



University of
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EXAMINING PERFECTIONISM IN ELITE JUNIOR ATHLETES: MEASUREMENT AND DEVELOPMENT ISSUES

PAUL RICHARD APPLETON
Ph.D

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ABSTRACT

The major theme of the current thesis was the definition, measurement, and development of perfectionism in elite junior sport. The first purpose was to examine the psychometric properties associated with Hewitt and Flett's (1991) Multidimensional Perfectionism Scale (MPS-HF) when complete by a sample of elite junior athletes. In study one, a confirmatory factor analysis failed to support the original structure of 45-item MPS-HF. Subsequent exploratory and confirmatory factor analyses revealed a more parsimonious 15-item factor structure representing self-oriented (SOP), socially prescribed (SPP), and other-oriented perfectionism (OOP). Having established a reconstituted version of the MPS-HF, a second purpose of the research programme was to consider the origins of perfectionism in elite junior athletes using a cross-sectional design. Initially, in study two a social learning model was supported, with 18%-26% of variance in athletes' perfectionism predicted by parents' perfectionism. Building upon this finding in study three, a structural equation model revealed that parenting styles, including empathy and psychological control, mediated the parent-athletic child SPP relationship. In study four, a significant pathway emerged between parents' achievement goals and athletes' dispositional perfectionism, offering support for a social expectations model of perfectionism development. Specifically, parents' task and ego orientations were positively associated with athletes' SOP. In

contrast, athletes' SPP was predicted by parents' ego orientation. Study four also demonstrated the nature and form of motivational regulation associated with athletes' SOP and SPP. That is, a pathway emerged between athletes' SPP and controlled forms of regulation, while athletes' SOP was correlated with self-determined and controlled motivation. Finally, in study five, the coach-created motivational climate accounted for approximately 19% of variance in athletes' perfectionistic cognitions, highlighting the role of additional social agents in the development of athletes' perfectionism. The results of this research programme contribute to existing knowledge of perfectionism by forwarding reliable measures of SOP and SPP for employment in sport, and revealing a complex array of pathways that underpin the development of perfectionism in elite junior athletes. Ultimately, by preventing the occurrence of such pathways, athletic children may be protected from the perils of perfectionism.

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DECLARATION

I declare that this thesis is my own unaided work. It is being submitted for the degree of Ph.D at the University of Bedfordshire.

It has not been submitted before for any degree or examination in any other University.

Name of candidate: Paul Appleton

Signature:

Date: 24th August, 2009

Chapter One: Introduction

The last two decades have witnessed a rapid development in empirical research regarding perfectionism (see Flett & Hewitt, 2002a; Stoeber & Otto, 2006 for reviews), with the majority of studies appearing in the clinical, counselling, and educational psychology literature. The impetus for this research stemmed from a number of case studies that captured the pervasive nature of perfectionism. For example, Burns (1980) considered the heavy toll that perfectionism can take on students. Burns revealed that students from the University of Pennsylvania Law School regularly sought counselling for anxiety and depression, and their overbearing urge to drop-out of university. A perfectionistic pattern of thinking emerged within this group of students who experienced great difficulty in accepting any personal role that meant being less than a first class scholar. When this group of students began to realise that their performance was evaluated as less than perfect, they reacted with frustration, anger, depression and panic. In turn, their self-regard plummeted, and the disturbance became so intense that, according to Burns (1980), some students may have even contemplated suicide. Burns speculation later received support from Maltzberger's (1998) who described the case study of Robert Salter, a highly competitive and perfectionistic law student. Salter found coursework extremely difficult, experienced both inferiority and jealousy towards his classmates and was unable to cope with his perceived inadequacies. This maladaptive pattern of psychological well-being became so intense that Salter attempted suicide by plunging 200 feet off a bridge.

Similar case studies were reported by Blatt (1995) in his seminal article on perfectionism. In this, Blatt provides detailed accounts about the suicide of three

talented and gifted individuals as a result of their perfectionistic tendencies; Vincent Foster, a gifted and accomplished lawyer and deputy counsel to President Bill Clinton; Alasdair Clayre, an outstanding scholar at Winchester University, and later at Oxford, who also published novels, produced television programmes, delivered lectures at the Open University, and produced music; and Roger (Denny) Hansen, a star athlete and a Rhodes Scholar from Oxford. The accounts of Foster, Clayre and Hansen describe three incredibly talented individuals who were leaders in their chosen domains, yet were also driven by intense self-scrutiny, self-doubt, and self-criticism. The account of Foster, for example, outlines the “intensity of his critical self-scrutiny, his yielding need for perfection, and the profound anguish he experienced when he felt he had failed” (p. 1003), while both Clayre and Hansen are described as individuals who had a “tragic inability to enjoy their accomplishments” (p. 1005).

In addition to the depression and related forms of distress experienced by the perfectionists in the previous examples, Flett and Hewitt (2002b) describe other case studies that identify the broad role that perfectionism may play in undermining psychological well-being. With reference to their clinical work, Flett and Hewitt (2002b) describe a woman who endured physical abuse from her perfectionistic husband for years. When asked about her husband’s perfectionism, the woman said: “Perfectionism played a big part in the abuse I experienced. I had to be the perfect wife, and I would get hit when I did not meet my husband’s expectations” (p. 6).

In contrast to the general psychology domain, empirical literature on perfectionism in sport and related physical activity contexts has only recently

gathered pace (see Flett & Hewitt, 2005; Hall, 2006 for reviews). However, the disturbing effects of perfectionism have been noted in anecdotal evidence. For example, in their book on exercise dependence, Kerr, Lindner, and Blaydon (2007) highlight the relationship between perfectionism and eating disorders in a number of elite athletes. One case study, the story of Christy Henrich, is particularly tragic. Christy Henrich was an elite female gymnast in the United States during the 1990s. Henrich was an accomplished gymnast, just missing out on the US 1988 Olympic team by an incredible 0.118 of a point. During the height of her gymnastic career she weighed a healthy 93 pounds. However, in 1992 Henrich withdrew from a competition because her body was so weak that she was unable to maintain her gymnastic performance. As it turned out, an international judge had informed Henrich that she needed to watch her weight, and in response, she had developed anorexia and bulimia nervosa in an attempt to maintain the perfect body shape for gymnastic performance. Her concern for body shape became an obsessive mindset, which eventually forced her to retire from gymnastics weighing just 60 pounds. Describing her experience in 1994, Henrich stated: "My life is a horrifying nightmare. It feels like there's a beast inside of me, like a monster. It feels evil" (Japan Times, 1994). Regrettably, Henrich failed to overcome her eating disorder, and she eventually died from multiple organ failure in 1994, aged just 22 (Japan Times, 1994; Ryan, 1996). Interestingly, shortly after the death of Christy Henrich, Krane, Greenleaf and Snow (1997) described the case of a former elite gymnast, who, in her quest to perfect skills and excel in her chosen sport, described the role that perfectionism played in the development of dysfunctional behaviours. These behaviours included emotional outbursts, over-

training, an inability to refrain from training when injured, and an unhealthy approach to nutrition: “I was totally consumed with my weight and my perfectionism that, you know, I was overworking my body” (p. 66).

The unfortunate consequences of perfectionism in sport are not limited to gymnasts. Hall (2006) reported upon two cases of academy football players, whose apparent perfectionism led to their untimely deaths. Ashley Herapath and Jonathan McCari played for the youth teams of British professional soccer clubs. Tragically, both players committed suicide soon after being released from their respective teams. Although no empirical evidence is available demonstrating the role of perfectionism in each death, Ashley Herapath’s father revealed the stresses experienced by his son as he failed to fulfil his boyhood dream of becoming a professional football player. Mr. Herapath reported that: “Ashley felt like a failure after the rejection (of his club), and never recovered”. Mr Herapath continued by stating “He (Ashley) lived and breathed soccer- it was his life” (Shuttleworth, 2001).

While suicide may be an extreme (and uncommon) response to a perfectionistic orientation in athletes, there is also evidence to suggest that perfectionism can encourage other more common patterns of maladaptive cognition, affect, and behaviour in sport. For example, Gould, Tuffey, Urdy, and Loehr (1997) reported upon an elite junior athlete (Jan) who had burnt out of tennis. Jan had been a successful tennis player and achieved state and national rankings, but experienced burnout over a two-year period and eventually quit playing tennis. When asked to describe her personality on court, Jan confirmed her perfectionistic tendencies by informing the interviewer that: “I tend to want to

do the best I can. I like to sort of be at the head of the line” (p. 262) and “I was overtraining and I placed too much emphasis on winning and losing a lot” (p. 264). The combination of high expectations and overtraining meant that Jan derived little enjoyment from her tennis participation, felt motivationally and emotionally drained, experienced low levels of self-esteem after losing, and, eventually, a sense of burnout from tennis.

A similar constellation of cognitive and affective responses was reported by Victorian Pendleton in a recent interview with Donald McRae (October, 2008) from the Guardian newspaper. Pendleton, a British cyclist, has achieved the ultimate goal of any elite athlete’s career, winning six world championship titles since 2005 and an Olympic Gold Medal at the 2008 Olympic Games. Upon reflecting upon her success, Pendleton identified a host of characteristics that were instrumental in becoming a world-class cyclist. It is interesting to note that many of these characteristics are far from desirable and are reflective of a perfectionistic personality. For example, Pendleton suggested that she is unable to derive a sense of satisfaction from her performances to date and craves future success: “I’m terrible. I beat myself up the whole time because I’m striving for something I’ll basically never achieve...I’m never satisfied and I’m never content...I soon worked out that the only thing I could do was get another gold medal. I need one”. She also reports excessive doubts about the quality of her performance: “I just want to prove that I am really good at something. And I haven’t quite done that yet – at least not to myself. I know I could ride so much better...I feel I’m nowhere near as good as I should be”. Somewhat paradoxically, Pendleton confirmed that she is a “self-critical perfectionism” and recognised the

debilitating nature of this personality disposition, but remained confident that her perfectionistic tendencies were central to her success and is thus reluctant to relinquish them.

The examples described above clearly highlight the dangers associated with perfectionism in students, politicians, scholars, interpersonal relationships, and, more recently, professional and junior athletes. Yet despite this evidence, some investigators have recently identified perfectionism as a defining characteristic of elite sporting performance which underpins successful achievement, and have subsequently encouraged the systematic development of perfectionistic striving in elite junior athletes (Gould, Dieffenbach & Moffatt, 2002; Hardy, Jones & Gould, 1996; Henschen, 2000). Gould et al. (2002), for example, interviewed a sample of US Olympic Gold medallists about the personal qualities that underpinned their sporting success. A consistent theme to emerge from transcripts was the Olympians' perfectionistic striving and organised approach. This finding encouraged Gould and colleagues to conclude that perfectionism is essential to the attainment of peak sporting performance.

In response to the conclusions of Gould et al. (2002) and the limited empirical evidence on the influence of perfectionism within the sport psychology literature, Hall (2006) encouraged the sporting community to demonstrate a degree of caution when classifying perfectionism as a hallmark quality of elite performance. This is because, while the Olympians in Gould et al's study were identified as demonstrating perfectionistic qualities, little is known about the nature of perfectionism in sport. As a result, it is not possible to support the belief that perfectionism will underpin outstanding accomplishment and excellence in

sport, because the Olympians' success to which Gould et al. (2002) referred may have been achieved in spite of their perfectionism rather than because of it (Hall, 2006). Implicit in Gould et al's argument is that perfectionism can be a positive quality, whereas the case studies emanating from the clinical and sport literature assume that perfectionism is a universally debilitating characteristic. Overall then, there is reason to guard the sporting community from conceptualising perfectionism as a quality to be promoted within elite athletes.

1.1. The current thesis

Disagreement on the nature of the perfectionism construct is reflective of the general field at present, as the perfectionism term not only has multiple interpretations, but is associated with a variety of both adaptive and maladaptive motivational patterns. This disagreement has blurred an understanding of perfectionism within sport and whether psychologists should attempt to promote this personality characteristic in elite junior performers or develop strategies to prevent its' development. A more systematic understanding of the construct and its' measurement is therefore warranted in order to better understand the influence of perfectionism and its antecedents in sporting contexts. One aim of the current research programme sought to provide this systematic understanding.

Specifically, the current research programme investigated the construct of perfectionism in elite junior sport, with a view to gain a greater understanding of the how the construct is defined and measured, and the various pathways the contribute to the development of perfectionism in athletes. There are two conceptual chapters in the thesis; chapter two examines the various approaches to conceptualising perfectionism and forwards Hewitt and Flett's (1991)

Multidimensional Perfectionism Scale (MPS-HF) as the most appropriate scale for measuring perfectionism in sport. The second conceptual chapter appears in chapter four, and examines the various processes that underpin the origins of perfectionism in children. Based on the conceptual chapters, five empirical studies are presented. Study one (chapter three) examines the factor structure of the MPS-HF with a sample of elite junior athletes; study two (chapter five) examines the contribution of parents' perfectionism to the perfectionism of elite junior athletes; study three (chapter six) focuses upon the psychological processes that mediate the intergenerational transmission of perfectionism between parents and their athletic child; study four (chapter seven) tests the contribution of parents' achievement goals to the perfectionistic tendencies of their athletic child; and study five (chapter eight) examines the role of other social actors, namely coaches, in the aetiology of athletes' perfectionistic cognitions.

It is envisaged that by providing conceptual clarity regarding perfectionism in sport and forwarding an appropriate measurement tool, the foundations upon which future investigations of perfectionism in elite junior athletes can operate will be established. Moreover, arguing for a particular definition of perfectionism may help overcome the blur that currently surrounds the perfectionism term within the sport psychology literature. In doing so, it will become clear that while perfectionism may have adaptive facets, the overall construct is universally debilitating and may undermine the psychological well-being of junior performers. One of the implications of defining the construct as universally debilitating is the necessity for researchers to investigate the origins of perfectionism. By identifying the psychological factors that contribute to

perfectionism, intervention strategies can then be forwarded with an aim of preventing perfectionism in elite junior athletes. Ultimately, such intervention strategies may ensure that future generations of elite junior athletes maintain positive psychological well-being and fulfil their obvious sporting potential.

Chapter Two: The conceptualisation, definition, and measurement of perfectionism

The purpose of chapter two is to provide a rationale for defining and measuring perfectionism as a universally debilitating construct that undermines the performance and psychological well being of elite junior athletes. To achieve this aim, early descriptions of perfectionism will first be examined, and then synthesised to formulate a definition of perfectionism for the current programme of research. This definition will forward perfectionism as a multidimensional construct comprised of a number of key facets. It will be argued that it is the combined effect of all the facets that ultimately reveals perfectionism as a negative influence in sport. The chapter will then consider multidimensional approaches to the measurement of perfectionism, and in doing so, an argument will be forwarded regarding the shortcomings of a number of established perfectionism scales. Specifically, the chapter will focus upon two main points; the oxymoron that is adaptive perfectionism, and the conceptual blur that has emerged between perfectionism and adaptive achievement striving. It will be concluded that the forwarded definition and associated measure of perfectionism avoids contributing to this blur, providing the most appropriate framework for examining perfectionism in elite junior athletes.

2.1. Early approaches to the definition of perfectionism

The construct of perfectionism has been recognised by clinicians and theorists for over a century. Many of the early observations of perfectionism were made by clinicians in response to clients who demonstrated a rigid, irrational

thought pattern. This maladaptive pattern of cognition encouraged clinicians to conceptualise perfectionism as a dysfunctional personality disposition associated with a range of self-defeating outcomes. For example, Horney (1939; 1950), an early psychoanalyst, described perfectionism as “the tyranny of the shoulds”, in which the perfectionist strives relentlessly towards an idealised self-image as they attempt to reaffirm self-worth. Horney’s approach was complemented by Lion’s (1942) theorising, who described the morbid doubts and rigidity in thoughts that characterise perfectionism.

Reinforcing “the tyranny of the shoulds” and irrational thoughts as a central component of perfectionism, Albert Ellis, a cognitive-behavioural theorist, identified perfectionism as one of the 12 basic irrational ideas that lead to psychological distress. According to Ellis (1958), perfectionism is “the idea that one *should* be thoroughly competent, adequate, intelligent and achieving in all possible respects – instead of the idea that one should *do* rather than desperately try to do well and that one should accept oneself as an imperfect creature, who has general human limitations and specific fallibilities” (p. 41). Later, Ellis (1982) considered the relationship between irrational beliefs and perfectionism within sport. Ellis proposed that because perfectionism is characterised by a constellation of irrational beliefs, the perfectionistic athlete adopts a stance that “I must do well at the sports I participate in; and if I fail...I am an incompetent, pretty worthless person!” (p. 10).

A number of other definitions emerged in the writing of early perfectionism scholars. Missildine (1963) reported that a perfectionist only feels worthwhile when achieving in all areas of life, and that an inability to accept

anything less than perfection exposes the individual as worthless. Hollender (1965) also described the perfectionist as being someone who “cannot accept or be content with anything short of perfection; he looks so intently for defects or flaws...not only that, but no matter how well he does, he seldom performs to his complete satisfaction” (p. 94-95). More recently, Burns (1980) adopted a cognitive based approach, defining a perfectionist as one “whose standards are beyond reach . . . who strain compulsively and unremittingly toward impossible goals and who measures his own worth entirely in terms of productivity and accomplishment” (p. 34). The irrational nature of the perfectionism construct is captured within Burns’ approach via the perfectionist’s pre-occupation with unachievable goals, while a dysfunctional pattern of attitudes occurs as the perfectionist’s self-worth is contingent upon the successful accomplishment of these unrealistic goals (Flett & Hewitt, 2002b).

2.2. A definition of perfectionism for the current research programme

Initial attempts to define perfectionism made an important contribution to the area, and facilitated an understanding of the construct within clinical settings. Early theorising also reveal perfectionism as a complex, multifaceted personality disposition, with a number of key features consistently emerging in the definitions of the construct. Such features include striving towards excessively high and often unattainable standards; critical evaluative tendencies; a fear of the negative implications associated with failure; and concomitant poor self-esteem when high personal standards remain unfulfilled. Based on this review of the historical perfectionism literature, perfectionism is defined in the current programme of research as a multidimensional personality disposition characterised by *striving*

towards perfection and exceptionally high standards, accompanied by critical evaluative tendencies, a fear of failure, and a self-worth conditional upon the successful attainment of perfection. When defined in this manner it becomes clear that, while perfectionism includes adaptive facets (e.g., high standards), this personality disposition is universally debilitating and will underpin poor psychological well-being that ranges from mildly debilitating to severely dysfunctional.

Consistent with the historical descriptions, the proposed definition considers perfectionism to be a universally debilitating disposition for athletes. However, the emergence of high personal standards in early perfectionism writing has encouraged some sport practitioners and researchers (e.g., Gould et al. 2002; Hardy et al., 1996; Henschen, 2000) to conceptualise perfectionism as a desired personality disposition for athletes. This is because high personal standards underpin necessary qualities in elite sport such as intense achievement striving and sustained effort that may ultimately contribute to excellence. Moreover, Hall (2006) argued that the implied association between perfectionism and sporting excellence corresponds to a belief (see Hardy et al., 1996; Mallett & Hanrahan, 2003) that athletes are required to strive beyond their current capabilities if they are to reach the pinnacle of their sport, and demonstrate a degree of commitment that at times may appear obsessive. This view is consistent with the goal-setting literature (see Burton, Naylor & Holliday, 2001; Hall & Kerr, 2001) and research findings that imply approximately 10,000 hours of deliberate practice are required to obtain international status as an athlete (Ericsson, 1996; Starkes, 2000). Overall

then, perfectionism is partly characterised by a form of achievement striving that, on first view, may be conceived of as an adaptive.

However, it may be premature for researchers, practitioners, and coaches to conclude that perfectionism is adaptive based solely upon its motivating effect. An examination of historical descriptions and definitions of the construct suggest the term “perfectionist” should not be assigned to an individual who strives for high standards, yet fails to demonstrate other defining qualities of perfectionism (Greenspon, 2000, 2008; Flett & Hewitt, 2006). That is, while the predilection towards high personal standards is a necessary quality of perfectionism, this alone is not sufficient to adequately define the construct (Hall, 2006; Greenspon, 2008). Rather, perfectionism is characterised by intense achievement striving *that is associated with* critical evaluative tendencies, a fear of failure, and a contingent self worth (Greenspon, 2008). When conceptualised in this manner, as more than a sustained effort towards high standard, there is little reason to expect that perfectionism will fuel achievement striving for a period of time sufficient for the acquisition of sporting expertise and elite status (Hall, 2006). This is because for the perfectionist, self-worth is dependent upon the successful attainment of high standards, and thus achievement striving becomes aligned with a preoccupation with failure (Burns, 1980). With this debilitating preoccupation guiding achievement behaviour, the perfectionist’s tireless efforts are not exerted with success in mind, but rather a fear of failure and the sense of personal inadequacy that accompanies unsuccessful goal attempts. Moreover, the perceptual lens through which performance is evaluated, characterised by harsh critical tendencies, suggest the perfectionist will experience a consistent discrepancy

between desired and actual standards, leading to maladaptive cognition, affect, and achievement strategies occur (Hall, 2006).

In summary, perfectionism is defined in the current programme of research as a universally debilitating, multidimensional construct. Central to this definition are motivational qualities that energise athletic action, and thus on first view perfectionism may represent a desired quality for sporting performers. Yet perfectionism is more than simply striving towards high standards; rather, perfectionism is as a broad, multifaceted construct that includes high standards with a fear of failure, critical tendencies, and a contingent self-worth. It is only when these characteristics are considered in combination can sport psychologists measure perfectionism in elite junior athletes. This last point is of vital importance in light of the numerous measurement technologies available to sport psychologists when examining perfectionism in elite junior athletes.

