (across T2 or T3 only). This did not permit for a recording in potential fluctuations from participant's original goal pursuits or psychological experiences either pre- or post-parkrun. Future researchers conducting longitudinal research with several time points of data collection may wish to include this construct and measured variables as time-varying to account for possible change in focus and experiences regarding a sporting event. Fifth, for parsimonious reasons in building our hypothesised model, we formulated a RAI, corresponding to individual's more or less self-determined reasons for self-based goal pursuit. Although this has often been done previously in the SDT-AGA literature (e.g., Ciani et al., 2011; Spray & Wang, 2001) it is important to clarify that this does not represent SDT's distinct constructs of autonomous and controlling reasons underpinning achievement goals as proposed by theory (e.g., Vansteenkiste, lens et al., 2014). Therefore, we cannot draw conclusions on the contribution of SDT's reasons underlying goal pursuit towards attaining optimal emotional well-being and performance. Finally, due to the specific population sample we recruited, questions concerning ecological validity and to what extent our findings can be generalised beyond runners could arise. To address this, future research may consider replicating our research design with athletes from alternative sporting contexts.

Conclusion

The present research demonstrates there was evidence to support the value of using SDT as a complimentary framework for AGA in that our findings showed important implications for the regulation of SAp and SAv goals, as opposed to the intensity of pursuing these goals per se, in forming appraisals and the emotional experience and performance in a parkrun. This is consistent with SDT's theoretical propositions, which posit that if an activity represents the values and interest of the inner self, the achievement process will lead to positive outcomes (Sheldon and Elliot, 1999). Contrary to theoretical propositions (e.g., Gaudreau & Braaten, 2016; Vansteenkiste, Lens et al., 2014) and past empirical work (e.g., Gillet et al., 2014), we failed to support the moderating role of reasons underlying goal adoption on the effects of achievement goals on appraisals, performance, and emotional well-being experienced by parkrunners when considering self-based goals. Taking this into account, further experimental replication of our work is necessary before drawing firm conclusions or practical implications regarding the consequences of integrating these two motivational frameworks within sport.

4.6 References

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Chapter 5

5 General Discussion

Drawing upon the recently proposed integrated motivational framework, and empirical work led by Vansteenkiste and colleagues (e.g., Delrue et al., 2016; Vansteenkiste, Mouratidis, & Lens, 2010; Vansteenkiste, Lens, Elliot, Soenens, & Mouratidis, 2014), the present thesis utilised the key tenets of the 3 x 2 Achievement Goal Model (AGM; Elliot, Murayama, & Pekrun, 2011) alongside Self-Determination Theory (SDT; Deci & Ryan, 1985, Ryan & Deci, 2017) in an attempt to enhance the explanatory role of achievement goals in predicting the performance, optimal and diminished functioning of participants in competitive sport situations. In so doing, the notion of goal complexes was tested on sport performance in conjunction with indices of psycho-physiological functioning, and emotional well- and ill-being. The first two studies comprising this thesis operationalised goal complexes with respect to the interactive effects of approach-based achievement goals (study one) and other-based goals (study two) with the social environment, whereas the third and final study examined the moderating effects of underlying reasons for self-based achievement goal adoption. More specifically, study one aimed to ascertain whether experimentally induced self-approach (SAp), task-approach (TAp) and other-approach (OAp) goals operating under autonomy-supportive and controlling environmental conditions had differing effects on the psycho-physiological functioning and performance of novice players engaged in a basketball shooting task. Furthermore, cognitive appraisals of stress were measured to gain an insight into whether goal approaches combined with the social environment in which they were operating impacted on how sports participants viewed an upcoming task (i.e., as a challenge or a threat).

In extending the previous work, study two focused exclusively on the effects of other-based (approach and avoidance) goals. This second study aimed to determine whether the motivational context (autonomy-supportive vs controlling) underpinning

other-approach (OAp) and other-avoidance (OAv) achievement goal adoption had differing effects on indices of psychological and emotional functioning among novice performers in a competitive table football match.

Finally, study three, adopted a prospective design, to test a temporal sequence of hypothesized relationships between self-based goals and their underlying reasons > stress appraisals > emotional well-being and performance among U.K. parkrunners. In extending the work of Delrue et al., (2016) specifically, this final study of the thesis examined to what degree participants pursuing self-approach (SAp) and self-avoidance (SAv) goals contributed to experiences of emotional well-being and parkrun performance. A subsequent aim of the study involved testing a (conditional) process model examining whether the (self-determined) reasons underlying goal adoption would moderate the indirect relationship of self-based goals in the prediction of emotional functioning and performance via stress appraisals.

5.1 A Summary of the Findings and Theoretical Considerations

Congruent with the assumptions of the 3 x 2 AGM (Elliot et al., 2011), the findings from study one provided clear support for the separation of the former omnibus mastery goal into its distinct task- and self-competence referents. They also point towards evidence supporting the more adaptive nature of TAp goals, relative to other goals. More specifically, TAp goal pursuit resulted in lower cognitive and somatic anxiety and higher perceptions of competence, compared with OAp goals. These findings make theoretical sense when considering the aim of TAp goals is to focus on mastering the task at hand (i.e., basketball shooting task), thus leading to higher perceptions of ability, and lower levels of concentration disruption and reported physical symptoms, when consumed with the goal of outperforming others. Although unexpected, a significant

interaction revealed TAp goal pursuit adopted under a controlling motivational context to be more problematic when it comes to appraising upcoming performance on a basketball set shot task. That is, those participants performing under this goal condition viewed the activity as significantly more threatening than their autonomy-supportive counterparts. Observing this particular interaction for the TAp goal, whereby participants focus is on attaining task mastery was initially surprising. However, considering the fact our sport participants were basketball novices compelled to learn a new skill within a set time-frame, whilst being (falsely) led to believe that goal attainment would be evaluated, it seems plausible that such pressuring (relative to supportive) circumstances may well account for these increased perceptions of pre-performance threat appraisals for participants following this goal type. A similar effect was observed in recent research conducted by Delrue et al., (2016). These researchers found that marathon runners pursuing SAp goals, another type of mastery-approach goal (Elliot et al., 2011), under controlling reasons revealed a trend demonstrating increased pre-race threat appraisals. Although past literature has found mastery-approach goals to be more pertinent to challenge appraisals such findings have stemmed from work that has only examined the omnibus mastery-approach goal and/or assessed appraisals in the context of a hypothetical sporting situation (e.g., Adie, Duda, & Ntoumanis, 2008). When considering the study of SAp and TAp separately, the study one findings along with the work of Delrue et al. (2016) have demonstrated evidence for the moderating role of controlled motivation (relative to autonomy support in study one) of such goals influencing threat appraisals of a real-life upcoming performance (e.g., marathon race, basketball shooting task). Taken together, the current study one findings show that it is not only important to separate the omnibus mastery-approach

goal, but also consider the context in which mastery-based goals operate for healthy psychological functioning in competitive sport situations.

Regarding how participants cognitively appraised their upcoming basketball set-shot task, it was in fact, sports participants in pursuit of OAp goals that recorded the greatest level of challenge appraisals pre-performance compared to the TAp goal condition. This finding sits well within the perpetual debate present in the achievement goal literature (see Elliot & Moller, 2003) surrounding the (mal)adaptive nature of the OAp goals. Although supporting previous sport research that has demonstrated positive implications for OAp goal pursuit on challenge appraisals (e.g. Adie et al., 2008), the study one findings also demonstrate the potentially damaging consequences OAp goals can have (relative to TAp and SAp goal), as well as the unique effects of the context (i.e, controlling social environment, relative to autonomy support). Utilising objective physiological measures (i.e., heart rate and blood pressure), the study one findings further revealed a pattern of results to support a host of previous correlational-based, self-report data, investigating the detrimental effects these constructs (i.e., OAp, controlling environment) can have upon psychological well-being (e.g., Papaioannou, Zourbanos, Krommidas, & Ampatzoglou, 2012). That is, those adopting OAp goals (compared to TAp and SAp goals) or performing within a controlling (compared to autonomy-supportive) motivational context, experienced significantly increased CV reactivity, indicative of physiological ill-being.