2.3. Multidimensional approaches to the definition and measurement of perfectionism

Although early perfectionism scales were unidimensional (e.g., the Burns Perfectionism Scale; BPS; Burns, 1980), a move towards multidimensional measurement technology in the early 1990's was arguably one of the most significant developments in the perfectionism literature, as theorists attempted to capture the complex nature of the construct. In fact, dissatisfaction with previous unidimensional scales has contributed to a proliferation of multidimensional definitions and measures, with Flett and Hewitt (2002b) recently identifying approximately 20 different terms used to define perfectionism. These terms are outlined in Table 2.1 and represent the diversity in which perfectionism represents

Table 2.1. Perfectionism terms and definitions

Active perfectionism	Action tendency resulting from high standards that motivate behaviour
Concern over mistakes	A tendency to have a negative reaction to mistakes, anticipate disapproval, and interpret mistakes as equivalent to failure
Discrepancy	Perceived inability to meet high standards for the self
Doubts about action	Extent to which a person doubts his or her ability to accomplish a task
High personal standards	Setting high standards of great importance imposed on the self
Maladaptive evaluative concerns	Negative aspects of perfectionism reflecting concern over mistakes, doubts about action, parental criticism and expectations, and socially prescribed perfectionism
Negative perfectionism	Perfectionistic behaviour that is a function of negative reinforcement and avoidance tendencies
Negative reactions to imperfection	Experiencing stress and depression in response to imperfection and mistakes with
Neurotic perfectionism	Striving for excessively high standards due to fear of failure and concerns about disappointing others
Normal perfectionism	Striving for reasonable and realistic standards that leads to self-satisfaction and enhanced self-esteem
Organisation	Belief in the importance of neatness and order
Other-oriented perfectionism	Exceedingly high standards for other people
Parental criticism	Belief that parents are overly harsh
Parental expectations	Belief that parents set very high standards for the self
Passive perfectionism	Inaction due to excess concern over mistakes, doubts about action, and dilatory tendencies
Perfectionism cognitions	Automatic thoughts that reflect the need to be perfect and awareness of imperfections
Perfectionistic self-presentation	A style involving the need to appear perfect or avoid appearing imperfect of others
Perfectionistic striving	A positive dimension of perfectionism that subsumes high personal standards and striving towards excellence
Positive achievement strivings	Positive aspects of perfectionism that reflect high personal standards, self-oriented perfectionism, other-oriented perfectionism, and organisation
Positive perfectionism	Perfectionistic behaviour that is a function of positive reinforcement and approach tendencies
Self-oriented perfectionism	High personal standards and motivation to attain perfection
Socially prescribed perfectionism	Perception of unrealistically high standards being imposed on the self
World-oriented perfectionism	The belief that precise, correct, and perfect solutions to all human and world problems exist

Adapted from Flett & Hewitt (2002)

adaptive *and* maladaptive constructs. One consequence of this diversity is a comprehensive body of perfectionism literature, with empirical studies emerging in a variety of domains and samples that suggest perfectionism can take on two forms – namely positive and negative (for a summary, see Flett & Hewitt, 2002a; Hall, 2006; Stoeber & Otto, 2006). However, a further consequence is that the label perfectionism is now allocated to a number of terms that represent a multitude of constructs, many of which are either related to, or key facets of perfectionism. However, these terms do not provide an accurate representation of perfectionism. The seemingly loose employment of the term perfectionism has blurred a conceptual understanding of the construct, and clouds insight into the nature of perfectionism within sport. Furthermore, it has prompted a move away from measuring perfectionism as a universally dysfunctional construct, towards a perspective that conceives perfectionism in two distinct forms; adaptive and maladaptive (see Stoeber and Otto, 2006). It could be argued that such conceptual ambiguity stemmed from the writing of Hamacheck (1978), who proposed an early multidimensional approach to perfectionism. Prior to analysing the various multidimensional perfectionism measures, a consideration of Hamachek's theorising is therefore warranted as it provides a context for the shortcoming associated with a number of these scales.

2.3.1. Hamachek's multidimensional approach to perfectionism

Hamachek proposed two forms of perfectionism; normal perfectionism and neurotic perfectionism. Neurotic perfectionism is conceptually similar to the definition proffered for the current research, and is consistent with historical definitions that identified the debilitating nature of perfectionism. Characterised

by excessively high standards and an inflexible approach when evaluating errors, neurotic perfectionists are overly critical to the extent that they experience little satisfaction with their performance (Hamachek, 1978). This is because minor performance errors are associated with falling short of desired outcomes (Frost, Marten, Lahart, & Rosenblate, 1990). Furthermore, neurotic perfectionists are motivated by fear of failure rather than a desire for excellence (Burns, 1980; Frost et al., 1990; Hamacheck, 1978; Pacht, 1984), and thus when mistakes are encountered they are overgeneralized, to the extent that overall self-worth is undermined (Hewitt & Flett, 1991). This results in achievement striving being intensified as the individual attempts to avoid subsequent performance errors and complete the task to a satisfactory standard (Hall, 2006). Unfortunately, this pattern of achievement striving and accompanying constellation of cognitive processes is never ending, and thus the neurotic perfectionist experiences the type of psychologically debilitating consequences traditionally associated with the perfectionism construct. When defined in this manner, it becomes apparent that Hamachek was justified in assigning the perfectionism label to neurotic perfectionism, because striving towards high standards is accompanied by a constellation of debilitating cognitive and motivational processes that culminates in poor well-being.

What is less clear is why Hamachek (1978) assigned the term perfectionism to his normal perfectionism construct. Individuals demonstrating normal perfectionism strive towards high, yet realistic standards that are determined by one's own strengths and limitations. The normal perfectionist also adopts a flexible approach when evaluating their performance and does not worry

unduly about whether perfection is attained. As a result, these individuals are prone to positive emotions, as they approach achievement contexts in a similar manner to individuals who are high in motivation to approach success and low in failure avoidance (Atkinson, 1957), or who are truly task oriented and evaluate success with self-referenced information (Duda, 2001; Nicholls, 1989; Roberts, 2001).

There are at least two criticisms of Hamachek's normal perfectionism construct. The first argument is summarised by Flett and Hewitt (2006), who argued that the term perfectionist should be reserved for those individuals who place an irrational importance on the attainment of impossibly high standard, and not for individuals who demonstrate a need to perform in an excellent manner. Flett and Hewitt's argument is consistent with early definitions of perfectionism. Both Burns (1980) and Pacht (1984) considered that perfectionism is not a healthy pursuit of excellence or striving toward high standards, but rather an irrational striving towards unrealistic goals that are impossible to attain. Within the context of Hamachek's theorising, normal perfectionists were never conceptualised as being overly concerned with the attainment of perfection (Greenspon, 2000). In fact, Hamachek characterised normal perfectionists as striving for excellence, who experience a sense of self-acceptance as a result of achievement (Greenspon, 2000). While striving for excellence and striving irrationally towards perfection are conceptually similar, they are not equivalent goals (Flett & Hewitt, 2006). With this in mind, the term perfectionism ought not to be assigned to Hamachek's normal perfectionism construct because it fails to capture of a defining feature of perfectionism; namely an irrational pursuit of perfection.

The second argument against Hamachek's (1978) normal perfectionism was originally provided by Greenspon (2000, 2008), and reinforced by Hall (2006) within the context of sport. Greenspon proposed that, in addition to striving relentlessly towards perfection, a number of negative facets are central to a definition of perfectionism. According to Greenspon, both critical evaluative tendencies and feelings of conditional self-acceptance are central to the perfectionism construct, in addition to perfectionistic striving. When goal pursuit occurs in isolation from this negative pattern of cognition, as is the case with normal perfectionism, Greenspon argued that the individual is demonstrating striving for excellence rather than perfectionism. Reinforcing Greenspon's position, Hall also proposed that the psychological processes underpinning normal perfectionism are more closely aligned to adaptive achievement striving rather than perfectionism. In a similar manner to Hamachek's normal perfectionism, Hall contended that adaptive achievement striving is characterised by an intrinsic desire to excel, a sense of satisfaction from goal pursuit, a rational attributional system, integration of mistakes into the learning process, disassociation of self-worth from performance outcomes, and the view of effort as an end in itself, rather than as a means to an end. In light of the similarities, Hall concluded that if researchers are unable to differentiate between achievement characteristics of adaptive motivation and normal perfectionism, it does little more than generate conceptual confusion to refer to adaptive forms of achievement striving by using the term normal perfectionism. In sum, the arguments presented by Greenspon and Hall suggest the term perfectionism should not be associated with Hamachek's normal perfectionism construct. This is because normal

perfectionists fail to demonstrate many (if not all) of the characteristics that are central to historical definitions of perfectionism, but are more closely aligned with adaptive patterns of achievement striving.

Despite the arguments provided by Greenspon (2000, 2008), Flett and Hewitt (2006), and Hall (2006), the term normal perfectionism and its variants have gained popularity in recent years with the creation of a number of perfectionism scales. This has only served to fuel the conceptual ambiguity associated with the definition of the construct, and may underpin the suggestion that perfectionism is a desired quality in sport. One such measure that has made a significant contribution to this discourse is Frost's Multidimensional Perfectionism Scale (MPS-F; Frost et al., 1990).

2.3.2. *The Multidimensional Perfectionism Scale (MPS-F; Frost et al., 1990)*

While the MPS-F has contributed to the discourse of positive perfectionism, Frost and colleagues (1990) original definition of perfectionism captured the maladaptive nature of the construct. Reviewing the historical writing on the topic, Frost et al. noted that virtually all previous descriptions had identified the setting of excessively high standards as central to perfectionism. However, the authors refuted the notion that high standards per se are sufficient to characterise perfectionism. This is because defining perfectionism in this manner does not distinguish perfectionistic people from individuals who are highly successful. Based on Hamachek's distinction between normal and neurotic perfectionism, Frost and his team argued that perfectionism involves "high standards of performance *which are accompanied by tendencies for overly critical evaluations of one's own behaviour*" (p. 450, italics in original), and the

psychological problems experienced by the perfectionists were hypothesised to result from the critical evaluative tendencies rather than setting of excessively high standards. When conceptualised in the manner, it could be argued that the broad perfectionism construct proposed by Frost et al. is universally debilitating. It is somewhat surprising then that the MPS-F has contributed to the adaptive perfectionism discourse. However, an analysis of the subscales comprising the MPS-F and their use in previous research provides clarity on this issue.

The MPS-F comprises six subscales, four of which reflect intra-personal qualities of perfectionism, and two subscales that reflect inter-personal qualities. The process underpinning the first subscale, high personal standard, concerns the setting and achievement of high goals, and was considered to represent an adaptive facet of perfectionism. A second intra-personal aspect of perfectionism is represented by the organisation subscale. Also conceptualised as a positive facet of perfectionism, Frost et al. suggested that it may be a persistent need for organisation that underpins the high achievement striving and motivation displayed by the perfectionist. Previous research has highlighted the adaptive nature of the high personal standards and organisation subscales (see Frost & Di Bartolo, 2002, for a review). As a result, it is now generally accepted within the literature that high personal standards and organisation reflect more adaptive aspects of perfectionism.

The remaining subscales, reflecting both intra- and inter-personal aspects of perfectionism, capture maladaptive facets of the construct. For example, the concern over mistakes subscale represents a preoccupation for avoiding performance-related mistakes. According to Frost et al. (1990), even minor

performance errors constitute failure for the perfectionist, resulting in debilitating cognitive and affective responses. A vague sense of doubt about one's performance quality characterised a second maladaptive subscale. This feeling of doubt is less concerned with specific performance mistakes, but rather that a job remains incomplete. According to Frost and colleagues, perfectionists often perceive that a job remains incomplete, regardless of the quality of the current standard, because of their preoccupation with performance errors. Finally, because perfectionists were identified as placing considerable emphasis on parents' expectations and evaluations, aetiological subscales were included within the MPS-F (i.e., parental expectations and criticism). A positive relationship between these four subscales and negative consequences has emerged (see Frost & Di Bartolo, 2002, for a review), and thus it is generally accepted that concern over mistakes, doubts about actions, and parental expectations and criticism reflect more debilitating qualities of perfectionism.

While the development of the MPS-F has facilitated an impressive body of work, the seemingly functional or dysfunctional nature of the different subscales has encouraged researchers to conclude that perfectionism exists in both adaptive and maladaptive forms. Consistent with Hamachek's original theorising, scores on the high personal standards subscales have been employed to represent an adaptive perfectionism composite, while concern over mistakes, doubts about actions, and parental-based subscales are regularly endorsed as a maladaptive perfectionism composite. However, this approach is inconsistent with Frost et al's (1990) original definition of perfectionism. As suggested above, Frost and his team attempted to avoid the conceptual blur between adaptive achievement

striving and perfectionism by explicitly defining perfectionism as striving towards high standards *accompanied by* overly critical evaluations. Thus, it remains questionable whether the term “perfectionist” can adequately describe an individual who scores high on the adaptive subscales from the MPS-F, but shows little evidence of any of the characteristics traditionally used to represent the maladaptive perfectionism composite score (Hall, 2006). Likewise, the term perfectionism should not be assigned to the maladaptive composite because it does not capture striving towards high standards that is inherent to the perfectionism construct.

Sport psychologists should be especially cognisant of these statements when adopting the original MPS-F, or recently modified versions for sport (e.g., the Multidimensional Perfectionism Scale for Sport-2; Gotwals & Dunn, 2009; also see Anshel, 2006). This is because athletes who strive towards high personal standards may be mistakenly labelled as a perfectionist, when a more accurate label for these performers is adaptive achievement strivers (Hall, 2006). Based on Frost et al’s (1990) original definition, an athlete should only be described as a perfectionist when they score high on all subscales from the MPS-F, and based on historical descriptions of the construct, it is predicted that an overall perfectionism score will be far from adaptive. Support for this position is available in the development of the MPS-F. Frost and colleagues initially reported a series of correlations between a composite perfectionism score and somatization, depression, anxiety, obsessive compulsive disorder, hostility, paranoid idea, and psychoticism, while a subsequent study by Frost and Henderson (1991) suggested athletes’ overall perfectionism scores were significantly correlated with high

levels of anxiety, negative thoughts, and low levels of self-confidence prior to competition, and negative reactions to mistakes during competition.

Further insight to the debilitating nature of the overall perfectionism composite is available from Lundh's (2004; Lundh, Saboonchi, & Wångby, 2008) perfectionism/acceptance theory. According to the perfectionism/acceptance theory, high personal standards or other strivings for perfection are healthy when combined with acceptance of non-perfection (i.e., low in critically evaluative tendencies). Conversely, adaptive perfectionistic strivings are transformed into maladaptive perfectionistic demands when high personal standards are accompanied by critical evaluative tendencies. Lundh et al. considered this second combination the most debilitating and proposed that elevated scores on all subscales of the MPS-F would reinforce historical descriptions that had conceptualised perfectionism as a pathological construct.

In support of the perfectionism/acceptance theory, Lundh et al. (2008) reported findings from a cluster analysis study with a sample of clinical and non-clinical participants. Eleven clusters emerged, comprising different combinations on the MPS-F subscales. Three clusters reported high scores on all dimensions of the MPS-F, and were over-represented in samples reporting social phobia and panic disorders. Moreover, the three clusters reporting high scores on the six MPS-F subscales experienced higher depression compared to the other clusters, who reported lower perfectionism scores. Based on these findings, it can be concluded that maladaptive psychological well-being is characteristic of an individual who demonstrates the necessary qualities to be labelled a perfectionist (i.e., scores high on all dimensions of the MPS-F), reinforcing the universally

debilitating nature of Frost's (1990) conceptualisation of perfectionism.

In sum, Frost et al. (1990) originally proposed a definition of perfectionism that attempted to avoid the conceptual overlap with patterns of achievement striving. However, the development of the Multidimensional Perfectionism Scale (MPS-F), and more recent adapted versions for sport, has only served to further blur the two constructs, as researchers adopt composite subscale scores to represent adaptive and maladaptive forms of perfectionism. This particular approach to the MPS-F has emerged, in part, because Frost et al. (1990) did not stipulate that to be labelled a perfectionist one had to score high on all of the subscales, despite their definition suggesting perfectionism is characterised by both high personal standards and critical evaluative tendencies. Thus, a major drawback of adopting the MPS-F is that it encourages a conclusion that perfectionism exists in both adaptive and maladaptive forms. Yet, both adaptive and maladaptive perfectionism composites fail to capture the multitude of characteristics that are central to Frost et al's definition, and as a result, represent distinct constructs from perfectionism (e.g., adaptive achievement striving, critical evaluative tendencies). An examination of perfectionism with this measurement technology is only possible when individuals score high on all subscales, and when conceptualised in this manner, it is expected that perfectionism will emerge as a debilitating aspect of an athlete's personality. Overall then, the MPS-F has underpinned the conceptual ambiguity regarding perfectionism and the misnomer surrounding adaptive perfectionism. As a result, this measurement technology will not be employed in the current programme of research.

2.3.3. *The Almost Perfect Scale-Revised* (APS-R; Slaney, Rice, Mobley, Trippi, & Ashby, 2001)

In addition to the MPS-F, a number of more recent scales contribute to conceptual ambiguity regarding the term perfectionism. One scale is the Almost Perfect Scale-Revised (APS-R; Slaney, Rice, Mobley, Trippi, & Ashby, 2001). The APS-R was developed in response to dissatisfaction with previous measures that overemphasised the negative aspects of perfectionism. In contrast, Slaney, Ashby and Trippi (1995) proposed that historical attempts to conceptualise perfectionism had consistently suggested that perfectionists have high standards and are organised, which, in and of themselves, are not necessarily problematic. This led Slaney and his colleagues towards a multidimensional conceptualisation that placed equal weighting on the positive and negative facets of perfectionism.

The positive dimensions were consistent with previous attempts to conceptualise perfectionism; a predilection for setting high standards and a need for organisation and order in one's work. The negative concept was labelled discrepancy, defined as "the perception that one consistently fails to meet the high standards one has set for oneself" (Slaney, Rice & Ashby, 2002, p.69). Although assigned a different label compared to previous measures of negative perfectionism, there is a degree of conceptual overlap between the discrepancy items and subscales from the MPS-F (e.g., concern over mistakes and doubts about actions). This is because the discrepancy subscale captures reactions to goal unattainment and a harsh evaluation of one's performance efforts (e.g., "I often feel frustrated because I can't meet my goals" and "I hardly ever feel that what I've done is good enough").

Since the development of the APS-R, a body of research has emerged that confirms the positive effects of high personal standards (and to a lesser extent organisation) and the debilitating nature of discrepancy. The empirical findings have encouraged Slaney, Rice and Ashby (2002) to conclude that there are two forms of perfectionism; adaptive perfectionism (represented by high standards and low discrepancy scores) and maladaptive perfectionism (represented by elevated standards and discrepancy scores). However, this particular conclusion is not without its limitations.

The major criticism of the APS-R is similar to that associated with the MPS-F. That is, high scores on singular perfectionism components are used in isolation to classify individuals as perfectionistic. The majority of studies that employ the APS-R have adopted cluster analytical techniques, which group participants based on similar perfectionistic characteristics. Individuals who score high on personal standards but low on discrepancy have been labelled as adaptive perfectionists. As suggested above, it remains questionable whether individuals within this cluster can be described as “perfectionists” when they report low scores on characteristics that are central to a definition of perfectionism (Hall, 2006). This is not to suggest that perfectionism does not include adaptive facets, as striving towards high standards undoubtedly has an energising effect. A more appropriate term for individuals who report elevated scores on personal standards and low discrepancy is adaptive achievement strivers, while the term “perfectionist” should be reserved for those individual who report high scores on both subscales of the APS-R. Adopting this stringent criterion when assigning the perfectionist label may help overcome the conceptual blur that has emerged

between perfectionism and adaptive patterns of achievement striving, and the avoidance of conceptualising perfectionism in an adaptive form.

Support for the proffered criticism of the APS-R is available from Alden, Ryder, and Melling's (2002) two-component model of perfectionism. According to Alden et al's model, two orthogonal elements appear to characterise perfectionism. Component one reflects a tendency to strive for elevated goals. This component is conceptually similar to Slaney et al's (2002) high standards subscale. Although assigned a different label to Slaney et al's discrepancy subscale, the second component proposed by Alden and colleagues shares many of the same qualities as discrepancy. Termed "maladaptive self-appraisal", this second component reflects a sense of personal inadequacy and neurotic self-doubt accompanied by a pathological self-appraisal that accentuates small behavioural disfluencies and perceptions of goal discrepancy.

Based on their model, Alden et al. (2002) proposed that high standards will only be pathological when accompanied by a maladaptive self-appraisal. That is, an individual will not experience social anxiety when high standards occur in isolation from maladaptive self-appraisal. Individuals who are characterised in this manner (i.e., high personal standards, low maladaptive self-appraisal) were labelled "high in achievement motivation" by Alden et al., rather than adaptive perfectionists. The terminology adopted by Alden and colleagues is appropriate because high achievers fail to demonstrate elevated scores on the second component, maladaptive self-appraisal, which is central to the definition of perfectionism. A similar argument can be adopted when critiquing the APS-R. Individuals who are labelled as adaptive perfectionists are classified in this

manner based on personal standards only, rather than a combination of high scores on both positive and negative facets. However, there seems little reason to assign the perfectionist label to this particular cluster if one considers the argument provided by Alden et al.

For Alden et al. (2002), the term perfectionism is best reserved for individuals who report elevated scores on both components of their model. This is consistent with the argument that perfectionism is more than simply striving towards high standards (Flett & Hewitt, 2006; Greenspon, 2000, 2008; Hall, 2006). Alden et al. also suggested the combined effects of high personal standards *and* high maladaptive self-appraisal account for the pathology experienced by perfectionists. This proposal reinforces the suggestion that when central defining facets are considered not in isolation, but in combination, perfectionism is a debilitating personality disposition that is far from adaptive. Interestingly, studies that have employed the APS-R support this position. When high standards are accompanied by elevated scores on the discrepancy subscale, a second cluster emerges which is consistently termed “maladaptive perfectionists”. While Slaney et al.’s discrepancy subscale and Alden et al.’s maladaptive self-appraisal component have different labels, they are conceptually similar facets of perfectionism, and thus researchers who employ the APS-R are justified in labelling this second cluster with the term perfectionism because this group of individuals meet Alden et al.’s conceptual criteria of perfectionism. In other words, maladaptive perfectionists report high scores on both adaptive and maladaptive facets of the construct. An inspection of the APS-R literature confirms Alden et al.’s suggestion that when adaptive and maladaptive facets of

perfectionism are considered in combination, perfectionists consistently report of host of maladaptive cognitive, affective, and behavioural responses. This is because the maladaptive perfectionists cluster is consistently associated with debilitating psychological well-being.

In summary, the APS-R is a 3-subscale measure that focuses upon positive and negative forms of perfectionism. When the combined effects of both high standards and discrepancy are considered, researchers are justified in reporting upon the effects of perfectionism. However, because high personal standards and low scores on the discrepancy subscale have been employed to represent an adaptive form of perfectionism, it is argued that the APS-R has further blurred the divide between adaptive achievement striving and perfectionism. The adaptive perfectionists cluster fails to demonstrate the range of characteristics central to the perfectionism definition, and by assigning the perfectionist term to this group it is concluded that the APS-R demonstrates similar limitations to the MPS-F. In light on this contention, the APS-R will not be employed in the current research.

2.3.4. Positive and Negative Perfectionism Scale (PNPS; Haase & Prapavessis, 2004; Terry-Short, Owens, Slade, & Dewey, 1995)

One of the criticisms associated with the MPS-F and APS-R is that both scales mistakenly classify individuals as perfectionists based on elevated high personal standards only, when adaptive achievement strivers seems a more appropriate label (Hall, 2006). A similar criticism can be forwarded in response to the Positive and Negative Perfectionism Scale (PNPS; Haase & Prapavessis, 2004; Terry-Short, Owens, Slade, & Dewey, 1995). The PNPS was originally developed by Terry-Short et al. (1995), who proposed a theoretical basis for the

distinction between positive and negative forms of perfectionism. In line with traditional learning-theory (Skinner, 1968), Terry et al. considered that perfectionism can be viewed from a radical behavioural perspective, and that the consequences of behaviour are more central to a conceptualisation of the construct than the form of behaviour. Thus, positive perfectionism is underpinned by positive reinforcement and refers to a constellation of cognitions and behaviours driven by a need for success and approach behaviour. In contrast, negative perfectionism is driven by negative reinforcement and a fear of failure, as the individual attempts to avoid or escape the potentially negative consequences of goal pursuit. Slade and Owens (1998; 2008) later explained the theoretical features of positive and negative perfectionism via a dual process model; negative perfectionism is conceptualised as avoidance behaviour, where the individual strives relentlessly towards the avoidance of failure and imperfection, while mediocrity fuels dissatisfaction, displeasure and dysphoria. Conversely, positive perfectionism is hypothesised to be underpinned by approach behaviour, focused upon the pursuit of excellence, concerned with the ideal-self, and associated with adaptive emotional consequences.

In response to the dualistic model of perfectionism, Flett and Hewitt (2006) suggested that positive perfectionism should not be considered a form of perfectionism because it fails to capture many (if not all) of the defining characteristics associated with the construct. Owens and Slade (2008) have recently clarified their position regarding Flett and Hewitt's objections, and have provided an interesting argument as to why the positive perfectionism subscale will be associated with adaptive outcomes. However, in doing so, Owens and

Slade fail to provide a theoretical justification for labelling positive perfectionism with the perfectionism term. In fact, their only justification seems to be that positive perfectionism is a term commonly used within the scientific and lay community, and thus it may be easier to remain consistent with other perfectionism scales that include measures of positive perfectionism than break an established mind-set. The question still remains, however; what is perfectionistic about the positive perfectionism scale?

While Terry-Short and colleagues (Slade & Owens, 1998; Terry-Short et al., 1995) formulated the PNPS within a sound theoretical framework, the item content of the positive perfectionism subscale is problematic because it seems more closely affiliated with adaptive achievement striving rather than perfectionism (e.g., “I feel good when pushing out the limits”; I get fulfilment from totally dedicating myself to a task). In fact, Slade and Owens (1998) concluded that their positive perfectionism construct encompasses specific facets underpinning conscientiousness (i.e., competence, order, and achievement striving) (Flett & Hewitt, 2006), and thus it is questionable whether the term perfectionism can be associated with a form of achievement striving that operates in isolation from maladaptive self-appraisals, critical self-evaluative tendencies, and a fear of failure. Recent empirical evidence to support the re-labelling of positive perfectionism as adaptive achievement striving is available in the work of Hill, Hall, Appleton, Kozub (2007).

Hill et al. (2007) hypothesised that the positive perfectionism subscale of the PNPS would demonstrate strong correlations with key indicators of adaptive achievement striving when controlling for the effects of the negative

perfectionism subscale, and that the emergence of such correlations would strengthened a call to re-label positive perfectionism as adaptive achievement striving. A series of partial correlations revealed that positive perfectionism was indeed associated with mastery and performance approach goals, intrinsic forms of motivation, high personal standards, low levels of self-focused attention, and low fear of failure. These findings do not dispel Owens and Slade's (2008) argument that the positive perfectionism subscale will lead to adaptive functioning that may well underpin athletic performance. However, the implications of Hill et al's study are that a large degree of overlap exists between the positive perfectionism subscale and adaptive patterns of achievement striving. If this is the case, then there seems little reason to assign this particular subscale with the perfectionism terminology because it only serves to fuel the misnomer that is adaptive perfectionism. This argument is further strengthened if one considers the high personal standards and striving for excellence that define positive perfectionism exist in isolation from many of the maladaptive characteristics that are essential to a definition of perfectionism. It is for these reasons that the PNPS will not be employed in the current research as a measure of perfectionism.

In conclusion, two important points regarding the conceptualisation and measurement of perfectionism emerge via a consideration of the MPS-F, APS-R, and the PNPS. The first point is that a form of perfectionism with seemingly positive, adaptive connotations has emerged in sections of the literature that reflect high scores on striving towards high standards and excellence (and, in part, organisation) only. Researchers justify their decision to label high personal standards with the term perfectionism based on Hamachek's (1978) theorising

regarding normal perfectionists. However, others (e.g., Flett & Hewitt, 2002b; 2006; Greenspon, 2000, 2008; Hall, 2006) have argued that subscales or composite scores of adaptive perfectionism do not reflect the multitude of characteristics that are central to a definition of perfectionism, and consequently alternative labels should be adopted when describing this form of achievement striving (e.g., adaptive achievement striving, striving for excellence, conscientiousness). Second, Flett and Hewitt, Greenspon, and Hall have all argued that perfectionism is a term best reserved for a construct that reflects striving towards perfection *that occurs simultaneously with* critical tendencies, a fear of failure, and a contingent self-worth, because it allows researchers to distinguish between adaptive patterns of motivation and perfectionism. When defined in this manner, it is expected that perfectionism, whilst energising action and underpinning motivation, will be a debilitating personality disposition that is associated with negative outcomes in sport. Further support for this contention can be gleaned from the consistent relationship between adaptive and maladaptive perfectionism facets that dominant the perfectionism research.

2.4. The relationship between adaptive and maladaptive perfectionism

Complementing the perspective that perfectionism is more than high personal standards, Flett and Hewitt (2006) encouraged those researchers who adopt separate adaptive and maladaptive perfectionism composites to remain cognisant of the fact that they (i.e., the perfectionism forms) often coexist. The implications of Flett and Hewitt's suggestion for an understanding of perfectionism is that people who strive towards perfection may simultaneously engage in critical evaluative tendencies, experience a strong fear of failure, and an

overriding sense of worthlessness, which will undoubtedly render them vulnerable to poor psychological health (Soenens, Luyckx, Vansteenkiste, Luyten, Duriez, & Goossens, 2008; Soenens, Vansteenkiste, Vandereycken, Luyten, Sierens, & Goossens, 2008). The possibility thus exists that the adaptive psychological functioning and impressive performance standards that occur in response to high personal standards will eventually be replaced by the maladjustment inherent to the negative facets of perfectionism. While longitudinal research is clearly required to confirm this position, initial support can be gleaned from the research of Stoeber and colleagues (Stoeber & Becker, 2008; Stoeber & Eismann, 2007; Stoeber, Hutchfield, & Wood, 2008; Stoeber & Kersting, 2007; Stoll, Lau, & Stoeber, 2008; Stoeber, Otto, Pescheck, Becker, & Stoll, 2007; Stoeber & Rambow, 2007; Stoeber, Stoll, Salmi, & Tiikkaja, 2009; Stoeber, Uphill, & Hotham, in press).

As a conceptual basis for their research, Stoeber and Otto (2006) provided a comprehensive overview of existing research literature that adopted either a dimensional or group-based approach to examining perfectionism. Based on this review, Stoeber and Otto suggested that perfectionism contains both healthy and unhealthy facets, which they subsequently captured within the Multidimensional Inventory of Perfectionism (MIP; see Stoeber, Otto et al., 2007). The healthy dimension of perfectionism was labelled perfectionistic striving, and was reflective of high personal standards and positive perfectionism subscales from previous measures. The second subscale comprised the negative evaluative tendencies evident in previous measures of maladaptive perfectionism dimensions, and was labelled negative reactions to imperfection.

While Stoeber and his team have provided empirical support for their conceptual model, it should be noted that perfectionistic striving is consistently linked with the negative reactions to imperfection subscale, with the correlation ranging from .30 to .63. The emergence of this relationship has encouraged Stoeber to conclude that individuals who strive for perfection are also likely to react negatively when they do not achieve the perfect result (Stoeber, Hutchfield, et al., 2008; Stoeber, Otto, et al., 2007; Stoeber, Stoll, et al., 2008), rendering them vulnerable to maladjustment. With regards to this point, the findings of Stoeber, Otto, et al. (2007) and Stoeber and Rambow (2007) are particularly revealing. Stoeber, Otto, and colleagues (2007) reported that a composite score of perfectionistic striving and negative reactions to mistakes was associated with high cognitive and somatic anxiety within four samples of athletes, while an inverse relationship between perfectionistic striving and depressive symptoms in Stoeber and Rambow's study was more pronounced in students with lower levels of negative reactions to imperfection. These findings reinforce the earlier suggestion that, when conceptualised in a consistent manner with historical descriptions, perfectionism has negative implications for well-being.

The implications of Stoeber's work for a conceptualisation of perfectionism are that the construct undoubtedly has desired qualities which, in isolation, encourage adaptive cognitions, positive affect, and patterns of favourable achievement behaviour in sport. However, striving to achieve difficult goals is a necessary, but not necessarily a sufficient condition to define perfectionism, and thus high personal standards should not be labelled as perfectionism. When the combined effects of perfectionistic striving and negative

reactions to mistakes are examined, perfectionism emerges as a personality disposition that is far from adaptive, underpinning a host of outcomes that range from mildly debilitating to severely pathological. It is for this reason that within the current studies, perfectionism is conceptualised as a negative aspect of an athlete's personality; a view that is consistent with Hewitt and Flett's (1991; 2002b; 2006) multidimensional approach.

2.5. Hewitt and Flett's multidimensional approach to perfectionism

Hewitt and Flett's (1991; also, see Flett & Hewitt, 2002b) conceptualisation avoids the ambiguity evident in the aforementioned approaches, because rather than reflecting the multidimensional nature of perfectionism in adaptive and maladaptive composites, three distinct perfectionism types were proposed, each with a debilitating nature. Containing either an intra-individual or inter-personal focus, each form of perfectionism captures many of the defining characteristics that are central to historical descriptions of the construct. Hewitt and Flett's dimensions include other-oriented perfectionism (OOP), socially prescribed perfectionism (SPP), and self-oriented perfectionism (SOP), and are measured by the Multidimensional Perfectionism Scale (MPS-HF).

OOP has an inter-personal focus, and characterises individuals who demand unrealistic standards and perfection of others, and stringently evaluate others' performance (Hewitt & Flett, 1991). Furthermore, this form of perfectionism is associated with other-focused conditional acceptance (see Lundh, 2004). In other words, the perfectionist's acceptance and approval of significant others is only forthcoming on those occasions when others attain unrealistically high standards. Although OOP may represent high confidence and resemble

desirable leadership qualities, this form of perfectionism equally contains hostile or aggressive overtones (Habke & Flynn, 2002) and can undermine interpersonal relationships and group cohesion because the other-oriented perfectionist is rarely satisfied with the performance attainment or achievement striving displayed by significant others (Flett & Hewitt, 2002b). Consistent with Hewitt and Flett's conceptualisation, other-oriented perfectionists are predominantly engaged in dysfunctional other-directed behaviours, such as domineering others (Hill, Zrull, & Turlington, 1997), authoritarian leadership style (Hewitt & Flett, 1991), inter-competitiveness (Flett, Hewitt, Blankstein, & Dynin, 1994), lack of patient with others (Flett et al., 1994), conflictual coping strategies (Haring, Hewitt, & Flett 2003), other-directed blame and assertiveness (Hewitt and Flett, 1991; Flett, Hewitt, & DeRosa, 1996), and dissocial behaviour (Sherry, Hewitt, Flett, Lee-Bagley, & Hall, 2007). A recent study by Kozub, Appleton, Hall, and Hill (2008) also confirms the debilitating nature of OOP for interpersonal relationships in sport. With a sample of female and male team-based athletes, Kozub et al. reported a positive correlation between OOP and active-destructive conflict resolution strategies.

The second perfectionism dimension outlined by Hewitt and Flett (1991) was similar in nature to OOP, but the pattern of behaviour was intra-personal in nature. SOP is characterised by intemperate striving to attain perfection and the tendency to respond to substandard performance with a negative self-appraisal. Because both motivational approach and failure avoidant tendencies are thought to underpin the characteristics of a self-oriented perfectionists (Hall, 2006; Hewitt & Flett, 1991), the congruence between this form of perfectionism and

Covington's (1992) overstriving has been identified (Flett & Hewitt, 2006; Hall, 2006; Hall, Kerr, Kozub, & Finnie, 2007). In particular, the pattern of behaviour and the psychological processes fuelling the behaviour of self-oriented perfectionists is conceptually similar with that of an overstriver (Hall, 2006).

Overstrivers are both repelled by and attracted to achievement at the same time, and thus a fear of failure and motive towards success fuel their achievement motivation (Covington, 1992). This is conceptually similar to self-oriented perfectionists, who can demonstrate great achievements because of the motivational component inherent to this form of perfectionism. However, such intense motivation is underpinned by a fear of failure, and thus the related achievement cognition, affect and behaviour are focused upon protecting self-worth and are often self-defeating (Hall, 2006).

Hall (2006) explained the debilitating nature of the self-oriented perfectionist's motivational approach. According to Hall, even a single instance of failure can be debilitating to a self-oriented perfectionist, because it confirms fears that the successful accomplishment of self-set high standards may not be possible, despite the expenditure of maximal effort. This is particularly problematic because, according to Flett and Hewitt (2005; 2006), the perceived achievement of perfection is a necessary condition for the self-oriented perfectionist to feel worthy. Flett and Hewitt confirmed the debilitating nature of SOP, noting that the anxiety, depression, anger and guilt associated with this form of perfectionism is a function of an internal locus of control. Striving towards their own self-determined standards means that when failure does occur, the self-oriented perfectionist takes personal responsibility for undesirable achievement outcomes.

In turn, performance errors reflect poorly on self-worth and reflect in strong negative emotions, which are regularly experienced as the individual continually falls short of their own high standards (Hall, 2006). Overall then, SOP, while characterised by intense achievement striving, is a form of perfectionism that will eventually lead to poor psychological functioning.

The final dimension proposed by Hewitt and Flett (1991), SPP, involves the perception that significant others impose unrealistic standards on the self, that attempts at attainment are evaluated stringently by others, and that significant others withhold approval until perfect standards are obtained. While SPP demonstrates similarities to SOP, in that it is inwards focused and correlated with a number of maladaptive emotional consequences such as anger, anxiety and depression (for a summary of emotional outcomes see Flett & Hewitt, 2002a), the psychological processes underpinning the two forms of perfectionism differ. Because SOP involves a striving towards internally set-standards, an intrinsic desire for self-improvement and perfection characterises this form of perfectionism. Conversely, the motivational regulation guiding SPP tends to be low in self-determination (Hewitt and Flett, 1991), demonstrating characteristics of introjection such as anxiety, pressure and guilt (Deci & Ryan, 1995). This is because the socially prescribed perfectionists strive towards externally-determined standards, and in an effort to please others, their motivation is fuelled by a sense of obligation towards others, rather than through an intrinsic desire to achieve (Hall, 2006).

When achievement striving is regulated in this manner, a sense of control

over performance standards is reduced. That is, because the socially prescribed perfectionist is motivated towards standards of achievement that are pre-determined by significant others, and the performance process is critically evaluated by these same individuals, their perception of control over performance outcomes becomes largely external (Periasamy & Ashby, 2002). Hall (2006) proposed that this external focus limits the degree of control a socially prescribed perfectionist can exercise over performance outcomes, and thus the individual can mistakenly summarise that their efforts have been futile when the result of the achievement striving is perceived as discrepant from externally-set standards. The resulting implications of this external focus for SPP are a range of motivationally dysfunctional behaviours such as helplessness, poor coping, procrastination and hopelessness (Hewitt & Flett, 1991).

Further insight into the debilitating nature of Hewitt and Flett's (1991) perfectionism dimensions, and in particular SOP and SPP, can be gained from Campbell and Di Paula's (2002) work. According to Campbell and Di Paula (2002) SOP and SPP can be considered in terms of two lower-order sub-beliefs. With regards to SPP, the first reflects a belief that others hold high standards for the self (Other's High Standards). The second, labelled Conditional Acceptance, reflects the belief that love and acceptance is contingent upon attaining externally imposed achievement standards. The results of a correlation analysis revealed the debilitating nature of SPP can be explained by conditional acceptance, rather than the perception that other's hold high standards. This is because conditional acceptance was correlated with depression, neuroticism, negative affect, and goal instability in a positive manner. In addition, conditional acceptance was

negatively associated with self-esteem, extraversion, agreeableness, conscientiousness, openness, positive affect, and self-concept clarity.

The others' high standards belief, in contrast, was not associated with problematic outcomes. The relationship between the total SPP dimension and each dependent variable was also examined, and while it was significantly related to problematic variables, the conditional acceptance belief showed stronger relationships. Thus, the deleterious concomitants of SPP appear to be derived almost exclusively from the perception that one's acceptance by others is conditional upon attaining perfection (Campbell & Di Paula, 2002). On reflecting upon these findings, Hall (2006) proposed that the prominent motive underpinning SPP is fear of failure, and it is this, in combination with an inherent need to protect self worth, that captures the destructive nature of SPP for both achievement striving and psychological well-being.

With regards to SOP, the two sub-beliefs identified by Campbell and Di Paula (2002) included the 'Importance of Being Perfect' and 'Perfectionistic Striving'. Importance of being perfect reflects a belief that perfection is an important state, and thus emphasis is placed upon achievement. However, a rigid achievement criterion is associated with this belief, and thus limited room is available for mistakes. The perfectionistic striving belief reflects the perception that one strives for perfection through the active pursuit of high standards. The behaviour associated with this belief will see the individual demonstrate a positive approach towards success (Campbell & Di Paula, 2002).

Campbell and Di Paula (2002) highlighted a positive relationship between the perfectionistic striving belief and self-esteem, extraversion, conscientiousness,

openness, positive affect, and self-concept clarity. In contrast, a negative relationship emerged with depression, neuroticism, negative affect, and goal instability. The second sub-dimension, importance of being perfect, was negatively correlated with self-esteem, and uncorrelated with depression, neuroticism, extraversion, agreeableness, negative and positive affect, self-concept clarity, and goal instability, suggesting the debilitating nature of SOP can be derived primarily from this second belief. It should be noted, however, that an importance of being perfect belief was also positively correlated with conscientiousness, a finding which encouraged Hall (2006) to conclude that SOP is reflective of a motive to achieve success.

The suggestion that SOP appears to be regulated by a more adaptive focus has fuelled an argument within the perfectionism literature (see Flett & Hewitt, 2006) that self-oriented perfectionists will experience positive psychological and behavioural outcomes. This argument stems, in part, from an exploratory factor analysis (EFA) conducted by Frost, Heimberg, Holt, Mattaia, and Neubauer (1993) who examined the relationship between perfectionism dimensions from both the MPS-F and the MPS-HF. The results of the EFA revealed two high-order factors that were labelled perfectionistic striving and maladaptive evaluated concerns. Despite SOP characterising achievement behaviour focused upon the attainment of perfection *and* negative self-evaluation, this form of perfectionism loaded on the perfectionistic striving factor. Moreover, the two higher-order factors demonstrated conceptually consistent associations with measures of positive and negative affect experienced by college students. A number of additional EFA studies (e.g., Bieling, Israeli, & Antony, 2004;

Blankstein & Dunkley, 2002; Cox, Enns, & Clara, 2002; Dunkley, Zuroff, & Blankstein, 2003; Slaney et al., 1995) support the initial findings of Frost and colleagues, which seem to reinforce Hamachek's normal/neurotic perfectionism distinction. Despite these findings, however, Flett and Hewitt (2002b; 2006) maintain that SOP is a debilitating form of perfectionism.

There are a number of points that warrant consideration in support of Flett and Hewitt's (2002b; 2006) position relating to the nature of SOP. First, Campbell and Di Paula's (2002) study indicates why adaptive and maladaptive consequences are associated with SOP, but that the overall construct should be conceived of as maladaptive. Campbell and Di Paula demonstrated that the perfectionistic striving belief may account for the positive outcomes associated with SOP, while the importance of being perfect belief accounts for debilitating consequences. However, Hewitt and Flett's (1991) original conceptualisation of SOP included both sub-beliefs, and thus it is important to consider the combined implications of the sub-beliefs to gain a complete understanding of SOP. Related to this, Campbell and Di Paula argued that the positive effects of perfectionist striving are masked when the combined effects of both sub-beliefs are considered. In other words, SOP only has a positive effect when a Perfectionistic Striving belief is in operation. However, within Hewitt and Flett's conceptualisation, SOP is not simply characterised by a perfectionistic striving belief, but a combination of the two beliefs. When defined in this manner, the self-critical qualities that characterise self-oriented perfectionists will mask the positive effects of perfectionistic striving, and render these individuals vulnerable to a host of debilitating outcomes when placed under stressful conditions. It is for this reason

that SOP, as originally conceptualised by Hewitt and Flett, is not a good indicator of positive, normal perfectionism (Hall, 2006; Stoeber, Harris, & Moon, 2007), but rather a form of perfectionism that may lead to poor psychology well-being in athletes.

A second related point is that SOP functions as a core vulnerability factor, and may be involved in either the direct onset of psychological problems or the exacerbation of symptoms severity in the presence of achievement stressors or negative life events (Flett, Hewitt, Endler & Tassone, 1995; Hewitt & Flett, 1993; 2002; Hewitt, Flett & Ediger, 1996). Under these conditions, the psychological processes reflective of overstriving become activated, and the self-oriented perfectionist intensively strives for success in order to avoid failure (Hall, 2006).