With respect to performance, SAp goal pursuit revealed the highest scores (compared to TAp and OAp groups). Although theoretically OAp goals were expected to be more pertinent for performance than mastery-based goals (Elliot & Conroy, 2005), when exclusively focussing on SAp goals (i.e., focus on attaining intrapersonal standards), it makes theoretical sense that these goals were linked to best performance.

These findings are also consistent with other literature (Delrue et al., 2016; Lochbaum & Gottardy, 2015; Spray, Wang, Biddle, & Chatzisarantis, 2006).

Achievement goals that positively focus on mastery and performance improvement have often shown strong links with participants enjoyment levels, however, neither TAp or SAp (relative to OAp) goals exhibited mean differences. The absence of an effect may not be surprising given that study one only concentrated on approach-focussed goals, although the finding is inconsistent with past work (e.g., Vansteenkiste, Mouratidis, Van Reit, & Lens, 2014). Alternatively, it is possible the absence of an effect was confounded by the difficulty of the task (basketball shooting task) especially considering the novice sample obtained. If we had investigated achievement goal effects on enjoyment with competitive athletes performing within their natural sporting environment (e.g., soccer players performing a penalty shooting task), then, it is likely we may have observed mean differences in task satisfaction between the different goal groups.

Aligned with the tenets of SDT and highlighting the important role practitioners' play in facilitating the social environment (Deci & Ryan, 1985; Magaeu & Vallerand, 2003), another key finding from study one emerged to confirm the importance of considering the motivational context within which sports participants operate, over and beyond the achievement goal pursuit. Regardless of goal approach, study one revealed participants performing under an autonomy-supportive condition significantly improved their set-shot performance from trial one to trial two. In agreement with other sport-based research (e.g., Gillet, Vallerand, Amoura, & Baldes, 2010) this result further confirms the importance of providing performers with an element of choice and a rationale for engaging with goal-directed behaviour towards enhancing their

understanding of the value of the task, which they can endorse as their own belief. Similar trends were observed across studies two and three of this thesis.

In summary, the findings of study one advanced current knowledge on the individual contributions of achievement goals and social environmental influences, but did provide some support, albeit limited, for the assumptions underpinning Vansteenkiste, Lens et al's., (2014) integrated motivational model. The study one data was based on approach-based goals only and therefore did not permit comparisons with those in pursuit of an avoidance goal. Further, although providing novel insights into the complex constructs of well- and ill-being by tapping into psychological and physiological functioning, the emotional welfare of participants was not considered. To address these limitations and enhance the ecological validity of the study one findings, study two was designed to replicate a more real-life, competitive, sporting situation with the aim of contributing to the ongoing debate surrounding other-based (approach and avoidance) goals.

Contrasting the findings of study one, study two did not find significant effects concerning the influence of other-based goals on any studied outcomes. This was initially surprising granted the ongoing debate in the literature surrounding the adaptive and maladaptive nature of OAp goals, and that relative to OAv goal pursuit, a different consequential profile should exist (Elliot & Conroy, 2005). Prior literature has repeatedly observed associations (despite them being of an inconsistent nature) between OAp goals and various indices of well- and ill-being, and performance (e.g., Adie & Jowett, 2010; Li, 2010; Nien & Duda, 2008). Further, OAv goals have been well-documented to consistently link with deleterious consequences and so it was expected when inducing and contrasting these goals, differences in emotional functioning and performance would be observed. There may be several ways to explain these findings,

beginning with potential limitations surrounding the research design and measurement of outcomes. Firstly, it is possible that participants may have fluctuated between OAp and OAv goals over the course of the competitive game. Although our manipulation check failed to support this point, the inherent competitive nature of the participants (and fluctuating score-line) may have resulted in goal shifting, or intensity of pursuing their adopted goal. Secondly, it is plausible that the observed null findings could be that the measures of cognitive (self-efficacy), emotional (hope and hopelessness), and behavioural functioning (i.e., performance) were not as meaningful for a novice sample of participants entering an achievement situation as they would be for an elite sport specific population entering a competitive situation with high stakes attached. Thus, it seems reasonable then to suggest that our participants lacked an inherent passion for the table football competition when pursuing other-based goals, and consequently may have failed to truly engage with this achievement task, which may explain why we found no significant goal effects on any of our studied variables. Thirdly, it could be argued the non-significant goal findings in this experiment, could have also resulted from the relatively short task-engagement, which lasted only five minutes (two x two and a half minute halves). Upon uncovering far less interactive and unique significant effects than originally expected on their computer-game task with university students, Benita et al., (2017) have suggested to fully endorse an achievement goal, a longer duration task is required. Therefore, future research may want to replicate the study two finding by considering a longer period of time for goal inducement to have more meaning, especially when the task to be performed is a novel sporting situation for the participants. Fourth, it is important to remember that control group/baseline measures were not considered as part of the design, and nor were other indices of well- and ill-being. Therefore, the absence of other-based goal effects in study two between

participants pursuing OAp relative to OAv goals should be viewed with some caution when considering no significant differences in mean levels with respect to self-efficacy prior to the competitive match, individual and team performance scores, and retrospective ratings of hope and hopelessness post-game. A final plausible explanation for these non-existent goal effects are rooted within the arguments proposed by Ntoumanis (2001). Ntoumanis (2001) suggested that the pursuit of other-based goals, even OAp goals, are undergirded by controlling reasons or more often delivered in a controlling manner (Vansteenkiste, Mouratidis, & Lens, 2010). Bearing in mind their main concern surrounds performance outcome only, rather than growth, improvement and mastery, they are naturally connected to pressure. Taken altogether then, it seems reasonable to suggest that the findings of study two of this thesis demonstrate the over-riding effect of the motivational processes impacting psychological and emotional well-being, and perceptions of performance among our table-football competitors.

Consistent with the findings of study one, theoretical propositions (Bartholomew, Ntoumanis, & Thøgersen-Ntoumani, 2009; Mageau & Vallerand, 2003) and previous literature (e.g., Balageur, Castillo, Cuevas, & Atienza, 2018; Balageur et al., 2012; Gillet et al., 2010) investigating the influence of the motivational context, particularly the key role of coaches in fostering the social environment, autonomy-supportive relative to controlling conditions had important ramifications for optimal functioning and perceptions of performance in the table football experiment. Extending current research (e.g., Benita, Shane, Egali, & Roth, 2017) to experimentally manipulate the environment within an alternate achievement domain (i.e., sport) the results of the second study confirmed the importance of establishing an autonomy-supportive (compared to controlling) motivational context if athletes are to flourish. Psychological benefits emerged the most for those operating within an autonomy-supportive

environment with participants experiencing greater levels of self-efficacy with respect to their upcoming table football match following their pre-game team talk with their coach. Contrastingly, there was evidence revealing the detrimental emotional impact performing within a controlling context can have. Specifically, participants reported the worst feelings of hopelessness post-match within this condition, compromising healthy functioning, most likely due to the fact their social surroundings (characterised by force and pressure) inhibited their internalisation processes (i.e., ability to regulate in a more autonomous manner). Limited, similar research exists investigating these constructs with emotional well-being especially. However, our findings do lend support to and further extend theoretical and empirical literature exploring how socialising agents can impact an individual's optimal functioning more generally (e.g., Bartholomew et al., 2009; Benita et al., 2017; Magaeu & Vallerand, 2003; Spray et al., 2006). For example, in their early work in sport, Spray et al., (2006) reported athletes who perceived greater levels of autonomy-support from their coaches, enjoyed the required task, and free choice period performance much more than those operating under controlling conditions. More recent work conducted by Benita, Roth, & Deci (2014) within the education domain further demonstrated an autonomy-supportive environment to be conducive for the experiences of behavioural and emotional engagement.