Evidence to support the vulnerable nature of SOP is evident in a number of empirical studies. For example, two studies by Hewitt and Flett (1993) revealed that SOP interacted with self-related achievement hassles to predict concurrent depression in depressed individuals and psychiatric patients. In a later study with children and adolescents, Hewitt, Caelian, Flett, Sherry, and Collins (2002) reported that SOP interacted with social stress to predict anxiety, and with achievement and social stress to predict depression. More recently, research with a sample of golfers indicates that SOP is not maladaptive for relatively successful golfers, but it is associated with negative thoughts and reactions to mistakes among less successful golfers (Wieczorek, Flett, & Hewitt, 2003).

Thus, while self-oriented perfectionists may deal effectively with most daily events and continue to function in a seemingly adaptive manner, they are prone to debilitating outcomes when placed in environments that are appraise as

threatening. Due to the competitive nature of sport and the opportunity to experience failure, it is expected that SOP will be especially debilitating for athletes, and is therefore conceptualised in the current programme of research in a manner consistent with Hewitt and Flett's original theorising; a form of perfectionism that can lead to debilitating cognition, negative affect, and achievement behaviours aimed at protecting self-worth.

In conclusion, by reinforcing the negative implications of different forms of perfectionism for intra- and inter-personal functioning, Hewitt and Flett (1991; Flett & Hewitt, 2002b) have provided a multidimensional approach to perfectionism that is consistent with historical descriptions of the construct. Furthermore, because Hewitt and Flett provide a consistent argument that reinforces the dysfunctional nature of SOP, SPP, and OOP, one is able to clearly distinguish between athletes characterised by adaptive forms of achievement striving, and individuals who demonstrate dispositional perfectionism. In light of these reasons, and the conceptual limitations of other perfectionism inventories (e.g., MPS-F, APS-R, PNPS), the perfectionism measure adopted in the current research is Hewitt and Flett's (1991) Multidimensional Perfectionism Scale. The MPS-HF will be employed in the current work to examine the aetiology of perfectionism in elite junior athletes. Prior to examining the development of perfectionism, however, it is vital to first examine the factor structure of the MPS-HF in sport, and ensure that the proposed subscales of the MPS-HF are measuring their intended constructs (i.e., SOP, SPP, OOP). The first study will therefore examine the underlying structure of Hewitt and Flett's measurement technology with a sample of athletes, using Confirmatory Factor Analysis (CFA).

Chapter Three: Examining the factor structure of the MPS-HF in elite junior athletes

The purpose of chapter three was to empirically test the factor structure of Hewitt and Flett's (1991) Multidimensional Perfectionism Scale (MPS-HF) with a sample of elite junior athletes. In developing their measure of perfectionism, Hewitt and Flett failed to extend their analyses to a confirmatory factor analysis (CFA). CFA is vital in establishing the factor structure of a scale across a diverse range of individuals, and thus prior to adopting the MPS-HF with elite junior athlete, sport psychologist should attend to this issue. Based on the findings of Cox et al. (2002), it was hypothesised that the original 45-item MPS-HF structure would fail to emerge in the current study, and consequently an exploratory factor analysis (EFA) would be required to determine a better fitting structure. When conducting EFA, it was envisaged that each perfectionism subscale would be better represented by fewer items (i.e., 5). The revised subscales would then be subjected to a further CFA and examined for internal reliability.

3.1. The Multidimensional Perfectionism Scale (MPS-HF; Hewitt & Flett, 1991)

In response to their conceptualisation, Hewitt and Flett (1991) developed the MPS-HF that incorporated the multidimensional nature of the perfectionism construct. An exploratory factor analysis with 45 items initially confirmed the existence of three factors, which reflected Hewitt and Flett's proposed dimensions of perfectionism (SOP; e.g., "I must always be successful at school or work") (SPP; e.g., "The people around me expect me to succeed at everything I do")

(OOP; e.g., “Everything that others do must be of top-notch quality”). In their original report, Hewitt and Flett demonstrated the internal consistency of each subscale, with Cronbach’s alphas ranging from .82 for OOP, .86 for SOP, and .87 for SPP. Three month test-re-test reliability was also established; the *r* values were .88 for SOP, .85 for OOP, and .75 SPP.

The convergent, discriminant, and concurrent validity of the MPS-HF was established by Hewitt and Flett (1991), who investigated the relationship between the three perfectionism subscales and a host of outcome measures. As predicted by Hewitt and Flett (1991), SPP showed the strongest relationship with debilitating outcomes, including fear of negative evaluation, need for approval, external locus of control, subscales from the Symptom Checklist scale (SCL-90; Derogatis, 1983), and schizoid, avoidant, and passive-aggressive dimensions of the Milton Clinical Multiaxial Inventory (MCMI; Millon, 1983). This form of perfectionism was also significantly correlated with academic standards, indicating that socially prescribed perfectionists placed great importance on achieving high academic goals. Confirming the inter-personal nature of OOP, this form of perfectionism was correlated with other-directed traits, including authoritarianism, dominance, and a tendency to blame others. OOP was also predictive of clinical personality traits characterised by a histrionic, narcissistic, and anti-social nature. Finally, as expected, SOP was associated with a range of self-focused personality measures, including high self-standards, self-criticism, self-blame, as well as general maladjustment, guilt, self-disappointment, anger, and clinical symptoms such as hypomania and alcohol abuse. With regards to the concurrent validity of the MPS-HF, Hewitt and Flett and Hewitt, Flett, Turnbull-

Donovan, and Mikail (1991) considered the relationship between their subscales and Burn's (1980) Perfectionism Scale (BPS). In the original paper (Hewitt & Flett, 1991), all three subscales from the MPS-HF were positively correlated with the BPS, while in the Hewitt et al. (1991) paper, SOP and SPP, but not OOP, showed significant associations with Burn's measure.

Since the early attempts to establish the psychometric properties of the MPS-HF, Hewitt and Flett's measure of perfectionism has been used extensively in studies examining a wide range of outcomes across a variety of samples. Recently, the MPS-HF has also emerged as a measure of perfectionism in sport and exercise (Appleton, Hall, & Hill, in press; Dunn, Gotwals, & Causgrove Dunn, 2005; Hall, Hill, Appleton, & Kozub, 2008; Hill et al., 2008). An examination of this small body of research confirms the internal consistency of the MPS-HF subscales in athletes, with Cronbach's alpha $>.82$ for the SOP subscale, $>.73$ for the SPP subscale, and $>.76$ for the OOP subscale. Furthermore, SOP and SPP dimensions are predictive of unconditional self-acceptance, labile self-esteem, and exercise dependence in samples of runners (Hall et al., 2008), and burnout and unconditional self-acceptance in elite junior soccer players (Appleton et al., in press; Hill et al., 2008).

The evidence to date supports the MPS-HF as a measure of perfectionism, and researchers have subsequently developed an impressive body of research using Hewitt and Flett's (1991) approach that confirms that debilitating nature of SOP, SPP, OOP. Before sport and exercise psychologists continue to employ the MPS-HF as a measure of perfectionism in athletes, however, they should remain cognisant of two issues. First, Hewitt and Flett (1991) did not conduct

confirmatory analysis to evaluate the proposed factor structure of their scale (Cox et al., 2002). The employment of CFA is vitally important when establishing any measurement technology in psychology, as researchers look to confirm the proposed factor structure of their scale across a diverse range of participants. When developing their scale, Hewitt and Flett (1991) limited their measurement analysis to an EFA with Canadian undergraduate students and psychiatric patients, and failed to confirm this structure with additional samples. In response to this limitation, Martinent and Ferrand (2006) recently conducted an EFA on the SPP and OOP subscales using the responses of French athletes. Although EFA revealed two factors representing SPP and OOP subscales, a number of items failed to load on their respective subscales. Moreover, Martinent and Ferrand's findings are somewhat limited because the SOP subscale was not included in the EFA.

An inspection of Martinent and Ferrand's (2006) findings reveal consistencies with Hewitt and Flett's (1991) initial report. For example, the results of study two from Hewitt and Flett (1991) revealed a number of items that failed to load on their respective factor across the students and patients samples. For the student sample, two items developed to measure OOP had small factor loadings on this subscale, but had slightly higher loadings on SPP. In terms of the psychiatric sample, one item intended to measure SOP and one item with a focus upon SPP loaded on OOP, while the final OOP subscale only contained ten items because five items loaded complexly on other subscales.

It is interesting to note that despite the findings reported by Hewitt and Flett (1991), researchers have continued to employ the original 45-item MPS-HF

without reservation. This point was originally forwarded by Cox et al. (2002), who reinforced the problematic nature of the MPS-HF's original structure. The authors identified that previous studies had failed to evaluate the structure of the MPS-HF in either clinical or non-clinical samples. As a result, they provided an empirical test of the 3-factor model proposed by Hewitt and Flett (1991) with two samples; a clinically distressed sample and a sample of first-year psychology undergraduate students. Across both samples, confirmatory factor analyses failed to support the original structure of the MPS-HF. An EFA was then employed to identify five core items that best represented each of Hewitt and Flett's original perfectionism dimensions in the student sample, and a CFA with the clinical sample confirmed the fit of the revised subscales. In response to their findings, Cox et al. concluded that, although the original 3-factor structure of the MPS-HF was justified, the underlying structure may be best captured by fifteen, and not forty five, of the most salient or marker-type items. The conclusions of Cox et al. were recently confirmed in the context of sport. Using a sample of 209 French Canadian athletes, Gaudreau and Antl (2008) employed confirmatory factor analysis techniques and supported the structure of Cox et al's revised 15-item MPS-HF.

Cox et al's revised MPS-HF is especially appealing because, not only does it produce a sound factor structure, but the time and effort on the part of respondents is an important concern when conducting research (Cox et al., 2002). However, prior to adopting this brief perfectionism scale with elite junior athletes, researchers should conduct their own EFA to determine whether the items identified by Cox and his colleagues are in fact the most salient or marker-type

items of Hewitt and Flett's (1991) perfectionism subscales in athletes. This is because the work of Cox et al. did not include elite junior athletes, while the CFA conducted by Gaudreau and Antl (2008) was isolated to French adult athletes.

A second issue that sport psychologists should attend to when employing measures of perfectionism with elite junior athletes concerns the difference between global and domain-specific perfectionism scales. It has recently been proposed that global measures of perfectionism provide no situational frame of reference to respondents when completing instruments, and this could subsequently limit an understanding of athletes' perfectionistic orientation (Gotwals & Dunn, 2009). In contrast, situationally-specific measures of perfectionism are thought to offer greater insight into an individual's perfectionistic tendencies, as well as offer greater predictive power with respect to predicting individual's cognitive, affective, and behavioural responses in different contexts (Dunn, Gotwals, Causgrove Dunn, 2005). Mitchelson and Burns (1998) provided initial insight into the importance of capturing domain-specific perfectionistic tendencies with a sample of career mothers – defined as married mothers who worked at least 25 hours per week and who put their children into daycare while at work. The mothers completed two versions of the MPS-HF: one capturing their perfectionism at work and one their perfectionism at home. On average, career mothers reported significantly higher perfectionistic tendencies at work than at home across the SOP, SPP, and OOP subscales, suggesting that career mothers experienced different levels of perfectionism in different domains.

The case for a context-specific measure of perfectionism is also available

in a study by Dunn and colleagues (2005). A sample of intercollegiate varsity athletes completed three versions of the MPS-HF, including the original scale, an adapted version that captured perfectionistic tendencies in sport, and a second adapted version that measured perfectionistic tendencies in academic studies. A comparison of mean levels of perfectionism between domains revealed a significant difference, with athletes reporting higher perfectionism in their sport than academic studies, and significantly higher perfectionism in their studies that in general.

Based on the available evidence, it would seem that research in specific domains such as sport would benefit from using domain-specific measures of perfectionism (e.g., S-MPS-2) or adapting instructions to capture perfectionism in the targeted domain (e.g., Stoeber & Rennert, 2008) (Stoeber & Stoeber, in press). As a result, in the current study the stem leading into the MPS-HF was adapted to provide a specific frame of reference focusing athletes upon their experiences in sport (see below for adapted stem).

3.2. Purpose of study one

Based on historical descriptions which conceptualise perfectionism as a multifaceted, debilitating personality disposition, it has been argued that Hewitt and Flett's (1991) framework and measurement technology is best suited when examining perfectionism in sport. This is because Hewitt and Flett's multidimensional approach includes three forms of perfectionism that retain the maladaptive nature inherent to early theorising on the construct. Although sport psychologists have begun to examine Hewitt and Flett's SOP, SPP, and OOP dimensions, a primary concern for researchers should be the factor structure of the

MPS-HF within junior athletic samples. This is crucial, because if researchers are to better understand SOP, SPP, and OOP in sport, it must first be established that the original MPS-HF structure replicates in this domain. As a result, the purpose of the first study was to address this issue through the use of CFA, and examine whether the factor structure of the MPS-HF could be replicated in elite junior athletes. Based on the findings of Cox et al. (2002), it was predicted that the original structure of the MPS-HF would fail to replicate in the athletic sample. Should this hypothesis receive empirical support, the strategies outlined by Cox et al. would be adopted. That is, should the original structure of the MPS-HF fail to achieve an acceptable fit, an EFA would be employed to determine whether the fifteen items identified by Cox et al. as the most salient markers of SOP, SPP, OOP also emerged when analysing the responses of athletes. A further CFA would then be employed to examine the consistency of the revised structure across a second sample of athletes. Based on the confirmation or rejection of hypothesis one, the final aim of the first study was to examine the internal consistency of the SOP, SPP, and OOP subscales in athletic samples.

The hypotheses for the study one were;

H1. A Confirmatory Factor Analysis will fail to support the original structure of the MPS-HF, as proposed by Hewitt and Flett (1991), in an athletic sample.

H2. An Exploratory Factor Analysis and second Confirmatory Factor Analysis will reinforce the findings of Cox et al. (2002), suggesting that the structure of the

MPS-HF in sport is better represented by fewer items per subscale.

H3. A cross-validation Confirmatory Factor Analysis will support a revised 15-item MPS-HF in elite junior athlete.

H4. The revised SOP, SPP, and OOP subscales will demonstrate an acceptable level of internal consistency in both athletic samples, where Cronbach's alpha exceeds at least 0.60.

3.3. Method

3.3.1. Participants

The sample consisted of 223 elite junior athletes from several team and individual sports, including badminton ($n = 14$), judo ($n = 26$), rowing ($n = 7$), squash ($n = 14$), cricket ($n = 9$), swimming ($n = 32$), ice hockey ($n = 5$), netball ($n = 9$), rugby union ($n = 36$), rugby league ($n = 41$), tennis ($n = 13$), and basketball ($n = 17$). The mean age for female athletes ($n = 82$) was 15.07 years ($SD = 1.73$), and for male athletes ($n = 139$) the mean age was 14.87 years ($SD = 1.37$). Two athletes did not indicate their gender. The average number of years athletes had been participating in their sport was 6.68 ($SD = 2.67$) and the average number of years associated with their current club was 4.44 ($SD = 2.81$).

3.3.2. Measures

All athletes answered a multi-section inventory that included demographic questions relating to gender, age, sport played, the number of years they had been participating in their sport, and the number of years associated with their current

club. Athletes also completed the original 45-item MPS-HF (Hewitt & Flett, 1991).

The Multidimensional Perfectionism Scale (MPS-HF; Hewitt & Flett, 1991): The MPS-HF (see Appendix A for complete MPS-HF) is a 45-item self-report inventory designed to assess three forms of perfectionism: self-oriented perfectionism (SOP; e.g., “It makes me uneasy to see errors in my performance”), socially prescribed perfectionism (SPP; e.g., “Anything that I do that is less than excellent will be seen as poor performance by those around me”), and other-oriented perfectionism (OOP; e.g., “I have high expectations for people that are important to me”). The original stem of the MPS-HF was adapted to encourage athletes to focus upon their experiences in practice and competition. The adapted stem read as follows: “The following items ask you to think about when you are practicing or playing your sport. Listed below are a number of statements that reflect how some people feel when they are practicing or playing. Please read each of the statements carefully, and indicate the extent to which you personally agree or disagree with each statement by shading the appropriate response. Remember there are no right or wrong answers”.

Athletes responded to a 7-point Likert type scale with anchors of *strongly disagree* (1) to *strongly agree* (7). Eighteen items are reversed scored, and the fifteen items within each subscale are then summed to provide a composite score for each perfectionism dimension. A higher composite subscale score is indicative of a higher level of perfectionism.

3.3.3. Procedures

Prior to collecting data, ethical approval was obtained from the

University of Bedfordshire's School of Physical Education and Sport Sciences ethics board. This included approval for all studies, thus will not be reported again.

Head coaches of each athlete/club were then contacted to obtain permission to approach their athletes for participation in the study. Once permission was granted by the coaches, the researcher visited the club/athlete to explain the purpose of the study to the athletes and administer the inventories. Athletes' were informed that their participation was voluntary and that they were free to withdraw without consequence at any time. Written informed assent was obtained from each athlete prior to completing the questionnaires, and written parental consent was obtained for all athletes who were under 18 years of age at the time of the study (see Appendix B for assent/consent forms). Data collection was conducted prior to a training session. Athletes were encouraged to focus on their own responses and avoid discussing the questions with team-mates until the form was complete. Coaches and parents were absent during data collection with the athletes.

3.3.4. Data Analysis

The data analysis occurred in three stages: initial CFA of the original MPS-HF factor structure as proposed by Hewitt and Flett (1991); scale reconstitution using EFA; and validation of the reconstituted factor structure using CFA. AMOS 7.0 software was employed when conducting confirmatory factor analyses. To assess adequate fit of the proposed model, Hoyle and Panter (1995) and Schutz (1998))have both recommended the reporting of absolute and incremental fit indices. The fit indices reported in the present study are the chi

square (χ^2) test, the χ^2/df ratio index, the standardised root mean squared residual (SRMR) (Bentler, 1995), the root mean square error of approximation (RMSEA; including its 90% confidence intervals, Steiger & Lind, 1980), and the comparative fit index (CFI; Bentler, 1990).

The criteria of good model fit included non-significant χ^2 values, although this particular test is highly sensitive to sample size (Byrne, 2001; Floyd & Wideman, 1995; Marsh, Balla, & McDonald, 1988). According to Marsh (2007), any model can be rejected based on χ^2 values if sample size is sufficiently large, and accepted if the sample size is sufficiently small, and thus χ^2/df ratio values under 2.0 are recommended as an alternative to the χ^2 statistic (Tabachnick & Fidell, 2007). With regards to the remaining fit indices, Marsh's (2007) recommendations for sport and exercise psychologists were adhered to. RMSEA values of less than .05 and .08 were taken to reflect a close fit and a reasonable fit, respectively, whereas RMSEA values between .08 and .10 reflect a mediocre fit, and values greater than .10 are generally unacceptable. Finally, a CFI value of $>.90$ was taken to indicate acceptable fit and $>.95$ good fit, while a SRMR value of less than .10 is desirable, .05 indicates good fit, and a value of 0 indicates perfect fit (Hu & Bentler, 1995).

While the above recommendations were adopted, it should be noted that much debate surrounds the selection of precise fit indices and accompanying thresholds, especially within the field of theory-based multi-item/factor CFA testing (Markland, 2007; Marsh, 2007; Marsh, Hau, & Wen, 2004). For example, it has recently been argued that the χ^2 test statistic is the only criterion to adequately assess model fit, and incremental fit indices should be avoided

(Barrett, 2007). It has also been argued that traditional threshold values (e.g., CFI; $>.95$) should no longer be conceived of as “golden-rules” (Marsh, 2007; Marsh et al., 2004), with Marsh et al. (2004) claiming that “conventional CFA goodness of fit criteria are too restrictive when applied to most multifactor rating instruments...it is almost impossible to get an acceptable fit for even “good” multifactor rating instruments...[because] conventional rules of thumb about acceptable fit are too restrictive” (p. 325). Because these issues are still to be resolved (e.g., Barrett; Markland, 2007) the following combination was employed in the current study to provide a balanced approach to testing model fit; Marsh’s (2007) criteria for fit, with an understanding that these are not golden rules, recognition that the selection of a best model is ultimately determined by a degree of subjectivity and professional judgement, and examination of the χ^2/df ratio index.

3.4. Results

3.4.1. Data screening

Prior to analysis, the data were screened for missing data and normality following the recommendations of Tabachnick and Fidell (2007). Fourteen items had no missing data. For the other thirty-one items, data were missing for no more than five participants (i.e., $< 5\%$). Because the absent data was characterised as missing completely at random (MCAR) (Little MCAR test: $\chi^2 = 1192.440$, $df = 1121$, $p = .068$), the guidelines outlined by Tabachnick and Fidell were employed to replaced the missing values.

Next, screening was conducted for univariate and multivariate outliers. Univariate outliers are cases with an extreme value on one variable or, in the case

of the present study, a single item, and can be identified via standardised scores (z scores) in excess of 3.29 (Tabachnick & Fidell, 2007). Twenty cases were identified as univariate outliers ($z = 3.29, p < .001$), and were subsequently deleted from the analysis. Multivariate outliers are cases with an unusual combination of scores on two or more variables, and the criterion for identifying multivariate outliers is Mahalanobis distance at $p > .001$ (Tabachnick & Fidell, 2007). Mahalanobis distance is evaluated as chi-square with degrees of freedom equal to the number of variables, in this case 45. Therefore, any case with a Mahalanobis distance greater than 80.0315 was considered a multivariate outlier. This resulted in the deletion of one further case from the data set, and thus the final sample comprised of 202 athletes.

The remaining data ($n = 202$) was considered to be approximately univariate normal (absolute skewness $M = .54, SD = .37$, absolute kurtosis $M = .76, SD = .58$), although multivariate non-normality was evident in the data (Mardia's coefficient = 82.987). As a result, and in line with recommendations of Byrne (2001), the subsequent CFA was conducted using maximum likelihood estimation coupled with bootstrapping procedures. In a recent application of bootstrapping procedures to statistical computer programmes, Preacher and Hayes (2004) advanced the use of 1,000 bootstrap samples. Commensurate with this recommendation and aligned with a number of extant empirical studies that have used the bootstrapping approach (e.g., Lutz, Karoly, & Okun, 2008; Standage, Duda, & Ntoumanis, 2003; Sebire, Standage, & Vansteenkiste, 2008), in the present work 1,000 bootstrap replication samples were drawn with replacement from the data sets. The bootstrapped samples were equal in size to the original

sample. In using bootstrapped methods, Byrne (2001) recommended the Bollen-Stine statistic when evaluating the appropriateness of the hypothesised model. The Bollen-Stine option represents a modified bootstrap method for the chi-square goodness-of-fit statistic. Thus, in addition to the fit indices identified above, the Bollen-Stine statistic was also considered when examining the structure of the MPS-HF.

3.4.2. Preliminary data analysis

According to Gorsuch (1983), as sample size increases, the stability of the correlation matrix to be factor analysed also increases. Given that factor analytic procedures were to be employed in the current study, and the relatively small number of athletes from the individual sports, it was deemed necessary to heed Nunnally and Bernstein's (1994) advice and collapse the athletes into a single, larger data set. However, prior to pooling the data, it was first necessary to follow the guidelines outlined by Dunn, Causgrove Dunn, Gotwals, Vallance, Craft, & Syrotuik (2006), and employ Box's test of the equality of covariance matrices across gender and sport (i.e., team vs. individual sport). Using the stringent alpha level ($p < 0.001$) recommended for this analysis (Meyers, Gamst, & Guarino, 2005), it was found that the covariance matrix was homogenous across gender (Box's $M = 1481.273$, $F = 1.059$, $p > .05$) and type of sport (i.e., team vs. individual) (Box's $M = 1418.973$, $F = 1.039$, $p > .05$). In light of these findings, the data were analysed as a single set.

3.4.3. Initial confirmation analysis of the MPS-HF

Results of the CFA suggested that, overall, the three-factor model proposed by Hewitt and Flett (1991) provided inadequate fit to the data ($\chi^2(942) = 1799.096$, p

= .000, $\chi^2/df = 1.910$, RMSEA = .07 (90% CI = .063 to .072), SRMR = .10, CFI = .57) (see Table 3.1). While the χ^2/df ratio and RMSEA could be deemed acceptable, a significant χ^2 statistic and unsatisfactory SRMR and CFI values suggest the hypothesised model should be rejected. Furthermore, an examination of the Bollen-Stine bootstrap statistic ($p = .001$) reaffirms the poor fit of the model¹. Finally, an examination of the standardised factor loadings also revealed that four SPP items (37, 30, 21, and 5) and three OOP items (29, 24, and 19) were non-significant ($p > .05$). The initial confirmatory analysis therefore supports hypothesis one, suggesting the factor structure of the MPS-HF is untenable, and that there is a need to derive a more interpretable and replicable factor structure within the sporting domain.

3.4.4. Reconstruction analysis of the MPS-HF

Gorsuch (2003) suggested that as soon as a structural model is changed on the basis of modification indicates to obtain an improved fit, the danger of capitalising upon chance relationships among the variables increases. As a result, psychometricians and structural equation model experts (e.g., Byrne, 2001; Dunn et al., 2006) recommend that researchers move away from purely confirmatory factor analyses as they seek to improve the fit of their model, towards more of an exploratory design. In light of this suggestion, the data set for the current study was re-analysed using EFA techniques. Moreover, the guidelines outlined by Cox et al. (2002) were adopted in the current analysis to allow for a direct comparison between the revised MPS-HF factor structure in different samples. That is, Cox et al.'s strategy of conducting separate exploratory

¹ Using sample one, a CFA was conducted on the MPS-HF structure proposed by Cox et al. (2002). The fit indexes suggest an inadequate fit to the data ($\chi^2(87) = 177.217$, $p = .000$; $\chi^2/df = 2.037$; RMSEA = .07 (90% CI = .057 to .087); SRMR = .08; CFI = .80).

Table 3.1

Summary of Fit Indices for the 45-item MPS-HF (Hewitt & Flett, 1991) and 15-item revised MPS-HF in elite junior athlete samples.

<i>Model</i>	<i>n</i>	χ^2	<i>df</i>	χ^2/df	<i>p</i> <	Bollen-Stine	CFI	SRMR	RMSEA (90% CI)
Sample 1									
45 items	202	1799.096	942	1.910	0.001	0.001	.57	.10	.067 (.063 & .072)
Sample 1									
15 items	202	147.384	87	1.694	0.001	0.008	.89	.074	.06 (.042 & .075)
Sample 2									
15 items	181	135.394	87	1.556	0.01	0.029	.91	.073	.056 (.036 to .073)

factor analyses on each subscale of the MPS-HF was employed. Following the recommendations of numerous factor analysts (i.e., Fabrigar, Wegener, MacCallum, & Stranhan, 1999; Preacher & MacCallum, 2003; Velicer, Eaton, & Fava, 2000), the number of factors per subscale were determined using parallel analysis (employing mean criterion eigenvalues produced by Lautenschlager, 1989) in conjunction with Cattell's (1978) scree test.

3.4.5. Preliminary analysis

Prior to conducting each EFA, preliminary assessment of psychometric adequacy was conducted to determine the suitability of the MPS-HF item correlation matrix for factor analysis. Two statistical tests were employed, including Bartlett's test of sphericity and the Kaiser-Meyer-Olkin (KMO) sampling statistic. Kaiser (1974) recommends a minimum KMO statistic of 0.5, while values between 0.7 and 0.8 are good, and a value above 0.9 is excellent. With regards to the Bartlett's test of sphericity, a significant χ^2 statistic is desirable. The Bartlett's test of sphericity relating to item interdependence was significant ($\chi^2 = 2236.199, p < .001$) and the Kaiser-Meyer-Olkin sampling statistic of .78 was good, indicating that factor analysis procedures were appropriate for the current data set.

For SOP, three eigenvalues >1.0 were obtained following Principal Component Analysis (PCA) ($\lambda_1 = 4.94, \lambda_2 = 1.41, \lambda_3 = 1.20$), while parallel analysis indicated the retention of two factors (see Appendix C for calculations). That is, the first two eigenvalues obtained from the PCA exceeded the corresponding interpolated criterion eigenvalues provided by Lautenschlager (1989). However, the scree plot (Cattell, 1966) indicated that one factor should be

retained, accounting for 32.96%. Furthermore, the first factor explained nearly four times the response variance of factor two (32.96% vs. 9.380%), and because theory should also guide factor extraction (Velicer et al. 2000), a one factor solution was considered the most appropriate for SOP. A subsequent common factor analysis using principal axis factoring extraction (PAF) was then conducted, with items forced onto the one factor. Items 20, 28, 15, 40, and 12 emerged as the strongest predictors (see Table 3.2).

For SPP, three eigenvalues >1.0 were obtained following PCA ($\lambda_1 = 3.35$, $\lambda_2 = 1.40$, $\lambda_3 = 1.06$). The parallel analysis results indicated the retention of two factors (see Appendix C for calculations). That is, the first two eigenvalues obtained from the PCA exceeded the corresponding interpolated criterion eigenvalues provided by Lautenschlager (1989). The scree plot (Cattell, 1966) indicated that one, or possibly two factors, should be retained. However, because the first factor accounted for 30.48% response variance, and explained nearly three times the variance of factor two (30.48% vs. 12.73%), a one factor solution was considered the most appropriate, consistent with the original theorising of Hewitt and Flett (1991). A subsequent common factor analysis using PAF extraction was then conducted, with items forced onto the one factor. Items 39, 35, 18, 13, and 33 emerged as the strongest predictors (see Table 3.2).

Finally, four eigenvalues >1.0 were obtained following PCA of the OOP items ($\lambda_1 = 2.51$, $\lambda_2 = 1.48$, $\lambda_3 = 1.21$, $\lambda_4 = 1.12$). Parallel analysis results indicated the retention of approximately two factors (see Appendix C for calculations). That is, the first two eigenvalues obtained from the PCA exceeded the corresponding interpolated criterion eigenvalues provided by Lautenschlager (1989). The scree

Table 3.2

Pattern coefficients for principal axes analyses conducted on MPS-HF data provided by elite junior athletes

Item	SOP	SPP	OOP
1. When I am working on something I cannot relax until it is perfect	.52		
6. One of my goals is to be perfect in everything I do.	.56		
8. I never aim for perfection in my work	.54		
12. I hardly ever feel the need to be perfect	.57		
14. I strive to be as perfect as I can	.45		
15. It is very important that I am perfect in everything I attempt	.62		
17. I strive to be the best at everything I do	.54		
20. I demand nothing less than perfection of myself	.71		
23. It makes me uneasy to see an error in my work	.35		
28. I am perfectionistic in setting my goals	.64		
32. I must work to fulfil my potential at all times	.32		
34. I do not have to be the best at whatever I am doing	.48		
36. I do not have very high goals for myself	.41		
40. I set very high standards for myself	.62		
42. I must always be successful	.53		
9. Those around me readily accept that I can make mistakes too		.31	
11. The better I do, the better I am expected to do		.33	
13. Anything I do that is less than excellent will be seen as poor by those around me		.57	
18. The people around me expect me to succeed at everything I do		.57	
25. Success means that I must work even harder to please others		.44	
31. I feel that people are too demanding of me		.49	
33. Although they don't show it, other people get upset with me when I slip up		.51	
35. My family expects me to be perfect		.61	
39. People expect nothing less than perfection from me		.68	

Item	SOP	SPP	OOP
41. People expect more from me than I am capable of giving		.49	
44. People around me think I am still competent even if I make a mistake		.18	
2. I am not likely to criticise someone for giving up too easily			.27
3. It is not important that the people I am close to are successful			.41
4. I hardly ever criticise my friends for accepting second best			.46
7. Everything that others do must be of top-notch quality			.26
10. It doesn't matter when someone close to me does not do their absolute best			.65
16. I have high expectations for the people who are important to me			.25
22. I can't be bothered with people who won't strive to better themselves			.25
26. If I ask someone to do something, I expect it to be done flawlessly			.28
27. I cannot stand to see people close to me make mistakes			.45
38. I respect people who are average			.24
43. It does not matter to me when a close friend does not try their hardest			.52
45. I seldom/never expect others to excel at what they do			.23

Note. Items selected for revised MPS-HF subscales are in bold.

plot (Cattell, 1966) indicated that approximately two factors should also be retained. However, because the first factor accounted for 20.87% of response variance, and explained nearly twice the variance of factor two (20.87% vs. 12.29%), a one factor solution was considered the most appropriate, consistent with the original theorising of Hewitt and Flett (1991). A subsequent common factor analysis using PAF extraction was then conducted, with items forced onto one factor. Items 10, 43, 4, 27, and 3 emerged as the strongest predictors (see Table 3.2).²

The revised 5-item subscales demonstrated acceptable levels of internal consistency (Cronbach's alpha) with SOP $\alpha = .76$, SPP $\alpha = .72$, and OPP $\alpha = .63$. The mean score for the revised 5-item SOP subscale was 4.81 ($SD = 1.00$), for SPP was 3.75 ($SD = 1.05$), while OOP was 3.92 ($SD = 1.02$) (see Table 3.3 for descriptive statistics). Finally, zero-order correlations between the revised 5-item subscales and the original 15-item subscales proposed by Hewitt and Flett (1991) were examined. The correlation for the SOP subscales was $r = .92$ ($p = <.001$), SPP subscales was $r = .88$ ($p <.001$), and for OOP subscales was $r = .81$ ($p = <.001$). The strong relationships indicate that the revised 5-items subscales may be conceptually similar to the 15-item subscales originally formulated by Hewitt and Flett (1991).

² All 38 items of MPS-HF were also examined simultaneously in a single EFA. Initially, parallel analysis (see Appendix D for calculations) and the scree plot supported the retention of 3 factors, which predicted 33.24% of response variance. A subsequent principal axis factoring analysis with oblique rotation revealed that a very similar set of items emerged as the strongest predictors of the subscales. That is, the same 5 OOP items emerged when using 38 and 15 items, while 4 of the 5 same SOP and SPP items emerged when using both the 38 and 15 item scales.

Table 3.3.

Subscale means, standard deviations, and internal consistency coefficients (α) for revised perfectionism subscales across two samples

Sub-scales	Sample					
	One ($n = 202$)			Two ($n = 181$)		
	<i>M</i>	<i>SD</i>	α	<i>M</i>	<i>SD</i>	α
SOP	4.81	1.00	.76	4.39	1.07	.74
SPP	3.75	1.05	.72	3.67	1.09	.73
OOP	3.92	1.02	.63	3.95	1.01	.54

Note. Subscale abbreviations: SOP, Self-oriented perfectionism; SPP, Socially prescribed perfectionism; OOP, Other-oriented perfectionism.

3.4.6. Confirmation of the reconstituted MPS-HF

CFA was used to validate the reconstituted factor structure of the 15-item MPS-HF. The goodness-of-fit indices were superior to the original structure, and in the large part deemed acceptable ($\chi^2(87) = 147.384, p = .000, \chi^2/df = 1.694$, Bollen-Stine bootstrap, $p = .008$, RMSEA = .06 (90% CI = .042 to .075), SRMR = .07, CFI = .89) (see Table 3.1), suggesting the factor structure obtained from the exploratory factor analyses provides a more adequately fitting model than the original scale proposed by Hewitt and Flett (1991). The inter-item correlation matrix and descriptive statistics from the 15-item MPS-HF model are presented in Table 3.4. The standardised factor loadings (see Fig. 3.1) for all fifteen items were significant ($p < .001$), and Fig. 3.1 suggests that all forms of perfectionism were significantly correlated, excluding the relationship between the revised SPP and OOP subscales.

In validating an emerging factor structure and factorial composition of an instrument, it has been recommended that testing the factor structure with different samples is necessary (Pedhazur & Schmelkin, 1991). Therefore, the final step in examining the structure of the MPS-HF was the cross-validation of the revised 15-item model with an independent sample of elite junior athletes.

Table 3.4.

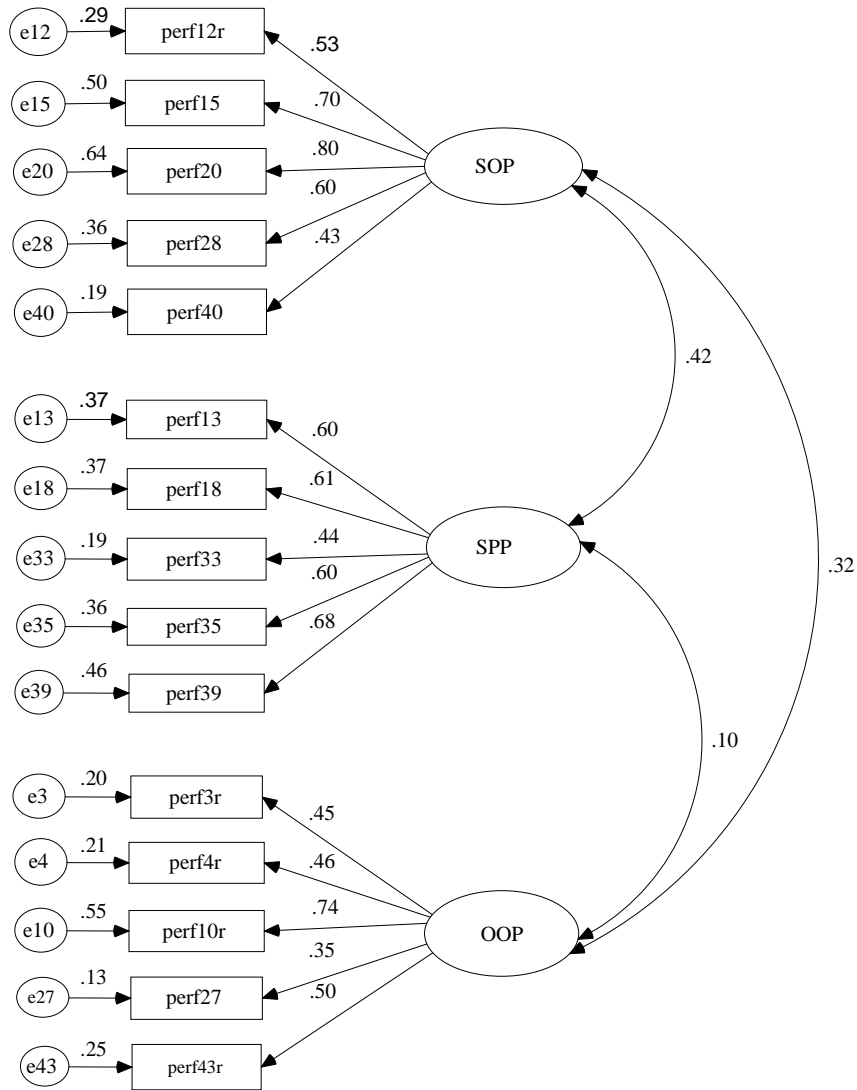
Descriptive data and inter-item correlations for the 15-item revised MPS-HF measure for sample one and sample two ^a

	3r	4r	10	12r	13	15	18	20	27	28	33	35	39	40	43r	Sample Two means	(SD)
3r		.094	.134	.019	.015	.051	.021	.055	.064	.051	.011	.020	.019	.036	.0175	4.26	(1.98)
4r	.207		.247	.036	.027	.094	.038	.102	.117	.094	.021	.037	.036	.067	.323	3.67	(1.70)
10r	.334	.341		.051	.039	.135	.054	.146	.167	.135	.030	.052	.051	.095	.461	4.20	(1.76)
12r	.076	.078	.126		.084	.202	.119	.219	.024	.202	.065	.113	.111	.143	.066	5.38	(1.54)
13	.027	.027	.044	.135		.223	.364	.241	.018	.223	.200	.348	.341	.143	.066	3.60	(1.61)
15	.101	.103	.166	.428	.178		.315	.581	.064	.537	.173	.302	.295	.379	.176	4.56	(1.64)
18	.027	.028	.044	.136	.370	.180		.341	.026	.316	.282	.492	.482	.223	.071	4.31	(1.49)
20	.114	.117	.188	.428	.428	.565	.205		.069	.581	.187	.327	.320	.410	.190	4.62	(1.63)
27	.160	.163	.263	.060	.202	.079	.021	.090		.064	.014	.025	.024	.045	.219	3.13	(1.51)
28	.085	.087	.141	.320	.151	.422	.153	.480	.067		.173	.302	.295	.379	.176	4.45	(1.56)
33	.019	.020	.032	.097	.264	.128	.266	.146	.015	.109		.270	.264	.122	.039	4.34	(1.54)
35	.026	.027	.043	.133	.361	.176	.365	.200	.021	.149	.260		.461	.213	.068	2.81	(1.69)
39	.030	.031	.049	.151	.410	.199	.414	.227	.024	.169	.295	.404		.209	.067	3.30	(1.48)
40	.061	.063	.101	.230	.109	.303	.110	.345	.048	.258	.078	.107	.122		.124	5.63	(1.18)
43r	.227	.232	.374	.085	.030	.113	.030	.128	.179	.096	.022	.029	.033	.069		4.48	(1.50)
Sample One means	3.85	3.64	4.26	5.17	3.64	4.40	4.24	4.40	3.34	4.51	4.50	3.08	3.29	5.59	4.51		
(SD)	(1.79)	(1.64)	(1.66)	(1.37)	(1.50)	(1.44)	(1.49)	(1.54)	(1.42)	(1.46)	(1.52)	(1.68)	(1.42)	(1.16)	(1.51)		

^a Sample one data are below the diagonal, sample two data are above the diagonal

Fig 3.1.

Standardised factor loadings and squared multiple correlations of the revised MPS-HF for sample one ($n = 202$)



3.5. Cross validation of the revised MPS-HF: Method

3.5.1. Participants

The sample consisted of 184 elite junior athletes from gymnastics ($n = 44$) and football ($n = 140$). The mean age for female athletes ($n = 93$) was 14.33 years ($SD = 2.23$), and for male athletes ($n = 91$) the mean age was 14.73 years ($SD = 2.05$). The average number of years athletes had been participating in their sport was 7.80 ($SD = 3.06$) and the average number of years associated with their current club was 4.50 ($SD = 3.50$).

3.5.2. Measures

All participants answered a multi-section inventory that included demographic questions relating to gender, age, sport played, number of years they had been participating in their sport, and the number of years associated with their current club. The gymnasts and football players also completed the original 45-item MPS-HF (Hewitt & Flett, 1991) as described above.

3.5.3. Procedures

The procedures for the current study were identical to those outlined above.

3.6. Cross validation of the revised MPS-HF: Results

3.6.1. Data screening

Data screening revealed no variables with 5% or more missing values, and because absent data was characterised as MCAR (Little MCAR test: $\chi^2 = 1149.145$, $df = 1095$, $p = .125$), the procedures outlined by Tabachnick and Fidell (2007) were employed to replace missing data. With regards to outliers, one participant was identified as having an outlier on a single item ($z \geq 3.29$, $p < .001$),

and two cases with a Mahalanobis distance greater than $\chi^2(15) = 37.697$ were identified. Consequently, three participants were deleted from the data set. Inspection of skewness and kurtosis values for the remaining data ($n = 181$) revealed that scores from all fifteen items of the revised MPS-HF were approximately univariate normal (absolute skewness $M = .42$, $SD = .28$, absolute kurtosis $M = .82$, $SD = .27$), although there was evidence of slight multivariate non-normality in the data (Mardia's coefficient = 12.121). As a result, the subsequent CFA was conducted using maximum likelihood estimation coupled with bootstrapping procedures.

3.6.2. Preliminary data analysis

As outlined above, it was deemed necessary to heed Nunnally and Bernstein's (1994) advice and collapse the athletes into a single, larger data set. Using the stringent alpha level ($p < 0.001$) recommended for this analysis (Meyers et al., 2005), it was found that the covariance matrix was homogenous for type of sport (i.e., team vs. individual) (Box's $M = 160.631$, $F = 1.159$, $p > .05$) and across gender (Box's $M = 181.461$, $F = 1.380$, $p > .001$).