Next, study two findings further revealed varying results concerning the influence of the motivational context underpinning goal adoption (i.e., in this case, other-based goals) on indices of performance that are worthy of discussion. Surprisingly, unlike the findings in study one and the wider achievement literature (Balageur et al., 2018; Balageur et al., 2012; Gillet et al., 2010) study two did not reveal any significant effects of the motivational context on actual performance. That is, there were no differences between autonomy-supportive and controlling conditions influencing half-time and

full-time score-lines amongst the table football competitors. However, it was found that the participants competing within an autonomy-supportive context perceived their performance to be significantly better than their counterparts operating within a controlling environment. The limited support for performance effects in studies one and two, and inconsistencies with existing motivation sport-based literature, may be explained through differences in performance measurement and the research designs employed. Firstly, in terms of assessing performance, variations exist between study two and past literature in how this construct was measured. For example, actual performance in study two was operationalised as a measure of goal difference (a calculation of the difference between the number of goals scored and conceded) and therefore reflected an assessment of team performance (i.e., participants competed in pairs). However, our additional measure focused on self-ratings of perceived individual performance and so thus reflected the extent to which each individual personally contributed towards achieving their team goal. With respect to the former, Spray et al., (2006) explored the effects of varying motivational conditions on individual performance on a golf putting task. They found the adaptive nature of autonomy-support towards producing enhanced performance, a similar trend to our work when focusing on achievement from an individual perspective. As with Spray et al., (2006), our sports participants were novices with respect to the task they were required to perform, the difference being the individual vs team environment (and objective vs self-reported assessment). For our table football novices, with limited prior involvement in the game, it seems plausible to suggest that interactions with a more autonomy-supportive coach during a competition instigated feelings of enhanced individual performance, despite what the final team score line may reflect. After all, as novices it could be argued that participants had no expectations of their performance potential,

but because of the encouragement received from operating within a coach-created supportive environment, individuals felt they had competed well. Previous research that has demonstrated positive associations between autonomy-support and performance (e.g., Gillet et al., 2010), have largely been correlational in nature and thus reliant on athletes imagining previous or future hypothetical sporting situations. To the best of the researcher's knowledge, no other literature exists that experimentally manipulates the motivational context among team sport competitive situations and so future exploration of this, particularly utilising athletes performing within their natural environment is warranted to draw firmer conclusions with respect to social influences.

In conclusion, the findings of studies one and two at first glance suggest it is more fruitful to employ the 3 x 2 AGM (Elliot et al., 2011) and SDT (Deci & Ryan, 1985) separately. Despite finding no support for Vansteenkiste, Lens et al's., (2014) integrated AGM-SDT model, and further, limited (study one) to no effects (study two) of achievement goals per se, both studies highlighted the importance of considering the motivational context within which participants perform and function in competitive sport situations. To explore this further and test alternative goal pursuits within another sporting context, study three tested a temporal sequence of hypothesized relationships between self-based goals and their underlying reasons > stress appraisals > emotional well-being and performance among the running community. However, the study failed to provide support for a conditional process model (i.e., moderated-mediation), nor did it support the moderation of the climate in shaping how goals would influence the outcomes of this study.

Study three findings were largely in agreement with those in the previous studies, replicating the important influence of SDT's constructs (Deci & Ryan, 1985). This time, however, self-determined reasons for self-based goals were found to have important

implications for stress appraisals, performance, and emotional well-being above and beyond that of adopting either SAp or SAv goals alone. Once again, consistent with theory (Deci & Ryan, 2000) and existing literature (e.g., Benita et al., 2017), the findings demonstrate the emotional benefits associated with more self-determined reasons that reflect autonomous regulation (i.e., assimilating the values, and recognising the importance of goal pursuit). Utilising a longitudinal design, the results specifically revealed the more self-determined parkrunners reasons were underlying their self-approach (SAp) goal pursuits, the greater runners' experiences of pride post-event. As previously highlighted, literature investigating AGA and SDT links with specific emotions is limited and so these findings have begun to bridge understanding of this knowledge gap. By offering an alternative insight into emotional well-being, drawing direct comparisons with previous literature is more difficult. However, our findings fit well within existing research that highlights the adaptive nature of autonomous regulation on varying indices of optimal functioning (e.g., Delrue et al., 2016; Gaudreau & Braaten, 2016; Vansteenkiste et al., 2010).

The findings differed, however, when examining the influence of reasons on performance. Surprisingly, we did not observe any direct effects of these reasons underlying SAp goal pursuit on performance, contrary to the majority of existing literature (e.g., Assor, Vansteenkiste, & Kaplan, 2009; Delrue et al., 2016; Gaudreau & Braaten, 2016). Differences in methodological design may account for such variations, with previous literature exploring team-based sports (e.g., Gaudreau & Braaten, 2016), competitive or elite athletes (e.g., Delrue et al., 2016) and further, explicitly examining autonomy vs control SDT-constructs separately. To clarify, in the third study of this thesis, we calculated a relative autonomy index (RAI) to represent the more or less self-determined reasons an individual may possess regarding their achievement goal pursuit.

In line with the characteristics of more controlled regulation, we did however, observe links between the reasons underlying self-avoidance (SAv) goals and performance, such that the less self-determined (i.e., more controlled) a parkrunners reasons were underlying this particular goal pursuit, the slower they ran, and additionally, less pride they experienced post-parkrun.

Further, we did not observe any relations between less self-determined reasons for either SAp or SAv goal pursuit with our measure of emotional ill-being (i.e., feelings of shame). Although initially unexpected, this finding is in line with past existing work (Delrue et al., 2016). Theoretically, this could be explained by considering the goal to which less self-determined (or controlled) reasons is tied. It has been previously suggested for more adaptive goals (i.e., those referenced to self- or task-based criteria), underlying controlling reasons do not carry the same strength in deleterious effects compared to goals that are typically considered more 'sub-optimal' (i.e., other-based goals). For example, exploring why soccer players pursue other-approach goal pursuit, Vansteenkiste et al., (2010) reported strong, positive associations between controlled reasons and heightened experiences of negative affect. A similar pattern was later observed among university athletes (Gaudreau & Braaten, 2016) and across different achievement settings (e.g., education [Gillet, Lafreniére, Vallerand, Huart & Fouquereau, 2014]). However, in investigating the reasons underpinning self-, or task-goals, existing sport-based literature has not observed a similar trend (e.g., Delrue et al., 2016; Vansteenkiste, Mouratidis et al., 2014).

Moreover, the sporting sample from which both this research and that of Delrue et al., (2016) recruited from may also help in explaining this finding. The running community is largely based on individual participation whereby success or failure does not necessarily result in shame in the same way it might do for an athlete competing

within team sport. To elaborate on this, should a basketball player perform below par, their place on the starting team could potentially be at risk. This heightened pressure can bring about more immediate costs to an athlete's well-being, and so, it is plausible to conclude, for parkrunners whose event is promoted as 'a run, not a race' and so does not inherently advertise a competitive element, exposure to less environmental demands may reduce the risk of experiencing instant health ramifications. This is not to say, that in the long-term, athletes would continue to function at an optimal level. Controlling regulation has been found to foster over time and result in dropout from sport (e.g., Sarrazin, Vallerand, Guillet, Pelletier, & Cury, 2002). To clarify, the environment was not explicitly examined in this study and so proves a fruitful line of investigation for future research.

Aligned with study two, there were no significant main effects of achievement goal pursuit on any of our studied outcomes in study three. Despite exploring an alternative goal construct under a different sporting context, it was SDT's contribution to explaining motivational processes that yielded the greatest influence on participants well-being and performance experiences. To explain this, the propositions of Deci & Ryan (2000) may be useful. They claim SDT's core constructs (i.e., the exploration of reasons or the motivational context underpinning goal directed behaviour e.g., in this case, achievement goal adoption), account for the majority of, if not all, the explained variance in accounting for motivational constructs influencing well-being and performance, so much so that any potential goal effects that could exist become void. These proposals have been since supported in empirical work (see Gaudreau and Braaten, 2016; Vansteenkiste et al., 2010; Vansteenkiste, Smeets et al., 2009) whereby reasons matter more and account for more variance, above and beyond the effects of

the goal itself and so it appears probable, our findings among parkrunners have further affirmed Deci and Ryan's (2000) assertions.

According to Lazarus and Folkman (1984), there are individual differences in the way which people cognitively evaluate the environmental demands to be more or less challenging or threatening. In line with these predictions and congruent with previous empirical literature (e.g., Delrue et al., 2016), study three also revealed evidence to firstly demonstrate that the reasons underpinning achievement goal pursuit can directly influence how an individual cognitively appraises their upcoming parkrun. It was found that the more self-determined a parkrunners reasons were endorsing a SAp goal pursuit, the more likely they were to appraise their upcoming event as a challenge (and less likely to perceive it as threatening). It appears for those who pursue SAp goals in a more autonomous manner and therefore engage with their chosen activity because of a genuine love and interest for their sporting activity, the greater belief they have that they can cope with the demands associated with the event, embracing parkrun in a more positive light. Similar to our findings on indices of emotional well- and ill-being in this study, we did not find any direct influences of self-based goals on challenge and threat states.