3.6.3. Results

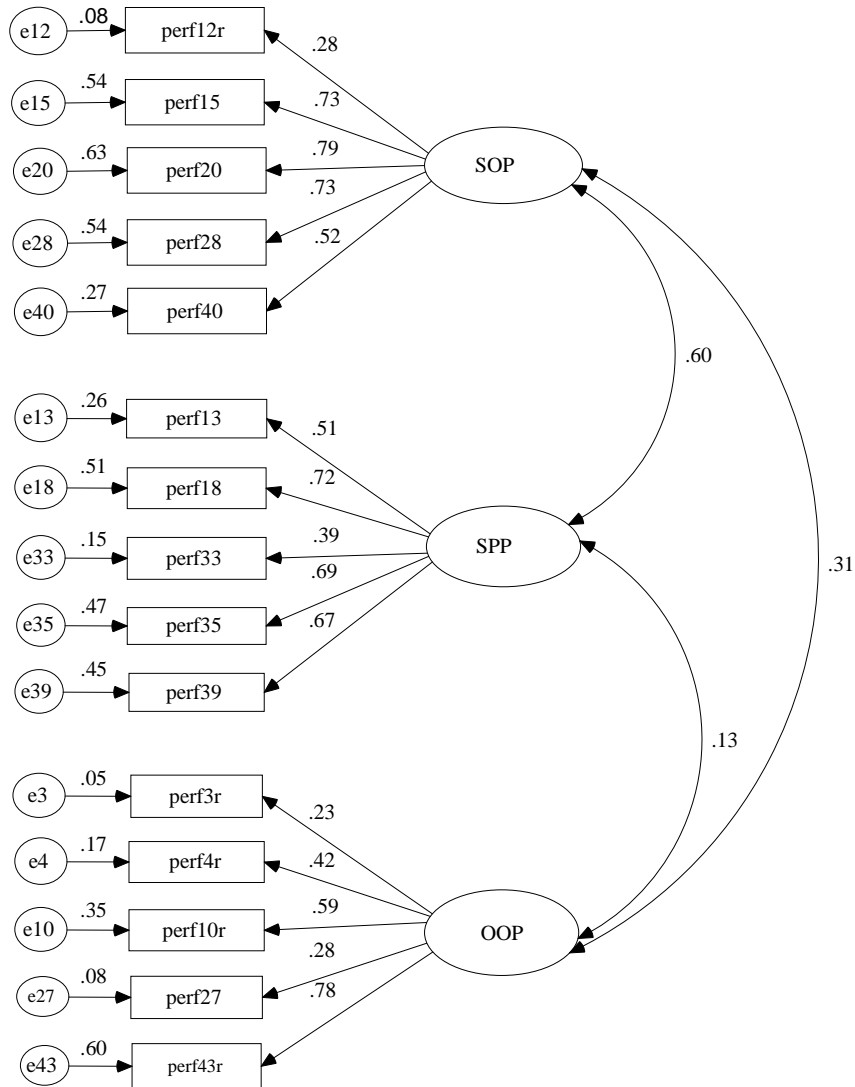
To address factor validity and reliability of the reconstituted 15-item MPS-HF model, a CFA was conducted with gymnasts and football players. Table 3.1 presents the results of these analyses. As can be seen, all goodness-of-fit indices parallel the data reported in the confirmation of the reconstituted MPS-HF (see 3.4.7) ($\chi^2(87) = 135.394$, $p = .001$, $\chi^2/df = 1.556$, Bollen-Stine bootstrap, $p = .029$, RMSEA = .06 (90% CI = .036 to .073), SRMR = .73, CFI = .91) (see Table 3.1). In short, the factor structure and factorial composition of the 15-item model

was replicated on an independent sample of elite junior athletes. The revised SOP ($\alpha = .74$) and SPP ($\alpha = .73$) subscales also demonstrated acceptable levels of internal consistency (Cronbach's alpha), while the level of internal consistency for the revised OPP subscale was slightly lower ($\alpha = .54$) (see Table 3.3). The mean of the revised SOP subscale was 4.93 ($SD = 1.07$), 3.67 ($SD = 1.09$) for the revised SPP subscale, and 3.95 ($SD = 1.01$) for the revised OOP subscale (see Table 3.3). The inter-item correlation matrix and descriptive statistics for the 15-item MPS-HF model using the gymnastic and football data are presented in Table 3.4. Fig. 3.2 contains the standardised factor loadings together with the squared multiple correlations. Fig. 3.2 suggests that all forms of perfectionism were significantly correlated, except for the relationship between the revised SPP and OOP subscales.

3.7. Discussion

The purpose of study one was to validate the factor structure and factorial composition of the original MPS-HF (Hewitt & Flett, 1991) with elite junior athletes. Based on the findings of Cox et al. (2002), it was predicted that the original structure of the MPS-HF would fail to emerge in a sample of athletes, and thus a more parsimonious model that better represented the MPS-HF in sport would be required. Obtaining a more parsimonious model is important if sport psychologists are to accurately capture, and subsequently measure, SOP, SPP, and OOP within athletic performers. Based on the findings, an initial CFA of responses from 202 elite junior athletes failed to substantiate the original 45-item, three-factor structure of the MPS-HF. Therefore, hypothesis one was accepted.

Fig 3.2.
 Standardised factor loadings and squared multiple correlations of the revised
 MPS-HF for sample two ($n = 181$)



It is interesting to note that of the original 45-items proposed by Hewitt and Flett (1991) to capture SOP, SPP, OOP, seven items failed to load significantly upon their respective factor. In explaining this particular finding, it should be noted that the original MPS-HF was developed with adult samples and not children or adolescents. While the current sample did not request an explanation of items from the MPS-HF during data collection, it could be speculated that at least some of the items designed to measure perfectionism in adults may have been misunderstood or misinterpreted by a sample of elite junior athletes with a range of ages from ten to eighteen years. In turn, a lack of understanding by the athletes may explain why a number of items failed to achieve a significant factor loading. Although this explanation is speculative, the current findings suggests that if sport psychologists continue to employ the original 45-item MPS-HF with elite junior athletes, they should ensure that all items load significantly upon their relevant factor via CFA techniques.

The findings of study one provide support for hypotheses two and three. Following the initial CFA, a subsequent EFA and CFA suggested a more parsimonious 15-item three-factor model was justified, and cross-validating the revised MPS-HF scale on an independent sample of 181 elite junior gymnasts and football players indicated that it produced an adequate fit of the data. Following the guidelines provided by Cox et al. (2002), the results of the exploratory factor analyses revealed that each subscale was represented by one factor (i.e., SOP, SPP, and OOP). Moreover, although there is discrepancy between Cox et al's findings and the current study with regards to the fifteen items included within the revised scales (eight of the fifteen items identified by Cox and his associates

emerged in the current study), the content of the discrepant items was near identical. These findings suggest the revised 15-item MPS-HF produced in the current study has acceptable construct validity and provides a conceptually sound measure of SOP, SPP, OOP in elite junior sport.

With reference to hypothesis four, the revised SOP, SPP and OOP subscales (sample one only) demonstrated acceptable internal consistency. However, in cross-validating the revised MPS-HF, the internal consistency alpha value for the 5-item OOP subscale was below the necessary 0.60 value. This finding suggests that further work is clearly needed to ascertain whether the revised MPS-HF is consistently reliable across samples of elite junior athletes. However, in light of the promising results of the two confirmatory factor analyses and the Cronbach's alpha from sample one, the low alpha value may be a sample artefact and thus the revised OOP subscale will be adopted in the current programme of research.

In addition to reporting upon the factor structure of the revised MPS-HF, a number of additional findings from the exploratory factor analyses and confirmatory factor analyses require explanation.

3.7.1. Do the revised subscales capture the underpinning sub-beliefs inherent to SOP, SPP and OOP?

First, it should be noted that each of the revised subscales capture the constellation of beliefs thought to characterise each form of perfectionism. Recent work (e.g., Campbell & Di Paula, 2002; McCreary, Joiner, Schmidt, & Ialongo, 2004; Stoeber, Kempe, & Keogh, 2008; Trumpeter, Watson, O'Leary, 2006; Van Yperen, 2006) suggests that each MPS-HF dimension is represented by at least

two sub-beliefs. As suggested above, Campbell and Di Paula proposed that SOP comprises a perfectionistic striving belief and the belief that being perfect is important, while SPP includes the beliefs that others have high standards for oneself and that acceptance by others is conditional of fulfilling these high standards. More recently, Trunpeter and colleagues (2006) have suggested that SOP is represented by two facets with four and three facets, respectively, for OOP and SPP. The suggestions of Campbell and Di Paula and Trunpeter et al. make an important contribution to our understanding of Hewitt and Flett's (1991) perfectionism dimensions, because they provides a conceptual basis for understanding each form of perfectionism. For example, adopting Campbell and Di Paula's framework, research from the general psychology literature (e.g., Campbell & Di Paula, 2002; Stoeber et al., 2008) has shown that it is the importance of being perfect and conditional self-acceptance subscale that account for the debilitating effects of SOP and SPP, respectively. Sport psychologists (Hall et al., 2008; Hill et al., 2008) have also confirmed that a conditional self-acceptance is partly responsible for the effects of SPP for burnout in academy soccer players and exercise dependence in runners. In light of this recent addition to the literature, revised versions of the MPS-HF should ensure that each subscale includes an array of items that capture the various sub-beliefs of each perfectionism dimension. This is vital if psychologists are to measure SOP, SPP, and OOP in a manner this it consistent with the original theorising of Hewitt and Flett (1991).

With regards to the current study, an inspection of results suggests the revised subscales do capture the sub-beliefs of SOP and SPP as proposed by

Campbell and Di Paula. With regards to OOP, although Campbell and Di Paula excluded this subscale from their analysis, the content of the revised subscale suggests that it captures the belief that others should attain perfect standards, and a second belief that a critical response is forthcoming when these standards remain unfulfilled. The suggestion that the selected 15-items capture the complex nature of SOP, SPP, and OOP further reinforces the factorial composition of the revised MPS-HF in sport, and indicates that each of the 5-item subscales provide a measure of SOP, SPP, and OOP that is consistent with Hewitt and Flett's (1991) original theorising.

3.7.2. Do the revised subscales provide an accurate measure of SOP, SPP and OOP?

A related finding that supports the validity of the revised MPS-HF in sport is the relationship between the 5-item subscales and the 15-item subscales as originally developed by Hewitt and Flett (1991). Zero-order correlations between the revised and corresponding original subscale were significant ($p < .001$) and very strong, ranging between .81 – .92. This finding is particularly important because SOP, SPP, and OOP are highly complex constructs that represent a range of specific characteristics. The strength of the reported correlations would suggest that, although each subscale was reduced substantially, the revised 5-item subscales provide an accurate measure of these perfectionistic characteristic. Because the zero-order correlations confirm that the revised subscales are conceptually consistent with Hewitt and Flett's original perfectionism dimensions, it is concluded that the 15-item revised MPS-HF in sport reflects SOP, SPP, and OOP in a similar manner to the original, 45-item MPS-HF.

3.7.3. Correlations between the revised MPS-HF subscales

A third point worth highlighting is the correlations between the revised perfectionism subscales. The findings from both the confirmation and cross-validation confirmatory factor analyses revealed that SOP was significantly correlated with SPP and OOP. In contrast, SPP was non-significantly correlated with OOP. This latter finding contradicts the initial theorising of Hewitt and Flett (1991), who proposed reasons to expect some degree of overlap among their three perfectionism dimensions. This is because each subscale measures a form of perfectionism and has an implicit or explicit focus on the attainment of perfect standards. Furthermore, each form of perfectionism is characterised, to varying degrees, by criticism, fear of failure, and conditional acceptance. Consistent with their theorising, Hewitt and Flett reported significant intercorrelations among their MPS subscales, and subsequent research (e.g., Flett, Besser, & Hewitt, 2005; Flett, Besser, Hewitt, & Davis, 2007; Scott, 2007) that has included all three forms of perfectionism has supported the overlap between SOP, SPP, and OOP. The non-significant correlation between SPP and OOP in the current study was therefore unexpected. However, because previous research within sport psychology is yet to report upon the correlations between SOP, SPP, OOP, it is currently unknown whether this result is to be expected in athletes.

A potential explanation for the non-significant correlation between SPP and OOP is available in the interpersonal literature. In summarising the interpersonal nature of perfectionism, Habke and Flynn (2002) proposed that SPP is associated with both hostile-dominant and submissive presentations. In other words, the research literature suggests that socially prescribed perfectionists are

just as likely to be impatient and competitive as they are to be submissive, non-assertive, and socially withdraw from relationships. This latter pattern of interpersonal behaviour is logical because the socially prescribed perfectionist reports many interpersonal fears, such as negative evaluation and the non-approval of others, as they seek to reaffirm their self-worth. They are therefore unlikely to engage in a behavioural pattern that is characteristic of OOP, because it may serve to undermine a sense of self that is contingent upon positive interactions with significant others. This is particularly relevant for elite junior athletes where the development of successful relationships with significant others, such as coaches and fellow team-mates, is integral to the achievement of the ultimate goal; a professional status. Before sport psychologists conclude that SPP and OOP are unrelated, however, additional research that further explores this relationship in elite junior sport is clearly warranted.

3.7.4. Future research directions based on the findings of study one

Although study one provides evidence about the psychometric integrity of the proposed revised MPS-HF, construct validation is an ongoing process (Messick, 1989). As a result, future research is clearly warranted to further examine the internal structure of the proposed revised MPS-HF. In particular, additional research is required to establish the internal reliability of the revised OOP subscale. This is vital if researchers are to examine the interpersonal effects of OOP in athletes. Despite encouraging results with a diverse sample of elite junior athletes, clearly more work is required before sport psychologists unequivocally accept the factor structure and composition of the proposed MPS-HF. Supporting the recommendations of Anshel and Eom (2003) and Dunn et al.

(2006), replicating study one with athletes from different sports, competitive levels, age ranges, socio-cultural and socio-demo-graphic characteristics would serve to enhance the generalisability of the current findings and demonstrate that the scale can consistently withstand psychometric evaluation.

Sport psychologists should also establish the external validity of the proposed measures of SOP, SPP, and OOP. While the current study provided evidence of the intercorrelations between the revised 5-item and original MPS-HF 15-item subscales, future efforts are required to investigate the relationships between the revised subscales and alternative measures of perfectionism (e.g., Sport-Multidimensional Perfectionism Scale-2, Multidimensional Inventory of Perfectionism in Sport). Using the S-MPS-2, for example, it is predicted that SOP and SPP would be correlated with high personal standards, concern about mistakes, and doubts about actions, while SPP should also be correlated with perceived parental and coaches pressures. Although the S-MPS-2 does not provide a specific measure of perfectionistic demands for others, the findings of Dunn et al. (2006) would suggest a weak correlation between OOP and all subscales of the S-MPS-2. Similarly, a consideration of the revised MPS-HF's predictive utility is required, to determine whether this measure of perfectionism is capable of predicting behavioural variance in other sport-related constructs (e.g., athlete burnout, exercise dependence).

3.7.5. Study one conclusions

While Hewitt and Flett's (1991) multidimensional conceptualisation provides an approach to investigating perfectionism in sport that is consistent with historical descriptions of the construct, to date the MPS-HF has received scant

attention from sport psychologists. As a result, limited evidence exists regarding the factor structure and factorial composition of the MPS-HF. In study one, the original 45-item, three-factor structure of the MPS-HF was not substantiated by CFA. Subsequent EFA and CFA confirmed the conclusions of Cox et al. (2002) that a more parsimonious 15-item MPS-HF scale is justified. The responses from an independent sample of elite junior gymnasts and football players confirmed the revised structure. While future research is required to further establish the revised scale, the MPS-HF now exists in a form that has an acceptable factor structure in sport, and by which sport psychologists can; 1) investigate the potentially debilitating effects of SOP, SPP, and OOP; 2) measure psychological processes that mediate and moderate these effects, and; 3) examine factors that give rise to the development of each perfectionism dimension. This last point received the attention in studies two – five in the current research programme. Before empirically examining the aetiology of perfectionism in sport, however, chapter four will present a conceptual model of perfectionism development, as this model provides the guiding framework for the research questions proposed in subsequent chapters.

Chapter Four: The origins of perfectionism:

An introduction to the conceptual model of perfectionism development (Flett, Hewitt, Oliver, & Macdonald, 2002)

The primary objective of chapter four was to provide a critical explanation of Flett, Hewitt, Oliver, and Macdonald's (2002) conceptual model of perfectionism development. In doing so, the complex nature of perfectionism development is examined, and an analysis of the specific pathways that lead to SOP, SPP, and OOP provided. The first pathway captures the child's tendency to imitate their parents' perfectionism, as well as the psychological processes that underpin the intergenerational transmission of perfectionism. The second pathway examines the contribution of parental expectations and conditional approval to their child's dispositional perfectionism. The final pathway outlines the role of affectionless controlling parenting in perfectionism development. In addition to the influence parental pathways, the current chapter introduces a pathway that is specific to the development of perfectionism in athletes. This pathway focuses upon the coach-created motivational climate. The chapter concludes by outlining specific aims regarding investigations of the aetiology of perfectionism in the current research programme. These aims will form the basis of the empirical studies described in chapters five – eight.

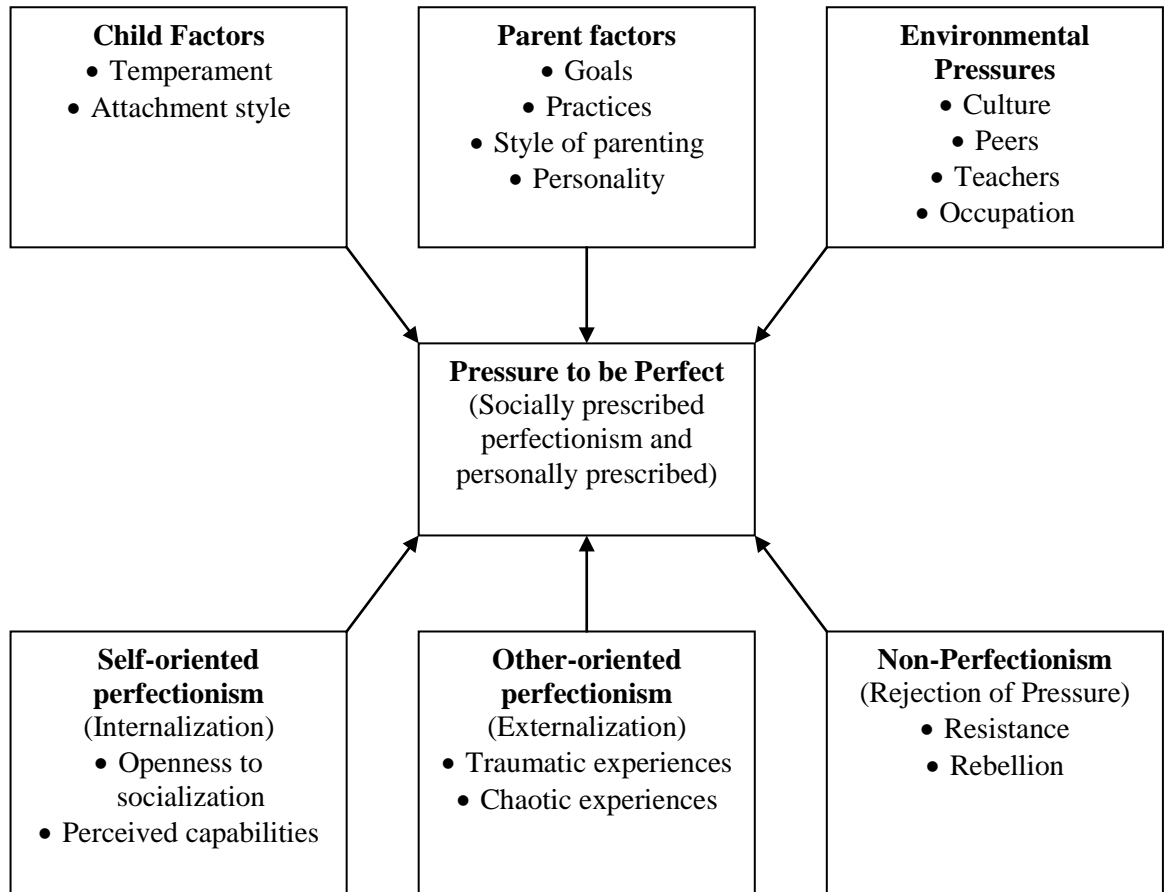
4.1. Introduction

The implications of perfectionism have been consistently demonstrated in empirical studies, and the psychological processes associated with the construct

clearly warrant the attention of researchers. Psychologists have addressed this issue by identifying moderators and mediators of perfectionism, and, to a lesser extent, the mechanisms that contribute to the development of perfectionism. This latter focus complements Flett et al's (2002) suggestion that insight into any personality construct may be gained by examining the factors and processes that contribute to its development. Examining aetiological factors of perfectionism seems especially warranted as historical descriptions and theoretical accounts consistently make explicit reference to the construct's development. However, the theoretical accounts of the origins of perfectionism have not been followed by extensive empirical work, and research in this area is still in its early stages (Flett et al., 2002). Fortunately, Flett and colleagues have provided the foundations by which this potential shortcoming in the perfectionism literature can be addressed. Flett et al. (2002) incorporated available evidence and proposed a conceptual model of perfectionism development (see Figure 4.1). A consistent theme emerging from this model is that perfectionism does not originate within an isolated vacuum; rather, the genesis of perfectionism occurs within a relational context, as a network of significant relationships saturates the child's developing world (Greenspon, 2008). Although the final conceptual model takes into account an array of potential relational contexts, parent-child interactions are considered integral to a child's proclivity towards perfectionism. As Greenspon (2000) suggested, personalities such as perfectionism arise in a human context, and the people to whom one is closest during the early stages of development have the most profound influence. For children, this is often their parents; a contention that is supported by previous research on the origins of perfectionism. In fact, three

Figure 4.1.

Preliminary model of the development of perfectionism, reproduced from Flett et al. (2002).



established pathways leading to the development of perfectionism emerge from previous research, with each pathway capturing the diverse influence of one's parents. Potential investigations of the aetiology of perfectionism in sport should therefore be guided by the conceptual tenets of each pathway.

4.2. Pathway One: The Social Learning Model

Historical descriptions of perfectionism consistently refer to the construct as learned behaviour derived from the child's interactions with their parents (Pacht, 1984). Initial theorising on this approach to perfectionism development was provided by Hollender (1965). According to Hollender, perfectionism is learned during childhood via exposure to perfectionistic parents. Later, Hamachek (1978) suggested that normal perfectionism develops through positive modelling, "which is simply a developmental by-product of a close identification with an emotionally important person, who, by example and percept, has passed on the idea that there are preferable ways of doing things" (p. 30). When children see their parents striving towards high standards or "the best one can do", and parental perfectionistic striving is equated with the "preferable way to do things", the child learns that perfectionism is a highly valued quality. Consistent with Hollender's and Hamachek's theorising, Barrow and Moore (1983) also proposed four family environments are conducive to the development of perfectionistic thinking in children. The final condition outlined by Barrow and Moore captured the child's tendency to model the perfectionistic attitudes and behaviours of their parents. Recognising that historical theories of perfectionism had focused upon children's modelling tendencies, Flett et al (2002) proposed the first pathway to perfectionism development. This pathway was explained via a social learning

model.

Flett et al.'s (2002) social learning model resembles the work of Bandura (1986), who demonstrated that children imitate, embrace, and subsequently model the values of significant others. In a similar manner, the social learning model captures the child's tendency to imitate the perfectionism that presumably resides in parents (Flett et al., 2002). Specifically, Flett et al. proposed that a child's developmental tendency to imitate is underpinned by an idealised notion of their parents, who is placed on a pedestal; that is, the child wants to be like their seemingly "perfect" parent (Flett et al., 2002).

Within the tenets of the social learning model, it is hypothesised that gifted children such as elite junior athletes will be especially inclined to imitate the perfectionism that presumably resides within their parents. This hypothesis is forwarded because the child's perceived or actual ability to attain perfection is a key factor in the genesis of perfectionism (Flett et al., 2002). A tendency to model the perfectionism of parents is highly irrational if a child has a history of limited success in achievement situations, or has no realistic possibility of attaining perfection in the future (Flett et al., 2002). In contrast, children are increasingly likely to model parents' perfectionism when a sense of perfection is possible. This latter point is relevant to elite junior athletes, who may not only consider perfection a realistic goal, but for whom perfection is an expected goal by the cultural norms that govern the achievement domain. Consequently, it is envisaged that the social learning model will provide a revealing insight into the development of perfectionism in elite junior athletes, and will therefore receive the attention of the current programme of research. Specifically, study two

(chapter five) will seek to answer the following research question: Do parents' SOP, SPP, and OOP significantly predict corresponding perfectionism dimensions in a sample of elite junior athletes?

4.2.1. Recent extensions to the Social Learning Model: The mediating role of parenting styles and practices

While the social learning model provides a foundation upon which to investigate the development of perfectionism in elite junior athletes, it is important that sport psychologists take heed of the recommendations proposed by Darling and Steinberg (1993). In their seminal article on parenting styles and practices, Darling and Steinberg argued that psychologists had identified the effects of parenting for child development, although little was known about the processes that mediated this relationship. Darling and Steinberg continued by suggesting models of parenting must account for the mediating processes through which parenting influences children. This statement was encapsulated by their contextual model of parenting. According to the contextual model of parenting, the influence of parental goals and values for a child's personality characteristics and behaviour is mediated by two critical factors; parenting style and parenting practices. The former captures a constellation of attitudes communicated to the child across a wide range of situations. Parental practices, in contrast, are behaviours defined by specific content and socialising goals, and are thus domain specific. The theorising of Darling and Steinberg had important implications for an understanding of general parenting, as researchers moved away from simply examining the effects of parental goals and values for children's personality characteristics, to explaining these effects via mediating processes.

In addition to the general parenting literature, Darling and Steinberg's (1993) contextual model has ramifications for an understanding of perfectionism development. Testing a social learning model may reveal one pathway to perfectionism development; however, Darling and Steinberg's theorising implies that the acquisition of perfectionism is more complex than simple modelling and imitation. Rather, perfectionism may be transmitted from parent to their children through specific parenting styles and practices. This is consistent with the recent findings of Soenens and colleagues (e.g., Soenens, Elliot, Goossens, Vansteenkiste, Luyten, & Duriez, 2005) from the general psychological literature. Soenens and his team have identified the mediating role of parents' psychological control in the intergenerational transmission of maladaptive perfectionism. The findings of Soenens, Elliot, et al. and the conceptual arguments of Darling and Steinberg have important implications for investigations of the origins of perfectionism in sport. Specifically, sport psychologists should move beyond merely testing a social learning model, and consider whether general and domain specific parenting plays an important role in the intergenerational transmission of perfectionism between parents and their athletic children. The current research programme attempted to address this issue in study three (chapter six), by seeking an answer to the following question; Does parental psychological control and empathy mediate the intergenerational transmission of perfectionism between parents and their athletic child?

4.3. Pathway Two: The Social Expectations Model

The social learning model offers but one avenue towards perfectionism

development. A second model, the social expectations model, constitutes another pathway to the development of perfectionism. An abiding theme within historical descriptions of perfectionism is that parental expectations and conditional approval are central to the roots of the construct. Thus, the major premise guiding the social expectations model is that children who become perfectionistic do so within an environment of extreme parental expectations and conditional parental acceptance (Flett et al., 2002).

Missildine (1963) provided an initial insight into the social expectations model of perfectionism development. Missildine proposed that parents of perfectionistic children are reluctant to approve of, and reward the efforts of their children. Rather than approve of their child's task engagement and self-improvement, parents constantly demand heightened performance standards and reserve positive feedback for rare occasions when expectations are fulfilled. Children respond to this family milieu with an array of characteristics that resemble perfectionism. That is, because imperfection portends something ominous, the child responds with heightened achievement striving as they seek to attain the approval of their parents. Furthermore, the child constantly belittles their own accomplishments as they feel they have never quite fulfilled parental expectations (Frost, Lahart, & Rosenblate, 1991).

The theorising of Hollender (1965) and Hamachek (1978) confirms the role of parental expectations and conditional acceptance in the aetiology of perfectionism. Hollender described the origins of perfectionism within a childhood environment where the message about underperformance is not just that the child is unacceptable, but that he or she might even be a worthless person.

When the child internalises these messages, their sense of self-worth becomes contingent upon achieving perfection and successfully attaining the approval of mother, father, or both parents. According to Hollender, the child learns that “If I try a little harder, if I do a little better, if I become perfect, my parents will love me” (p. 98). In a similar manner, Hamachek proposed that family environments of conditional positive approval are seeding grounds for the development of neurotic perfectionism. Within this environment, the child learns that a perfect performance is necessary before parental approval, and possibly parental love, is forthcoming. This, in turn, leads the child to equate self-worth with performance and the development of a perceptual lens in which parental demands are to be fulfilled at all times. It would seem that, in this situation, children are vulnerable to developing a fear of failure that is central to the perfectionism construct.

A similar analysis was provided by Burns (1980) and Sorotzkin (1998). Both Burns and Sorotzkin suggested that parents of perfectionistic children tend to be disappointed and nonapproving when the child makes a mistake or fails, and use love and approval as rewards for superior performance. In this way, the child fears performance errors, and failure becomes something to avoid. Moreover, the child learns that being perfect and avoiding mistakes are integral to escaping the unbearable feeling of being a disappointment to their parents (Sorotzkin, 1998), and that super-human effort and grandiose achievements underpin the successful attainment of parental acceptance (Greenspon, 2000). Burns proposed that once established, this form of self-evaluation and achievement striving becomes self-perpetuating and results in a form of perfectionism resembling SPP.

The social expectations model is expected to provide an insight into the development of SPP because this perfectionism dimension is characteristic of people whose self-worth is intertwined with the performance expectations of others. In their original conceptualisation of perfectionism, Hewitt and Flett (1991) suggested that socially prescribed perfectionists believe that significant others have unrealistic standards for them, and thus achievement striving is fuelled by the need to attain the standards and expectations prescribed by significant others. Returning to the arguments of Campbell and Di Paula (2002) further emphasises the contribution of a social expectations model to the development of SPP, as the two sub-beliefs of SPP include conditional self-acceptance and others' high standards.

Although Hewitt and Flett's (1991) theorising and Campbell and Di Paula's (2002) research was conducted with non-athletic samples, it is predicted that a social expectations model will also provide insight into the development of SPP in elite junior athletes. Recently, Anshel and Eom (2003) suggested that parental expectations are vital socialising processes in the development of perfectionism in young athletes, while a study by Dunn et al. (2006) revealed a positive relationship between parental expectations and SPP in a sample of footballers and figure skaters. Moreover, because sport psychologists are beginning to report upon the debilitating nature of SPP for athletes (e.g., Appleton et al., in press; Hall et al., 2008; Hill et al., 2008), an examination of the social expectations model is warranted within elite junior sport. Thus, a further purpose of the current research programme was to test the social expectations model with

a sample of elite junior athletes. This was achieved by examining parents' dispositional achievement goals.

4.3.1. Testing the Social Expectations Model: Parents' achievement goals

Complementing an examination of the social learning model with a test of the social expectations model will provide necessary insight into the differential pathway underpinning athletes' perfectionism development. With regards to the latter model, Flett and colleagues (2002) proposed that any attempt to examine parental expectations should consider the level, importance, and type of goal. The previous section, in which an overview of the social expectations model is provided, highlights the role of parents' unreasonably high standards for their child and the importance assigned to these expectations in understanding the aetiology of perfectionism. In contrast, little information is provided in terms of goal type; this is despite Flett et al. assigning central importance to parental goal type in the development of perfectionism. Flett et al. addressed this shortcoming via the motivational literature, which makes a clear distinction between goal types. In fact, a close inspection of the motivation literature suggests parents' goal type may encapsulate the guiding premise of the social expectations model. This is because the type of goal may also reflect the level and importance of a parent's goal.

The motivational literature makes a clear distinction between two types of dispositional goal orientations; an orientation that encourages self-improvement and task mastery (task orientation), and an orientation that focuses upon comparative information and superior performance (ego orientation) (Maehr, 1983; Maehr & Nicholls, 1980; Nicholls, 1979, 1984). Both achievement

orientations lead parents to set high expectations for their child. The importance placed on the successful attainment of these standards, however, varies according to the dominant goal. For the ego-oriented parent, success is defined in comparative terms and the child is required to outperform their fellow athletes. Moreover, because the ego-oriented parent assigns great importance to the successful attainment of comparative-based outcomes, success is demanded from the child on a consistent basis. This demand is reinforced by the parent, who withholds their acceptance and approval for occasions when an acceptable standard is forthcoming.

Task-oriented parents are similar to ego-oriented parents in the respect that they are concerned with the demonstration of high standards by their child. The task-oriented parents differ to ego-oriented parents, however, in the importance assigned to the attainment of high expectations. Rather than focusing solely upon external-indicators of performance, parents with a task orientation emphasise improvement of skills and task mastery. Consequently, when the child fails or produces a performance error, the parent does not withhold their approval or positive feedback because they overvalue their attainment of high expectations. The parent with a dispositional task orientation responds to errors with encouragement and attempts to educate the child about self-improvement.

A central tenet of the achievement goal theory is the orthogonal nature of goal orientations (Chi & Duda, 1995; Duda & Whitehead, 1998; Nicholls, 1989). That is, a parent may demonstrate varying levels of a task and ego orientation towards their child's athletic endeavours. The orthogonal nature of parents' achievement goals is particularly relevant to an understanding of perfectionism

development. This is because Appleton and colleagues (in press) have recently proposed the nature and form of SOP and SPP are characterised, in part, by patterns of achievement goals. Specifically, empirical evidence suggests SOP is associated with a high task/ego profile, while SPP is correlated with a high ego orientation. Expanding upon the theorising of Appleton et al., it is hypothesised that parents with a high task and ego orientation will be responsible for rearing self-oriented perfectionistic children, while athletes' SPP will occur in response to parents' ego orientation.

This brief analysis of the social expectations model highlights the necessary inclusion of parents' achievement goals when examining the origins of perfectionism in sport. By examining parents' achievement goals, sport psychologists may capture the guiding premise of the social expectations model; that is, the level and importance of parental expectations are key determinants of a child's perfectionism. In turn, further insight into the aetiology of elite junior athlete's perfectionism will be gained and an understanding of the potentially debilitating nature of perfectionism in sport may be enhanced. As a result, study four (chapter seven) of the current research provided a test of the social expectations model within elite junior sport via the following research question; Are parents' achievement goals for their athletic child significantly associated with athletes' perfectionism?

4.4. Pathway Three: The Social Reaction Model

In addition to high expectations and conditional approval, children who become perfectionistic do so through exposure to a harsh family environment (Flett et al., 2002). A harsh family environment can take many forms, including

physical abuse; psychological maltreatment, including the withdrawal of love and exposure to shame; or a chaotic family environment that involves a sense of unpredictability (Flett et al., 2002). Barrow and Moore (1982) originally highlighted the influence of a punitive family environment for an understanding of perfectionism development. Barrow and Moore proposed that several early environments can lead to the fusion of self-worth with perfection, including one in which parents are unduly critical of their child and withdraw love on occasions with perfection is not forthcoming.

More recently, Sorotzkin (1998) expanded his discussion of parental expectations and conditional acceptance by emphasising the contribution of critical parenting to perfectionism development. Parents who are unrelenting over criticalness create children with deep-seated feelings of inferiority, according to Sorotzkin. The child may respond to feelings of inferiority by becoming perfectionistic, as it is only through grandiosity that a sense of inferiority can become ameliorated (Sorotzkin, 1998). Within this perspective, children actively seek perfection as a means of coping with the austere nature of their parents (Flett et al., 2002). In other words, children may choose to strive for perfection to avoid (or at least minimise) further parental criticism and abuse (“No one will hurt me if I am perfect”) (Flett et al., 2002). A second explanation proffered within the social reactions model is that the unpredictable nature of the family home leads the son or daughter towards perfection, as he/she attempts to establish a sense of control over their childhood (Flett et al., 2002). This perspective is reinforced by Greenspon (2000), who suggested perfectionism develops when self-coherence is in a state of disrepair. This disrepair has occurred as a result of one’s unstable

childhood, which the child responds to by striving towards perfection in an attempt to restore self-worth.

In proposing their different approaches to perfectionism development, Flett et al. (2002) noted the substantial overlap between the social expectations model and the social reaction model. This overlap exists because both models examine parental behaviours and attitudes that are subsequently directed towards their child and are integral to the development of perfectionism. However, the models are viewed separately by Flett and associates because each approach addresses a specific dimension of parenting.

4.5. Addressing the overlap between the Social Expectations and Reaction Models

Flett et al. (2002) proposed that previous analyses of parenting have consistently identified two salient dimensions. For example, Watson (1928) emphasised control and Freud (1933) forwarded the notion of nurturance; Symonds (1939) advanced acceptance/rejection and dominance/submission dimensions; for Baldwin (1955), emotional warmth/hostility and detachment/involvement were important parenting dimensions; for Schaefer (1959), love/hostility and autonomy/control; and for Becker (1964), warmth/hostility and restrictiveness/permissiveness. For Flett and his team, the two parenting dimensions reflect parental expectations and the presence or absence of parental acceptance and warmth. The parental expectations dimension ranges from exceedingly high expectations and overcontrolling tendencies to a lack of interest in the child's development, and is central to the social expectations model. Parental warmth ranges from extreme harshness and criticalness, to extreme warmth and unconditional approval. This second dimension is central to

the social reaction model and reflects the valence and intensity of a parents' evaluation of their child.

Parental expectations and warmth were conceptualised as orthogonal dimensions by Flett et al. (2002), and thus different combinations may exist. Some parents have high expectations, but who are warm and accepting of their child, regardless of performance outcome. These parents demonstrate many of the characteristics of the task orientation discussed above, such as responding to mistakes with encouragement and valuing the attainment of realistic standards. It is therefore hypothesised when children are exposed to this form of parenting, they will respond with an adaptive pattern of achievement striving and not a form of perfectionism. This is because the child's self-worth is unconditionally accepted regardless of whether parental standards are attained. Moreover, the child does not fear failure because the parent is generally accepting of achievement outcomes and adopts a developmental stance towards performance errors.

Another subset of parents not only expect impossibly high standards, but are austere, critical, and lack warmth and acceptance when evaluating their child. This combination of parenting dimensions (i.e., high parental expectations, low parenting warmth) is labelled affectionless control (see Parker, Tupling, & Brown, 1979) within the parental literature, and may be reflected in Hewitt and Flett's (1991) OOP dimension. OOP is defined as holding unrealistically high standards for significant others, and engaging in stringent evaluation of others' performance. Other-oriented perfectionists also adopt a critical stance when the performance of others fails to meet their own high expectations (Hewitt & Flett, 1991). It is

hypothesised that within the confines of the family home, this externally-focused form of perfectionism will be directed towards loved ones. In terms of parents, this may include partners and children. Based on the defining characteristics of OOP, it is hypothesised that parents with an other-oriented perfectionistic disposition towards their child may be described as affectionless controlling. The children of other-oriented perfectionistic parents are, in turn, increasingly vulnerable to the development of SPP. This is because within a family environment dominant by other-oriented parents, the attainment of parental approval, or the avoidance of parental disapproval, becomes central to the child's self-worth. Only by attaining unrealistic parental standards can the child reaffirm their self-worth (Flett et al., 2002).

Consistent with the tenets of the social expectations model, parents with an other-oriented perfectionistic disposition constantly demand excellence from their child (Missildine, 1963) to the extent that positive rewards, approval, and love become contingent upon unattainable standards of performance (Burns, 1980; Flett et al., 2002; Hamachek, 1978). Continual exposure to such contingent-based recognition fuels an unconditional self-acceptance in the child, as they inextricably tie their self-worth to the unrealistic demands of their mother and/or father. Accompanying the high expectations of the other-oriented perfectionistic parent is a critical stance, which is consistent with the premise underpinning a social reaction model. As suggested previously, the child responds to the punitive nature of their parent's evaluations by striving towards perfection, as they attempt to avoid further parental disapproval and/or establish a sense of control in unpredictable family environment. Overall then, an other-oriented perfectionistic

parent leads their offspring towards perfectionistic striving, as the child aims for their parents' unrealistic standards and attempts to protect a sense of self-worth that is contingent upon the attainment of parental approval (Flett et al., 2002). These characteristics are central to the SPP construct, and thus parents' OOP is hypothesised to underpin the development of athletes' SPP.

In light of the proposed argument, an examination of the origins of perfectionism within elite junior athletes would benefit by combining the social expectations and social reaction models, and, in turn, examining the implications of affectionless controlling parenting for the development of athletes' SPP. One means of achieving this objective may be via the relationship between parents' OOP and their athletic child's SPP. This relationship is considered within study two (chapter five) of the current research programme, which seeks an answer to the following research question; Does parents' dispositional OOP significantly predict athletes' SPP?

This brief overview of differential pathways reveals the complex nature of perfectionism development in children, and captures a diverse array of parental factors that contribute to perfectionism. From the intergenerational transmission of perfectionism, where children choose to model their seemingly perfect parents, to important mediating processes in the parent-child perfectionism relationship; and finally unrealistic parental expectations and harsh, critical parenting, an understanding of the origins of perfectionism is far from simple. Fortunately, Flett et al's (2002) conceptual model of perfectionism development provides a theoretical basis upon which sport psychologists can begin to identify parental factors that contribute to perfectionism development in elite junior athletes. In

identifying these processes, researchers should remain cognisant that parent-child interactions may provide but one account of the origins of perfectionism, and additional pathways to perfectionism development may exist. One such pathway considers the influence of additional social actors (Anshel & Eom, 2003; Dunn et al., 2006; Flett et al., 2002; Gotwals & Dunn, 2008).

4.6. Extending the conceptual model of perfectionism development: The role of environmental pressures

Although the family milieu has an unquestionable role in fostering perfectionistic tendencies, Flett et al. (2002) stressed that parent-child interactions provide a limited insight into perfectionism development. This is evident in the pathways identified above, which provide a *social* learning, *social* expectations, and a *social* reaction explanation of perfectionism development. While parent-child interactions are central to these societal pathways, a further examination of the conceptual model of perfectionism development reveals the influence of wider societal and cultural factors in perfectionism development. Cultures that emphasise a need to attain prescribed expectations, for example, may increase a child's preoccupation with attaining impossible standards. Flett et al. suggested that cultural pressures are evident within society's preoccupation with attaining the perfect body, and may subsequently underpin a host of maladaptive eating behaviours, unhealthy exercise attitudes, and self-objectification. Cultural pressures may also apply to the expectations and norms of a particular achievement domain (Flett et al., 2002), and this latter statement has specific implications for the development of perfectionism in elite junior athletes. If the young performer perceives that perfection is not only the cultural norm within

elite sport, but is an expectation upon which positive approval is contingent, the cultural pressures of sport will likely foster the elite junior athlete's preoccupation with attaining exceedingly high standards, concern for mistakes, and contingent self-esteem.

Other social actors in a child's environment (e.g., teachers, peers), in addition to parents, may also account for the aetiology of perfectionism. The influence of peer interactions, for example, is hypothesised to play a vital role in the development and maintenance of perfectionism, above and beyond the contribution of parents (Flett et al., 2002). This hypothesis is consistent with Harris (1995), who posited that the contribution of parents for the long-term development of a child's personality is often over-stated. In contrast, the influence of peers on a child's personality characteristics is more substantial, especially during adolescence (Harris, 1995).

Within the context of elite junior sport, it is argued that the influence of additional social actors may extend to coaches (Anshel & Eom, 2003; Dunn et al., 2006; Gotwals & Dunn, 2009). This statement is unsurprising given that coaches provide performance expectations and achievement evaluations among athletes. The role of coaches in the aetiology of perfectionism was clearly identified by Krane, Greenleaf and Snow (1997) in a case study of a former elite gymnast. With regards to the coaching climate, the gymnast reported that her coach rewarded an unyielding dedication to achieving perfection, and when perfection was not attained, the coach often resorted to physical punishment. In response to coach pressures, the gymnast's intense desire to excel was exacerbated because she internalised into her own goals the coach's expectations and demands. Moreover,

the emphasis placed upon perfect performance meant that training and competition was preceded by feelings of anxiety and self-doubt, as the gymnast worried about achieving the desired standard of performance necessary for coach approval.