Secondly, unique links between appraisals and outcomes also emerged. Challenge appraisals revealed positive associations with experiences of pride and negative relations with shame demonstrating the adaptive emotional consequences connected with appraising parkrun in a more positive manner. These findings agree with previous literature that has highlighted a similar trend (e.g., Adie et al., 2008, 2010). Further, and this was initially unexpected, study three found a positive relation between threat appraisals and parkrunners experiences of pride. Threat has more often shown a positive connection with indices of diminished functioning (e.g., Adie et al., 2008; Jones,

Meijen, McCarthy, & Sheffield, 2009), and so this result was surprising. To explain this point, it is important to consider that parkrunners completed their reports on emotional functioning post-event, and so reflected retrospectively upon their running experiences. Therefore, it seems plausible to suggest that prior to the event, participants can indeed feel threatened by their upcoming performance, however, upon successfully completing the parkrun, individuals reflect upon their achievement with pride because they have (potentially) achieved their goal. This in part could also be as a result of employing effective coping strategies to overcome doubts regarding their ability to handle task demands. Sport-based literature does exist exploring the connections between coping and emotions, with findings highlighting coping could generate adaptive emotions despite facing or operating within stressful situations (e.g., Nicholls, Hemmings, & Clough, 2010), however, to clarify this was not explored in this thesis, but is proposed as a fruitful avenue for future research exploring the motivation > stress appraisals > emotional well-being sequence.

More recently, sport research investigating the indirect links between achievement goals with indices of well- or ill-being and performance have also considered other mechanisms in addition to, or alongside challenge and threat appraisals (e.g., self-talk, basic need satisfaction, Delrue et al., 2016; Quested & Duda, 2010). However, less work has considered the moderating role of reasons underlying approach-avoidance achievement goals on (sub)optimal functioning and performance as a process (mediational) model. In line with aforementioned AGA-SDT studies that have incorporated cognitive appraisals in a process model, study three partially supported the mediational role of cognitive appraisals concerning the indirect relationship between reasons underpinning goal pursuit with parkrunners experiences of emotional well-being. Specifically, it was found that the more self-determined reasons

underpinning the adoption of a SAp goal, the greater feelings of pride parkrunners felt post-event when their 5km run was viewed more as a challenge, and less as a threat to their emotional welfare. These findings provide evidence for an alternative motivational determinant (i.e., more self-determined reasons for goal adoption) of challenge and threat states in athletes, to those previously identified in literature (see Jones et al., 2009).

There is scare research in the field who have attempted to investigate whether the reasons underlying achievement goal pursuit could play a moderating role in explaining how goal constructs are related to outcomes via any mediating variable. Although current attempts at testing such a model failed to find any moderating effects, making it impossible to further explore the conditional process model of moderated-mediation, there is one exception in the sport-based literature who have partially supported these theoretical propositions. In their work with female soccer and handball players, Gjesdal, Appleton, & Ommundsen (2017) assessed the combination of the "what" (i.e., the aim) and "why" (i.e., the reasons) of youth sport activity, and how it influences satisfaction of the need for competence and self-esteem (n.b. appraisals were not considered). Intrinsic (or autonomous), but not extrinsic (i.e., controlled) regulation emerged as a moderating variable between (1) task orientation and increased self-esteem through the need for competence and (2) ego orientation and lowered self-esteem via a positive relationship with competence frustration. Whilst these findings offer encouraging support for a conditional process (i.e., moderated-mediation) model, it is important to address this study did not come without its limitations, some of which may explain why this thesis did not report similar trends. From a theoretical perspective firstly, this study drew from the early dichotomous goal model (Nicholls, 1984), testing task and ego orientations. The achievement goal approach has progressed since this development of

this original theory to its most recent form utilised in this thesis, namely the 3 x 2 AGM (Elliot et al., 2011). Further, it does not accurately represent SDT's constructs of reasons (i.e., autonomous vs controlling), instead choosing to explore individuals more general motivation regulation for participating in their sport. Although study three chose to explore more or less self-determined reasons for goal pursuit which we acknowledge is also not a fair reflection on autonomous vs controlling reasons, they are more closely associated to these constructs than the somewhat generic motivation regulations employed in the former study. Additionally, methodological differences, such as the sport context (team vs individual sports), participant demographics (gender and age), and studied variables (mediator [need for competence vs stress appraisals] and outcome [self-esteems vs emotional wellbeing]) may further account for the mixed findings between the present and work conducted by Gjsedal et al., (2017). As an under-researched area, the idea of a conditional process model warrants future investigation to confirm its utility (or not) in enhancing the understanding of the motivational processes underpinning (sub)optimal functioning and performance in sport.

In considering the overall pattern of findings throughout this research, is important to reiterate that the primary focus of this thesis was to test the theoretical concepts of the integrated motivational model, and as such, we recruited from a population that predominantly placed participants in novel sporting situations. However, despite largely being placed in novel sporting situations, participants across all studies were sports competitors and therefore it can be concluded that our findings are indeed generalisable to novice populations (see Spray et al., 2006; van de Pol, Kavussanu, & Ring, 2010 for similar design approaches). Researchers recognise the transferability of the situationally-based findings across all studies in this thesis may not however, generalise to the contextual level of participating in competitive sport or to more

advanced level or experienced participants (e.g., elite athletes). In studies one and two, novices were selected from different sporting backgrounds and cultures, so again, the generalisability of our findings may not necessarily yield the same insights for those currently invested in the same sport.

In summary, our findings provide very limited support to demonstrate alignment with Vansteenkiste, Lens et al's., (2014) proposed model of integrated motivation, and as such we cannot conclude that our research advances the theoretical propositions of this framework, at least not in novel competitive sporting situations. However, the unique effects observed by the independent contributions of the 3 x 2 AGM (Elliot et al., 2011) and particularly SDT (Deci & Ryan, 1985) on indices of optimal and diminished functioning, and performance progress current knowledge and provide several original contributions to the literature.

5.2   Practical Applications and Recommendations

Aligned with the findings of other sport-based literature (Bartholomew et al., 2009; Gillet et al., 2010; Mageau & Vallerand, 2003), and research conducted across varying achievement settings (e.g., education and work), our results across all three studies have important applied implications for those directly involved with the sporting environment within which individuals are performing (e.g., coaches, team managers). As demonstrated in studies one - three, the role of the social environment plays a key role in shaping the well-being and performance experiences of sport participants in competitive sport situations and is thus of paramount importance for significant others to consider within their practices.

The findings across the present thesis consistently support the notion of promoting approach-based goals within an autonomous environment. That is, an

autonomy supportive environment, and more autonomous reasons, underlying goal adoption were found to lead to optimal psychological (e.g., increased self-efficacy; study two of this thesis), emotional (e.g., greater pride; study three of this thesis), and physiological (e.g., a healthier regulation of heart rate and blood pressure; study one of this thesis) well-being, and performance (studies one and two of this thesis). As discussed in previous chapters, an autonomy-supportive context is multi-faceted, and although traditionally it has been viewed as an environment that predominantly offers choice (e.g., Zuckerman, Porac, Lathin, Smith, & Deci, 1978), there are several alternative elements we suggest coaches in their applied practice consider and incorporate when interacting with their athletes and teams. In accordance with the proposals of Magaeu & Vallerand (2003), those wishing to structure their environment and personal behaviours to reflect an autonomy-supportive style should (1) provide plenty of choice, (2) provide a rationale for task engagement, (3) acknowledge participants feelings, (4) encourage participants to engage with the decision-making process, enhancing their level of independence, (5) use non-controlling language, (6) avoid the inclusion of guilt-inducing criticisms and tangible rewards, and (7) ensure ego-involvement does not arise. To apply this to a real-life sporting example, consider a netball coach working with a first-team, senior squad during the pre-season period. Based upon the guidelines of Magaeu and Vallerand (2003) to foster autonomy-support, it is suggested, this coach could consider gauging the thoughts and opinions of her athletes by calling a team meeting. Engaging in this open dialect, would permit the coach to gain an insight into what the athletes want to achieve, providing them with a sense of responsibility to collaboratively develop team goals for the season ahead. Further, this would provide a platform to acknowledge the feelings and perspectives of the players, which often vary in a team-based environment and importantly create a

provision of choice moving forward. That is, as a primary focus, the coach should offer players choice in almost all respects of what they do. This could be related to the training environment (e.g., who leads the warm-up/cool-down, the drills or particular skills to focus on session-to-session, the training days and times) or match-day procedures (e.g., meeting times, recovery sessions). Additionally, coaches should always be mindful to align their verbal (positive and constructive, utilising words and phrases such as 'try', 'take your time', 'what do you think you could try to improve on?') and body language (e.g., open, inviting, maintaining eye contact with players at their level') with a supportive stance. By creating a motivational context that addresses these various dimensions, it is theoretically assumed and previous sport research has demonstrated that an autonomy-supportive environment will predict basic psychological needs (i.e., autonomy, competence and relatedness), which in turn promote self-determined motivation (Deci & Ryan, 2002), as well as an individuals' (in this case, competitive sport performer) sense of well-being (Balaguer et al., 2012).

Based on the findings emanating from the current thesis, it is highly recommended coaches avoid setting and encouraging competitive athletes to pursue goals within a controlling motivational context to prevent the likelihood of compromised physiological (i.e., increased cardiovascular reactivity in study one), emotional (i.e., heighted feelings of hopelessness; study two), and behavioural functioning (i.e., worse performance; across all studies). In accordance with the work of Bartholomew et al., (2009), and the results of the current thesis strongly discourage coaches from using controlling strategies (e.g., tangible rewards, controlling feedback, excessive personal control, intimidation behaviours) which have been found to actively frustrate participants' feelings of autonomy, competence, and relatedness. Although some coaches may believe that controlling strategies are necessary to maximise results,

the findings emanating across all three studies in this thesis demonstrate that when goals are pursued in an autonomy-supportive environment (or for more self-determined reasons) compared to controlling ones then performance is also enhanced. On occasions, it may seem that controlling contexts, or certain elements involved within a controlling environment, appear to be adaptive in that they evoke desired behaviours and achievement patterns, however, coaches should be aware these short-term benefits come with long-term costs, eventually hindering athletes' development of intrinsic motivation, capacity to self-regulate, and overall optimal functioning.

Despite our findings indicating the influence of achievement goal pursuit on studied outcomes is limited, we can still offer some suggestions based upon the results of study one of the thesis, and the wider literature. In accordance with the majority of sport research (e.g., Gaudreau & Braaten, 2016; Puente-Díaz, 2012), we would encourage coaches to develop an approach-based goal with their athlete(s), whereby competence-based pursuits are focussed on attaining success. Within that, a desire to master the demands of the task or improve upon previous performances (i.e., a TAp and SAp goal respectively), have been consistently found in the literature to ensue in short- and long-term adaptive well-being and performance experiences (e.g., Benita et al., 2014, 2017; Delrue et al., 2016), a pattern that was reflected in our study one findings. There are various ways by which practitioners could promote TAp and SAp goals amongst their athletes, including manipulating the specific antecedents tied to the goal approach and employing effective strategies to align focus with achievement possibilities. To elaborate on this, linked with the tenets of SDT (Deci & Ryan, 1985), a soccer coach could manipulate facets of the environment (such as those previously discussed) to encourage an athlete to adopt the desired achievement goal pursuit (i.e., facilitation of an autonomy-supportive environment can give rise to autonomous

regulation of goals which have previously demonstrated in research to be closely linked with approach-focused pursuits; e.g., Benita et al., 2014). Alternative antecedents could also be targeted, such as competence expectancies and an individual's perceptions about their ability. The soccer coach may otherwise wish to discuss with their athletes that task- and self-referenced success can indeed be attained, if they align their beliefs with the notion that increased effort will result in enhanced ability (Wang & Koh, 2006). The endorsement of these thoughts, termed 'incremental beliefs', will lead individuals to view personal attributes and behaviours as malleable constructs within their control that can be influenced through their efforts in learning situations (Warburton & Spray, 2008). Implementing goal-setting strategies can additionally provide athletes with more opportunities to develop their competence through specific task- and self-approach referenced criteria (Duda, 2001; Conroy, Elliot, & Coatsworth, 2007). For example, in Gaelic football, a coach working with a group of under-age novices beginning in the game may wish to guide players to successfully execute the hand-pass skill to a teammate, the attainment of this process also mimics that of a TAp goal. In basketball, a point-guard may aim to complete six assists in their next fixture (i.e., performance goal), improving upon their previous game where they achieved five, and as such, this is also indicative of a SAp goal pursuit.

To be clear, our results suggest it is imperative practitioners independently consider both the type of goal and the environment they create for their athlete's goal pursuit to encourage optimal physiological functioning, especially immediately post-performance. Specifically, goal pursuit based on mastery competence, particularly SAp goals and separately, an autonomy-supportive context can ensure a more regulated physiological pattern, avoiding any short- and long-term maladaptive consequences

(i.e., stress, dropout) that may negatively impact well-being and performance (Bartholomew et al., 2011; Quested et a., 2013).

Regarding psychological functioning, practitioners should be aware that although it appears there are immediate benefits pre-performance of OAp goal pursuit in terms of perceiving the task as a challenge, there also exists hidden costs post-performance. Our findings suggest heightened anxiety (an indicator of ill-being) coupled with low perceptions of competence are related to OAp goal pursuit and previous research has documented that in both the immediate and long-term, these factors are (potentially) detrimental to an individual's psychological functioning (Adie et al., 2010; Reinboth & Duda, 2004). Therefore, practitioners should consider the promotion of TAp achievement goals for experiences of enhanced psychological functioning with specific reference to lowering levels of anxiety and heightening perceptions of competence.

Based upon the thesis findings, we suggest practitioners seeking performance benefits from sports participants should consider creating an autonomy-supportive context, whereby individuals feel supported in their actions, valued in offering their opinions, and understand the rationale underpinning behaviour engagement (i.e., why it is important). Separate to this, practitioners should also consider the specific goal to promote, especially when working with individuals approaching a novel task situation. SAp goal pursuit yields an immediate performance benefit which is encouraging although future research should seek to replicate these initial findings over an extended time-frame to explore the potential long-term effects.

In summary, we suggest coaches carefully consider promoting (1) an autonomy-supportive motivational context in order for their athletes to optimally function in relation to their well-being and performance, and (2) approach-based achievement goals

that focus on a sense of mastery in relation to task- and self-based criteria. However, as similar sport-based experimental work remains in its infancy, further research is warranted to support the proposed practical implications of our findings.

5.3   Limitations and Additional Future Directions

Although the present thesis contributes to the existing literature examining Vansteenkiste, Lens et al.'s, (2014) integrated model of motivation, and progresses current research by (1) applying this framework within alternative achievement settings (i.e., sport), and (2) utilising advancements in design and measurement approaches which have clear implications for evidence-based practice, there are a number of limitations to note. Firstly, this project did not examine in full, the integration of the 3 x 2 AGM (Elliot et al., 2011) with SDT (Deci & Ryan, 1985). A complete examination of the two theoretical approaches would result in testing six achievement goal pursuits under autonomous and controlling motivational contexts (or reasons) environmental conditions, resulting in twelve different experimental groups (i.e., six goals x two environments/reasons). The logistics associated with such a design were deemed to be outside the realms of the current doctoral thesis. However, future research may wish to explore this approach across a longitudinal timescale, or multi-study perspective, to allow for comparison of all possible interactions within one project. On this note, previous literature (Elliot et al., 2011) has also addressed the value in investigating the valence of goals only (i.e., SAp, TAp, OAp goals) or considering approach-avoidance achievement goals (i.e., SAP vs SAv or OAp vs OAv). However, we did not explore the moderating effects of the social environment, or motivational regulations, for task-based goals (i.e., TAp and TAv). Therefore, it cannot be assumed based on the findings of the current thesis that a similar pattern of consequences would exist for task-based goals in conjunction with their underlying motives. Considering its recent evolvement

from the former mastery goal, and that empirical work has so far highlighted its unique pattern of relations associated with various indices of well-being and achievement patterns (largely in education; e.g., Benita et al., 2014, 2017), task-based goals warrant future investigation within the sporting context testing Vansteenkiste et al.'s (2014) integrated theory.

Regarding our experimental manipulations in studies one and two, we targeted most of the key facets of an autonomy-supportive and controlling motivational context. For example, within our autonomy-supportive environments, participants were provided with a choice, encouraged to engage in the decision-making process, received a rationale for behaviour engagement, aware of potential difficulties, and this context involved positive, and supportive language only. Likewise, within controlling motivational contexts, our manipulations included the use of pressuring and forceful language, tangible rewards, excessive personal control, intimidation behaviours, and reference to conditional regard. Although designed to create the most effective manipulation of the environment, the inclusion of these many elements per social context do not permit researchers to have an understanding of which specific facets, have the most pertinent influence over shaping the specific conditions within which individuals perform and function in competitive sporting situations. For example, it is impossible to conclude when creating an autonomy-supportive environment, if researchers should place greater emphasis on providing choice, or a rationale, or acknowledging potential difficulties, and the same applies to understanding which the most damaging aspects of the controlling environment are. Future research may wish to explore and compare certain facets of the social environment to gain a deeper understanding of the most impactful elements significant others should focus upon or avoid.

Concerning goal measurement (i.e., study three), it may be an idea for future longitudinal research to more closely assess goals, during an actual competitive sport situation (e.g., Gernigon, D'Arripe-Longueville, Delignières, & Ninot, 2004) and/or from game-to-game (e.g., Vansteenkiste, Mouratidis, Riet, & Lens, 2014). By considering a within-person approach (as opposed to the more common between-person approach) researchers have the opportunity to study the dynamics of goal involvement more closely and how individual pursuit of a goal from game-to-game or over the course of a single competitive situation may fluctuate. Moreover, researchers could also examine whether autonomous and controlling reasons predict such fluctuations (see Vansteenkiste, Mouratidis et al., 2014). To expand on this, when sport participants pursue a goal for controlling reasons during or across competitive situation(s), it is expected that goal stability could be problematic by feeling pressurised to pursue attainment of that particular goal. This could be even more problematic when feeling compelled to follow a sub-optimal goal. Alternatively, the regulation of game-specific achievement goals during single, and across different, competitive situations has potentially important implications. For example, a soccer player may actively decide to pursue a SAp goal (e.g., to improve upon their previous performance) for many moments of a game (e.g., to make more interceptions than they had previously) but then choose to switch to an OAp goal focus in specific moments (e.g., dribbling past an attacker). Therefore, taking a within-person approach to studying goal pursuits and their underlying reasons may offer more insight into how athletes' function as a result of choosing/feeling compelled to follow/switch their goal focus. Such possibilities, although challenging to adopt complex research designs, warrant further investigation to advance the achievement goal literature.

One important SDT theoretical concept implicitly assumed to be part of testing Vansteenkiste et al's (2014) integrated framework of motivation is the role of the basic psychological needs. With the exception of Delrue et al. (2016), past and the present work included have not accounted for the role of basic psychological needs when testing the integrated model (Vansteenkiste et al., 2014). Although the majority of the findings from the sport literature have been conducted in accordance with the theoretical tenets of BPNT (Deci & Ryan, 2000), and provide clear applications for evidence-based practice, they predominantly stem from correlational data. In studies one and two, it was theoretically assumed that the effective contextual manipulations (i.e., autonomy supportive and controlling environments) giving rise to the regulation of achievement goal pursuits for either autonomous or controlling reasons was based upon satisfaction or frustration of the psychological basic needs for autonomy, competence and relatedness. However, this was not tested across the first couple of studies, and nor was it included in the third and final study of the thesis. Therefore, future investigations should administer a measure of basic need satisfaction (e.g., Ng, & Lonsdale, & Hodge, 2011) and frustration (e.g., Bartholomew, Ntoumanis, Ryan, & Thøgersen-Ntoumani, 2011) for a more comprehensive understanding of explaining theoretically assumed mechanisms within Vansteenkiste, Lens et al's., (2014) model.

In continuing this point, for example, needs have been tested and research has supported their role as an antecedent in the motivational sequence of relations, with much literature documenting that satisfaction of autonomy, competence, and relatedness will result in more adaptive goal pursuits, goal regulation, and/or underlying reasons (e.g., Ciani, Sheldon, Hilpert, & Easter, 2011; Sari, 2015) Other research has tested and supported their function as a consequence of achievement goal pursuit, goal regulation, underlying reasons, and the social environment (e.g., Adie et al., 2008, 2010;

Delrue et al., 2016; Quested & Duda, 2010). To explain this, approach-based goals, particularly those that focus on mastery and growth, (i.e., SAp or TAp goals), intrinsic motivation regulation, and goal pursuit for autonomous reasons or adopted within an autonomy-supportive context, have been found to significantly relate to satisfaction of the three needs. On the other hand, avoidance goals or on occasion those referenced to an other-based standard, extrinsic regulation, and controlling reasons/social conditions, have demonstrated positive associations with basic need frustration (e.g., Bartholomew et al., 2011; Gillet et al., 2014; Quested & Duda, 2010) Future research should seek to establish exactly where within the motivational sequence basic needs should be situated, so as to enhance the consistency and accuracy of work integrating tenets of achievement goals and SDT constructs.

In acknowledging the importance of autonomy in particular, and the significant role it contributes in creating both a facilitative social environment and adopting more adaptive forms of achievement goal pursuit, it seems plausible to explore if in addition to competence dynamics (i.e., definition and valence), which are at the forefront of the achievement goal literature, facets of autonomy should also be considered as an additional dimension of the goal construct, to understand when and why certain people thrive in achievement settings whilst others fail to perform to their potential. This proposal has not yet been actioned but seems like a worthy line of investigation for future theoretical developments. Another important consideration concerns the multi-faceted nature of the social environment. In studies one and two of the thesis, careful attention and piloting was employed to create the manipulations of the environment focussing on tapping into the most salient aspects that represent these constructs. However, due to design limitations it was not possible to discern which particular facets were more pertinent for initiating goal involvement and subsequent performance, or

optimal and diminished functioning of participants in these studies. Such evidence would complement theory in helping researchers design their experimental manipulations of the environment.

Throughout our research, there was a reliance on self-report instruments to capture indices of psychological and emotional well-being. Such data collection methods can potentially lead to participant misunderstanding (e.g., varying interpretations on stated question), introspective inability (lack of knowledge on how to assess themselves accurately), and self-report bias (tendency to report the more socially acceptable responses, rather than the truth). To counteract these issues, it would advance research if future sport studies examined the motivational influence of the social environment, reasons, and actual achievement goal pursuit, on objective markers of athlete's stress experiences, and consequential well- and ill-being. Heart rate and blood pressure as utilised in study one of this thesis represent a straightforward measure of an individual's physiological activity in response to a potentially stressful event, however, the investigation of biomarkers (e.g., secretory immunoglobulin A (S-IgA), cortisol, norepinephrine, glycosylated haemoglobin; see Ryff et al. 2006) in future motivational research may, be particularly informative regarding the possible immunological mechanisms through which social-psychological processes lead to variability in athlete well- and ill-being. Conveniently, for several objective biomarkers, changes in their actions and levels, can be measured via relatively accessible and non-invasive methods (e.g., in saliva), which provides researchers with a prime opportunity to gather richer data towards better understanding the complex construct of well-being in sport achievement situations (e.g., training and competition).

There are potentially other personal and environmental antecedents that warrant investigation within the context of achievement motivation and well-being in (sport)

achievement situations (see Elliot, 1999), separate to those we have focused on in this thesis. As briefly alluded to, theories of ability (incremental vs entity beliefs) may provide insights into specific achievement goal adoption and consequential well-being and performance outcomes. For example, from an entity perspective, individuals who believe their ability is fixed may be more prone to pursuing other-based achievement goals, and may do so for controlled reasons, feeling pressure to show off or prove their self-worth. In contrast, those possessing incremental beliefs may be more likely to adopt task- or self-based goals, potentially for autonomous reasons because they are naturally curious and seek-out challenge to improve their skills and cultivate their potential.

Finally, as previously highlighted, there are considerations to take into account surrounding the generalisability of our findings, beyond a novice population in a situational context. Future research should seek to test the integrated theoretical framework amongst athletes operating within their chosen competitive sport, or alternatively conduct a field-based intervention to enhance the ecological validity of the current findings emanating from the thesis.

5.4   Conclusions

The results emanating from this thesis provide limited evidence for the proposed integrated motivational framework (e.g, Vansteenkiste, Lens et al., [2014]). However, they do reveal the importance of considering separately, achievement goal pursuit, the reasons underpinning goal adoption and the motivational context within which they are followed as these various constructs individually revealed unique effects on indices of physiological, emotional, and behavioural functioning among sport performers in competitive sport situations.

The consistent finding across all three studies highlights the importance of examining and having an understanding of the reasons underpinning an individual's achievement goal pursuit, and also, the motivational context within which these goals are adopted. In agreement with the majority of existing literature (Benita et al, 2014, 2017; Delrue et al., 2016; Gaudeau & Braaten, 2016; Vansteenkiste et al., 2010), our findings suggest in order to achieve optimal functioning and performance outcomes, individuals should be autonomously regulating. More specifically, this means encouragement of goal pursuit for autonomous reasons (i.e., for the fun and challenge it provides, and doing so with volition, or within a social context that fosters choice, a rationale for adopting the goal, and acknowledging the individuals s perspective during goal acceptance). Alternatively, controlling motivational contexts, and corresponding regulations of goal adoption were found, in relative terms, to result in higher levels of diminished functioning and to be more detrimental to performance. With this in mind, it is advised that the pursuit of goals for controlling reasons is discouraged (e.g., avoiding the use of coercion, intimidation, use of rewards to control participants' acceptance of a goal).

Key theoretical assumptions of the 3 x 2 AGM (Elliot et al., 2011), and in particular the splitting of mastery-approach goal, were also supported. Specifically, SAp and TAp goals revealed a superior influence for well-being and performance, in contrast to the other-approach goal. As such, goals that focus on attainment of mastery, personal development, and growth are most conducive to experiencing optimal functioning when compared to individuals that focus on the attainment of normative success. In sum, the research stemming from this thesis supports and predominantly reports the overriding SDT effects pertaining to the relevance of the reasons and the environment underlying goal adoption in influencing sport participants experiences of

optimal and diminished functioning, and performance, more so than the achievement goal itself.

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Chapter 6

6   **Appendices**

6.1   Study 1

This sub-chapter of the appendices focuses on the first empirical chapter of this thesis, titled "Approach-Achievement Goals and Motivational Context on Psycho-Physiological Functioning and Performance among Novice Basketball Players" and will consist of the following:

- Experimental manipulations.[10]

- Questionnaires utilised pertaining to:
    - Cognitive appraisals of stress
    - Competitive state anxiety
    - Enjoyment
    - Competence
    - Goal attainment
    - Manipulation checks

- Coventry University certificate of ethical approval

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[10] These experimental manipulations were delivered via PowerPoint software and video technology. The video is available upon request.

Study 1 Experimental Manipulations (by condition).

1. *Task-Approach Autonomy-Supportive (TAp-AS)*

*   You are invited to view a series of video and written instructions that will provide information regarding your recommended goal for your second trial of the basketball shooting task. If you have any questions, please do not hesitate to ask the experimenter.
*   We invite you to click on the image below to start the video introduction.
    o * Video *
*   In this next trial, your recommended goal is to try to master the technique of the set-shot. You are invited to watch a video demonstration of this skill. The video demonstration is an opportunity to focus on mastering the three key elements of this skill.
*   We invite you to click on the image below to begin watching the video.
    o * Video *
*   So, in your own time, please consider if you would like to adopt this goal.
*   Some things to try to remember are:
    o Try to focus on having soft knees, your elbow under the ball and the wrist flick.
    o You can perform this task in your own time.
    o If you choose to adopt this goal:
        ▪ Success can be attained by trying to master the shooting technique.
*   If you are happy to adopt your recommended goal, please spend two minutes mentally preparing for the task.
*   Recommended goal:
    o Try to master the shooting technique.

2. *Task-Approach Control (TAp–Con)*

*   You will now receive a series of video and written instructions that will provide information regarding your goal for your second trial of the basketball shooting task. You must follow the instructions provided.
*   You must now click on the image below to start the video.
    o * Video *
*   In this next trial, you should aim to master the technique of the set-shot. Your participation in the investigation will be valuable to us only to the extent that you demonstrate a perfect technique. Thus, to be helpful, you should focus on perfecting the three key elements highlighted in the upcoming video demonstration. You will now watch a video demonstration of this skill.
*   You must click on the image below to begin watching the video.
    o * Video *
*   You must now perform the task again.
*   Things to remember:
    o You must follow the goal we set you.

- - You must focus on having soft knees, your elbow under the ball and the wrist flick.
  - You are being timed and recorded.
  - In adopting this goal:
    - To be successful, you must demonstrate the perfect shooting technique.
- You must now spend two minutes reflecting on your goal and mentally preparing for the task.
- Goal:
  - You must perfect the shooting technique.

3. Self-Approach Autonomy-Supportive (SAp–AS)

- You are invited to view a series of video and written instructions that will provide information regarding your recommended goal for your second trial of the basketball shooting task. If you have any questions, please do not hesitate to ask the experimenter.
- We invite you to click on the image below to start the video introduction.
  - * Video *
- In this next trial, your recommended goal is to perform better than your previous attempt. In your own time, please consider if you would like you to adopt this goal to see if you can do better than you did the last time.
- Some things to try to remember:
  - You can choose the order of shooting in the next trial.
  - You can perform this task in your own time.
  - If you choose to adopt this goal:
    - Success can be attained by trying to improve your previous score.
- If you are happy to adopt your recommended goal, please spend two minutes mentally preparing for the task.
- Recommended goal:
  - Try to perform better than your previous attempt.

4. Self-Approach Control (SAp–Con)

- You will now receive a series of video and written instructions that will provide information regarding your goal for your second trial of the basketball shooting task. You must follow the instructions provided.
- You must now click on the image below to start the video.
  - * Video *
- In this next trial, your goal should be to perform better than your previous attempt. Your participation in the investigation will be valuable to us only to the extent that you demonstrate self-improvement. Thus, to be helpful, you should aim to do better than last time.
- You must now perform the task again.

- Things to remember:
  - You must follow the goal and order we set you in the next trial.
  - You are being timed and recorded.
  - In adopting this goal:
    - To be successful, you should score more set-shots than previously.

5. *Other-Approach Autonomy-Supportive (OAp-AS)*

- You are invited to view a series of video and written instructions that will provide information regarding your recommended goal for your second trial of the basketball shooting task. If you have any questions, please do not hesitate to ask the experimenter.
- We invite you to click on the image below to start the video introduction.
  - * Video *
- You are invited to study Figure 1 below[11]. Can you tell the experimenter what the average percentage shooting success is for the recreational level?
- In this next trial, your recommended goal is to try to outperform other players of a recreational standard.
- In your own time, please consider if you would like to adopt this goal. This may seem challenging but others have been able to do it. You are invited to play again and try to better the 50% shooting average of your peers.
- Some things to try to remember:
  - You can choose the order of shooting in the next trial.
  - You can perform this task in your own time.
  - If you choose to adopt this goal:
    - Success can be obtained by trying to outperform your peers.

6. *Other-Approach Control (OAp–Con)*

- You will now receive a series of video and written instructions that will provide information regarding your goal for your second trial of the basketball shooting task. You must follow the instructions provided.
- You must now click on the image below to start the video.
  - * Video *
- In this next trial, your goal is to outperform other players of a recreational standard. You should study Figure 1 below to determine the average percentage shooting success of recreational level players on this task.
- Your participation in the investigation will only be valuable to us to the extent that you exceed this target. Thus, to be helpful, you should score more than 50% of your allocated shots.
- You must now perform the task again.

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[11] This was a graph displaying fabricated data and was presented to both other-approach goal conditions.

- Things to remember:
  - You must follow the goal and order we set you when shooting in the next trial.
  - You are being timed and recorded.
  - In adopting this goal:
    - To be successful, you should outperform your peers.

Study 1 Questionnaires

Cognitive appraisals of stress: Items adapted from The Challenge and Threat Construal
Measure (McGregor & Elliot, 2002).

Competitive state anxiety: Items adapted from the Competitive State Anxiety Inventory-2 (CSAI-2; Martens, Burton, & Vealey, 1990).

Enjoyment: Items adapted from the enjoyment subscale of the Intrinsic Motivation Inventory (IMI; McAuley, Duncan, & Tammen, 1989).

Competence: Items adapted from the perceived competence subscale of the IMI (McAuley et al., 1989).

Manipulation check - Goal: Items adapted from the 3 x 2 Achievement Goal Questionnaire for Sport (AGQ-S; Mascret, Elliot, & Cury, 2015).

Manipulation check – Context: Items adapted from Experimental Climate Questionnaire (ECQ; adapted from Williams & Deci, 1996) .

Certificate of Ethical Approval

Applicant:

Mairi Mulvenna

Project Title:

The effects of achievement goals and underlying reasons on the psycho-physiological functioning of sport participants.

This is to certify that the above named applicant has completed the Coventry University Ethical Approval process and their project has been confirmed and approved as Medium Risk

Date of approval:

21 June 2016

Project Reference Number:

P42849

6.2   Study 2

This sub-chapter of the appendices focuses on the second empirical chapter of this thesis, titled "Other-Based Achievement Goals and Motivational Context on Psychological and Emotional Functioning and Performance of Sports Participants" and will consist of the following:

- Experimental manipulations.[13]

- Questionnaires utilised pertaining to:
    - Ability
    - Self-efficacy
    - Hope
    - Hopelessness
    - Self-rating of performance
    - Manipulation checks

- Coventry University certificate of ethical approval

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[13] These experimental manipulations were delivered and reinforced by research assistants, acting in the role of a team manager.

Study 2 Half-Time Experimental Manipulations [14](by condition).

1. *Other-Approach Autonomy-Supportive (OAp-AS)*

    a. How do you think that first half performance went?
    b. Would you like to switch positions?
    c. Try to remember the goal we discussed to try and score more goal than your opponents.
    d. I know you may think this is difficult but you are performing well – try to keep it up!

2. *Other-Approach Control (OAp-Con)*

    a. Okay, you are not playing well and it is very disappointing to watch - what was that out there? **OR**
    b. You are playing okay but I expect more from you, you must do better in the second half.
    c. You need to remember you will only receive a raffle ticket for the prize draw for every goal you score – look at this money (show £100) - this could be yours but you must start playing better.
    d. Take a look at this board[15], this is how many raffle tickets other people having already completed this task have attained at half-time:
        i. You are performing to the norm but I want more from you.
        ii. You are performing below average and needless to say, letting me down in the process. You must do better in this second half.
    e. ** NB: Team managers can enforce that positional play must stay the same or must change**.
        i. I am making positional changes – (NAME) you will now switch to defence and (NAME), you must move into an attacking position **OR** You mustn't change positions. I have made the decision that they will remain the same for the second half.
    f. You know it is important for me to win as a manager - do not let me down.

3. *Other-Avoidance Autonomy-Supportive (OAv-AS)*

    a. How do you think that first half performance went?
    b. Would you like to switch positions?
    c. Try to remember the goal we discussed to try and concede less goals than your opponents.
    d. I know you may think this is difficult but you are performing well – try to keep it up!

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[14] NB: For autonomy-supportive conditions, experimental manipulations reflect a series of questions utilised by the team manager to initiate and engage in conversation with participants. For control conditions, these statements were simply delivered to participants.

[15] This refers to a large scoreboard on display in the room made up of fabricated data.

4. Other-Avoidance Control (OAv-Con)

a. Okay, you are not playing well and it is very disappointing to watch - what was that out there? **OR**

b. You are playing okay but I expect more from you, you must do better in the second half.

c. You need to remember you are losing a raffle ticket and entry into the prize draw for every goal you concede – look at this money (show £100) – do you not want to win this? You must start playing better.

d. Take a look at this board, this is how many raffle tickets other people having already completed this task have remaining at half-time:
    i. You are performing to the norm but I want more from you.
    ii. You are performing below average and needless to say, letting me down in the process. You must do better in this second half.

e. ** NB: Team managers can enforce that positional play must stay the same or must change**.
    i. I am making positional changes – (NAME) you will now switch to defence and (NAME), you must move into an attacking position **OR** You mustn't change positions. I have made the decision that they will remain the same for the second half.

f. You know it is important for me to win as a manager - do not let me down.

Study 2 Questionnaires

Ability.

Instructions: Please could you rate your table football ability by responding to the stem and scale below? All information will remain confidential so please be open and honest.

Stem:

"I would rate my table football ability as…"

Low	Medium	High
1	2	3

Self-efficacy (For scoring): Items developed based upon Bandura's (2006) guidelines for constructing tailored self-efficacy scales.

Self-efficacy (For avoiding conceding): Items developed based upon Bandura's (2006) guidelines for constructing tailored self-efficacy scales.

Hope: Items adapted from the hope subscale of the Achievement Emotions Questionnaire (AEQ; Pekrun, Goetz, Frenzel, Barchfeld, & Perry, 2011).

Hopelessness: Items adapted from the hopelessness subscale of the Achievement Emotions Questionnaire (AEQ; Pekrun, Goetz, Frenzel, Barchfeld, & Perry, 2011).

Self-rating of performance.

Instructions: The item below will measure to what degree you felt you performed well during the table football match. Please consider this a rating of your personal, **not** team performance.

Using the following scale, choose a number to indicate to what extent, you agree or disagree with the statement. All information will remain confidential so please be open and honest.

Stem:

"How well do you think you performed during the game?"

Poor		Average	Excellent	
1	2	3	4	5

Manipulation check – Goal (Pre-task): Items adapted from the 3 x 2 Achievement Goal Questionnaire for Sport (AGQ-S; Mascret, Elliot, & Cury, 2015).

Manipulation check – Goal (Post-task): Items adapted from the 3 x 2 Achievement Goal Questionnaire for Sport (AGQ-S; Mascret, Elliot, & Cury, 2015).

Manipulation check – Context: Items adapted from Experimental Climate Questionnaire (ECQ; adapted from Williams & Deci, 1996) .

Certificate of Ethical Approval

Applicant:

Mairi Mulvenna

Project Title:

The effects of other-referenced achievement goals and their underlying reasons on the psycho-physiological functioning of sports participants: An experimental investigation.

This is to certify that the above named applicant has completed the Coventry University Ethical Approval process and their project has been confirmed and approved as Medium Risk

Date of approval:

12 May 2017

Project Reference Number:

P45798

6.3 Study 3

This sub-chapter of the appendices focuses on the third empirical chapter of this thesis, titled "Self-based goals, underlying reasons, performance and emotional well-being among parkrunners: A prospective design" and will consist of the following:

- Questionnaires[16] utilised pertaining to:
  - Self-based goal pursuit
  - Underlying reasons
  - Cognitive appraisals of stress
  - Pride
  - Shame
- parkrun ethical approval certificate[17].

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[16] Please note, questionnaires were delivered online using Qualtrics software.

[17] Please note the slight change in title only from the project originally proposed and later accepted in the parkrun ethics application, to that named in this thesis. To clarify, the research design remained the same.

Study 3 Questionnaires

Self-based goal pursuit: Items adapted from the 3 x 2 Achievement Goal Questionnaire for Sport (AGQ-S; Mascret, Elliot, & Cury, 2015).

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Reasons Underlying Self-Based Goal Pursuits: Items produced following the procedure of Vansteenkiste et al., 2010.

Cognitive appraisals of stress: Items adapted from The Challenge and Threat Construal Measure (McGregor & Elliot, 2002).

Pride: Items adapted from the pride subscale of the Achievement Emotions Questionnaire (AEQ; Pekrun, Goetz, Frenzel, Barchfeld, & Perry, 2011).

Shame: Items adapted from the pride subscale of the Achievement Emotions Questionnaire (AEQ; Pekrun, Goetz, Frenzel, Barchfeld, & Perry, 2011).

parkrun ethical approval certificate[18].

Content removed on data protection grounds