Sport-specific measures of perfectionism also capture the role of coach pressures in the origins of perfectionism. Using the MPS-F, Anshel and Eom (2003) and Dunn and colleagues (2006; Gotwals & Dunn, 2009) have developed multidimensional perfectionism scales for sport. Included within each measure are separate subscales that focus upon the expectations and criticism of parents and coaches (e.g., S-MPS-2; perceived parental pressure and perceived coach pressure). In response to their scale, Dunn et al. (2006) suggested researchers should differentiate between significant others from whom athletes perceived socially based expectations and pressures; a statement that reinforces Anshel and Eom's conclusion that future studies in sport should examine the influence of parents *and* coaches upon the development of athletes' perfectionistic tendencies. If one considers Flett et al's (2002) suggestion that environmental pressures *and* parent-child interactions are equally important to perfectionism development, in addition to recent measures of perfectionism in sport, an understanding of the multiple pathways to perfectionism in elite junior athletes will undoubtedly be strengthened via a consideration of the coach.

Potential insight into the coach-based pathway of perfectionism development may be available via the motivational climate literature. The coach-created motivational climate has received considerable attention from sport psychologists (see Duda & Balaguer, 2007, for a recent summary), and extends

the theorising associated with the achievement goal literature. As with achievement goals, two coach-created motivational climates are thought to exist. The first is a performance climate and the second is labelled a mastery climate. A performance climate reflects the coach's concern for attaining success without effort and the importance placed on avoiding performance errors (Duda & Balaguer, 2007). In contrast, a mastery climate encourages enjoyment throughout the learning process, and is thought to facilitate positive cognition, affect, and behaviour in athletes (Duda & Balaguer, 2007). In a similar manner to parents with a dispositional ego orientation, the achievement information promoted within a performance climate will likely facilitate perfectionistic tendencies in elite junior athletes. The achievement information within a performance climate emphasises comparative-based achievement and inter-personal competition, which heightens the child's tendency to ruminate about performance errors. In response, the athlete will attempt to avoid performance errors and the subsequent implications for self-worth, by placing great importance on the attainment of perfection. This ruminative pattern of cognitions, contingent self-worth, and striving for perfection will likely culminate in perfectionistic tendencies. In light of the potential relationship between the coach-created motivational climate and athletes' perfectionism, the conceptual model of perfectionism development is therefore re-presented (see Fig 4.2) to include the former construct (i.e., coach climate). Furthermore, the current research programme will provide an empirical test of the aforementioned relationship in study eight (chapter five). This final study will seek an answer to the following research question: Does the coach-

created motivational climate explain a significant proportion of variance in athletes' perfectionistic cognitions, above and beyond the influence of parents?

4.7. The conceptual model of perfectionism development

The various pathways outlined above were summarised by Flett et al. (2002) within their conceptual model of perfectionism development. The model presented in Fig 4.2 reinforces Flett et al's contention that multiple, interwoven pathways lead to perfectionism development, and that the specific perfectionism dimension/s acquired by the child will be determined by the pathways that are in operation. Studies two – five of the current research programme aimed to provide an insight into the complexity of the pathways, by examining the various processes that lead to the development of perfectionism in elite junior athletes.

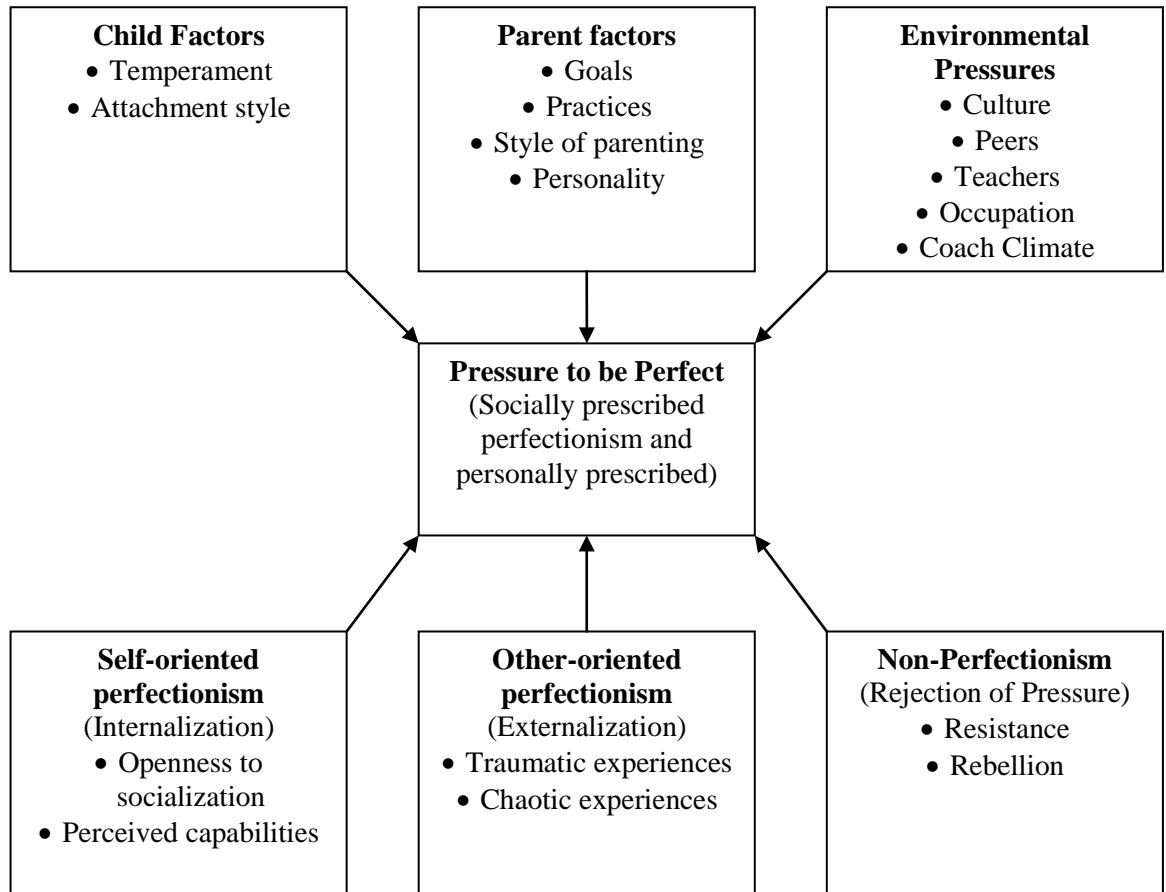
In addition to the pathways that encourage perfectionistic tendencies (which are captured in the upper section of figure 4.2), Flett and colleagues (2002) argued that the extent to which perfectionism develops, and the type of perfectionism acquired by the child, depends on factors outlined in the lower half of the model. Although the current research programme will not explicitly test the lower half of the model, it does have significant implications for understanding perfectionism development in elite junior athletes. As a result, the lower half of the model will be explained in the following section.

Whether perfectionism develops is highly dependent upon the child internalising socially imposed standards into a coherent self-view. Because children vary in the degree to which they are open to socialisation and subsequent internalisation of values (Flett et al., 2002), children may or may not develop perfectionism in response to parental and environment pressures. Children who

Figure 4.2.

The conceptual model of the development of perfectionism (Flett et al., 2002)

amended to include coach pressure



are more open to parental and societal influence are increasingly vulnerable to the acquisition of perfectionism. Other children may choose to reject external pressures for a number of reasons. Children may want to avoid modelling their mother and/or father because they have come to despise their parent's perfectionism and associated behaviours. A further reason for the rejection of external pressure is because the child views perfection as an unrealistic goal. Flett et al. expanded upon this second reason, and suggested children will most likely strive for perfection in domains where feelings of competence are experienced and a sense of perfection is deemed possible. With regards to elite junior athletes, a personal history of success and achievement in sport has been recognised, and may lead the child to believe that perfection is a realistic goal for future performance. Based on the theorising of Flett et al., it is therefore hypothesised that elite junior athletes are especially susceptible to perfectionism development because of their successful history within sport.

Once the child is exposed to external pressures to be perfect, and has subsequently accepted the pressures into their self-view (see centre box of Fig. 4.2), a number of important factors determine the type of perfectionism on display. According to the conceptual model of perfectionism development, the internalisation of external pressures leads to the development of SPP. This is consistent with the social expectations and reaction models, which outline the role of parental demands, conditional acceptance, and fear over mistakes as sources of SPP. When external pressures to be perfect are translated into expectations on the self, SOP will emerge. However, the translation of external pressures into one's self-concept is far from simple. Flett et al. (2002) proposed a complex set of

factors that determine whether external pressures to be perfect subsequently develop into SOP, including the degree to which the child is open to socialisation, whether the child decides to model a self-oriented perfectionist, whether important environments (e.g., family, sport) emphasise the achievement of perfection, whether the child has the skills and abilities to achieve perfection, and whether the child has a personality characterised by extreme persistence and fearfulness.

External pressures to be perfect may also be externalised in the form of expectations on others, which is subsequently reflected in OOP. A number of factors also determine the extent to which external pressures to be perfect are directed towards others, including exposure to an environment that is extremely evaluative in nature, in which the child acquires a similar need to evaluate; maintaining a self-view that perfection is possible and therefore others should also perform to a similar standard; the need for social support within a chaotic environments; and a reaction to a history or perception of being mistreated or disappointed by others (Flett et al., 2002).

4.8. Concluding remarks and aims for studies two – five

Flett et al's (2002) conceptual model is an important addition to the perfectionism literature as it provides a theoretical foundation upon which future research can investigate the development of perfectionism in a variety of samples, including elite junior athletes. In fact, attention to the origins of perfectionism has increased in response to Flett et al's conceptual model, with a number of recent studies examining the array of pathways towards perfectionism. Despite an increase in research intensity, there are still many questions that remain to be

answered regarding the origins of perfectionism, particularly within the context of elite junior sport. The purpose of studies two – five was to address this issue.

While a comprehensive test of Flett et al's model cannot be achieved within these four studies, studies two – five provide an initial insight into the development of elite junior athletes' perfectionism by examining a number of specific pathways.

The aims of studies two – five are provided here, and will form the basis of chapters five – eight.

Aims for Study Two: The first aim for study two was to examine the relationship between parents' perfectionism and similar tendencies in elite junior athletes. In doing so, study two examined the social learning model of perfectionism development (Flett et al., 2002). A second aim was to examine the proposed relationship between parents' OOP and athletes' SPP.

Aim for Study Three: The aim for study three was to investigate the mediating influence of parental styles and practices in the intergenerational transmission of perfectionism between parents and their elite junior athletic child. Specifically, study three examined the mediating role of parental empathy and psychological control.

Aim for Study Four: The aim of study four was to provide a test of the social expectations model. Specifically, the study examined the relationship between parents' achievement goals for their child and athletes' perfectionistic tendencies.

Aim for Study Five: The aim of study five was to examine the environmental pressures pathway to perfectionism development with a sample of elite junior athletes. Specifically, study five examined the contribution of the coach-created motivational climate to the perfectionistic cognitions as reported by a sample of elite junior athletes, above and beyond the influence of the parental-created motivational climate.

The aims will be elaborated upon in the separate study chapters to follow, as well as forwarding specific hypotheses for each study.

Chapter Five: Examining the origins of perfectionism in elite junior athletes:

The role of parents' perfectionism

The purpose of study two was to examine the relationship between parents' and elite junior athletes' SOP, SPP, OOP. In doing so, study two provided a specific test of the social learning model of perfectionism development (Flett et al., 2002). According to this model, children acquire perfectionism by modelling the perfectionism that presumably resides within their parents. Related to the social learning model are two competing explanations of perfectionism development; the primary caregiver hypothesis and the same-sex parent-child hypothesis. The chapter will provide an analysis of both explanations, and propose that male and female elite junior athletes acquire perfectionism by modelling their fathers', but not their mothers' perfectionism. In line with Eccles' (1993) expectancy-value model, it was also predicted that children's perceptions of their fathers' perfectionism would emerge as the strongest predictor of their own perfectionism when considered alongside parents' self-reported perfectionism. Finally, study two examined an alternative pathway to the development of SPP in elite junior athletes. This pathway was based on the theorising of Speirs Neumeister (2004), who proposed that parenting style is the strongest predictor of a child's SPP. Speirs Neumeister's suggestions were tested in the current study via an examination of the parent OOP – child SPP relationship.

5.1. Introduction

Despite mounting evidence surrounding the effects of perfectionism in sport (for a summary see Flett & Hewitt, 2005; Hall, 2006), little is known about how this personality construct develops in athletes. From the general psychology literature, it is known that perfectionistic tendencies do not occur in a vacuum (Flett et al., 2002), but develop as a function of a child's interactions with individuals or groups within his or her social environment. The notion that a child's perfectionism develops within a social environment is consistent with Bronfenbrenner's (1993; Bronfenbrenner & Morris, 1998) bioecological model of human development. According to this model, the child is impacted by individuals within the immediate environment, and then by broader societal and cultural forces that influence the immediate environment. Over time, the sociocultural milieu in which the child lives exerts an influence on the child and shapes his or her personality characteristics. Within the context of sport, it is expected that coaches and teammates will form a central component of the social environment, and influence the athlete's personality (Horn & Horn, 2007). However, for the junior athlete, the most important of the socioenvironmental dimensions may be the family environment (Horn & Horn, 2007), which is consistently accessible and has a lasting influence over the child's development. In line with this theorising, the current study examined the contribution of parents to the perfectionistic tendencies of elite junior athletes.

Although investigations into the origins of perfectionism are sparse within sport psychology, there is considerable consensus among general psychologists that the family environment facilitates perfectionism development (Barrow &

Moore, 1993; Burns, 1980; Flett et al., 2002; Frost, Lahart, & Rosenblate, 1991; Greenspon, 2000; 2008; Hamacheck, 1978; Missildine, 1963). In particular, parent-child interactions are considered especially important for a child's proclivity towards perfectionism (Flett et al., 2002). Such theorising shares conceptual similarities to theoretical approaches of child rearing (e.g., Darling & Steinberg, 1993). One theory that captures the influence of parents for athletes' personality characteristics is the expectancy-value model developed by Eccles and colleagues (Eccles, 2005; Eccles, Wigfield, & Schiefele, 1998; Fredricks & Eccles, 2004). The expectancy model proposes that parental beliefs and value systems determine the types of behaviours that parents exhibit towards and with their child. When internalised by the child, these parental behaviours encourage certain beliefs and value systems within achievement domains such as education and sport (Horn & Horn, 2007). In a similar fashion, Flett et al. (2002) emphasised the multifaceted nature of parental influence in the conceptual model of perfectionism development. This model purports that parental goals and practises, the style of parenting, and a parent's personality characteristics all contribute to perfectionism in children. In proposing their conceptual model, Flett et al. suggested that an array of pathways underpin the development of perfectionism. One such pathway is captured within a social learning model, which examines a child's acquisition of perfectionism by modelling the perfectionism that presumably resides within the parents.

5.2. The social learning model

It seems intuitive that when children are continually exposed to certain parental characteristics, they model their mother and father and develop similar

personality dispositions. This position has received support in the sport psychology literature. For example, White, Kavussanu, Tank, and Wingate (2004) examined the intergenerational transmission of sports beliefs between parents and athletes. White et al. demonstrated that a parental belief that effort leads to success in sport was correlated to a similar belief in athletes. Conversely, a parental belief that superior ability, external factors, and use of deceptive tactics are precursors to success in sport corresponded to the same personal belief in athletes. The intergenerational transmission of achievement goal orientations between parents and their athletic child has also emerged in sport studies (Bois, Sarrazin, Brustad, Trouilloud, & Cury, 2002; Duda & Hom, 1993; Ebbeck & Becker, 1994; Givvin, 2001; Kimiecik, Horn, & Shurin, 1996). The research evidence suggests that athletes who are high in task orientation believe the parent who is most significant to their sporting involvement is task oriented, and athletes high in ego orientation perceive their parents as highly ego oriented.

Although sport psychologists are yet to examine a social learning model of perfectionism development, empirical testing of this model has emerged in the general psychology domain (e.g., Frost et al., 1991; Vieth & Trull, 1999). An examination of the relevant literature reveals that parents' perfectionism is consistently linked with similar tendencies in children, supporting the intergenerational transmission of perfectionism from one generation to the next. What is less clear from previous research is whether children acquire perfectionism by modelling their mother, father, or both parents. One suggestion is that children acquire perfectionism by modelling their primary caregiver, which is reported to be the mother. Conversely, children may develop perfectionism via

modelling of their same-sex parent (i.e., a son models the perfectionism of their father). In an attempt to address this issue, theorists have forwarded two competing hypotheses regarding the intergenerational transmission of perfectionism; the primary caregiver hypothesis and the same-sex parent-child hypothesis.

5.2.1. The primary caregiver hypothesis of perfectionism development

The primary caregiver hypothesis was initially proposed by Frost et al (1991). According to Frost and colleagues, children acquire perfectionism by imitating their mothers, because it is the mother who retains child rearing responsibilities over the father. Based on the primary caregiver hypothesis, it is suggested that during their formative years, children receive greater exposure to their mother's personality characteristics than their father's (Vieth & Trull, 1999). As a result, maternal perfectionistic beliefs and behaviours may be more readily available for modelling than paternal perfectionism (Frost et al., 1991).

When testing the social learning model of perfectionism development, support for the primary caregiver hypothesis is gained if the perfectionism scores of children correspond more closely with those of their mother, as opposed to their fathers. To date, two studies have produced these findings. Frost and colleagues (1991) provided preliminary support for the primary caregiver hypothesis of perfectionism development with two samples ($n = 41$ and $n = 63$) of female undergraduate students and their mothers and fathers. All participants completed the MPS-F. The results of study one revealed that mothers' overall perfectionism accounted for fifteen per cent of daughters' overall perfectionism. Fathers' overall perfectionism, in contrast, did not significantly contribute to

daughters' overall perfectionism. The findings of study one were replicated in study two; while mothers' overall perfectionism accounted for seventeen per cent of variance in daughters' total perfectionism score and nineteen per cent of variance in daughters' concern over mistakes scores, the relationship between fathers' and daughters' perfectionism remained non-significant.

The intergenerational transmission of perfectionism between mothers and daughters, but not between fathers and daughters, was recently confirmed by Soenens and colleagues (Soenens, Elliot, et al., 2005; Soenens, Vansteenkiste, Luyten, Duriez, & Goossens, 2005). Soenens, Vansteenkiste, et al. initially identified a significant correlation between mother and daughters' maladaptive perfectionism, but not between fathers' and daughters' maladaptive perfectionism. A subsequent study by Soenens, Elliot, et al. confirmed their early findings. Using a sample of 128 families consisting of the mother, father, and daughter, Soenens, Elliot, et al. examined the mediating role of parental psychological control in the intergenerational transmission of perfectionism (as measured by the MPS-F). As part of a path analysis, Soenens, Elliot and colleagues considered the relationship between parents' and daughters' perfectionism. The findings revealed a non significant path between fathers' perfectionism and daughters' perfectionism. The same path for mothers, in contrast, did attain significance.

5.2.2. The same-sex hypothesis of perfectionism development

Although on first view the results of Frost et al. (1991) and Soenens and associates (2005; 2005) support the primary caregiver hypothesis, a closer inspection reveals a second possible explanation for the findings. This alternative explanation is captured within a same-sex hypothesis which suggests children

model the perfectionism that resides within their same-sex parent (Frost et al., 1991), but reject the perfectionism of their opposite sex-parent (Vieth & Trull, 1999). The findings of Frost et al. and Soenens et al. would seem to support this second hypothesis, because the parent-child perfectionism relationship was isolated to mothers and daughters, whereas the father-daughter perfectionism relationship was non-significant. Moreover, Frost et al's and Soenens et al's support for the primary caregiver hypothesis is somewhat limited because their results are isolated to parent-daughter samples and cannot be generalised to the development of perfectionism in sons. If the findings of Frost and Soenens extend to sons, researchers may rightfully offer support for the primary caregiver hypothesis and conclude that maternal perfectionism is more readily available for children to model than paternal perfectionism.

A number of studies have considered the intergenerational transmission of perfectionism with mixed-gender children samples, and inconsistent findings have emerged. In support of a primary-caregiver hypothesis, a recent study by Cook and Kearney (2009) with ninety-seven youths and their parents (both mother and father) demonstrated that maternal SOP significantly predicted sons' SOP. In contrast, an earlier quantitative study by Vieth and Trull (1999), and a more recent qualitative analysis by Speirs Neumeister (2004), offer support for the same-sex hypothesis. Vieth and Trull examined the social learning model of perfectionism development with a sample of mixed-sex undergraduate students and their parents. Using the MPS-HF, Vieth and Trull found the relations between both parents' SOP scores and students' SOP scores varied as a function of the sex of the student. That is, SOP in daughters was correlated with SOP in mothers but not

fathers, and SOP in sons was positively associated with SOP in fathers but negatively associated with SOP in mothers. Speirs Neumeister's qualitative study with a sample of gifted students also revealed a gender match between parent and child SOP. Two female students who reported high SOP scores perceived their mothers as demonstrating high levels of SOP, while Carl, a male student, reported that after years of observing his father's own self-oriented perfectionistic tendencies, he began to approach life in a similar manner.

If one considers the findings from the perfectionism literature, it is difficult to conclude whether mothers or fathers will contribute to the development of perfectionism in elite junior athlete via intergenerational transmission. However, before testing both a primary-caregiver and same-sex hypothesis of perfectionism development with junior athletes, it is worth considering the parenting literature from sport psychology. In particular, a number of theoretical models have emerged that consider the contribution of both parents to the athletic child, and have led to a recent argument that, in comparison to mothers, fathers play a more important role in sport for both sons and daughters (Horn & Horn, 2007).

5.2.3. Applying the social learning model of perfectionism development in sport

A number of studies have examined the role of both parents in the sporting experience of junior sport performers (e.g., Fagot & Leinbach, 1995; Fredricks & Eccles, 2002; McHale, Crouter, & Tucker, 1999; Updegraff, McHale, & Crouter, 1996). For example, Fredricks and Eccles (2002) conducted a longitudinal project in which they measured children's perceptions of competence and values in sports. In addition to obtaining data from the children during grade one through to

grade twelve, Fredrick and Eccles also assessed mothers' and fathers' initial perceptions of their children's ability in sport. The strongest predictor of children's perceived sport competence over time was the fathers' beliefs regarding their children's sport competence. Fredricks and Eccles explained this finding by suggesting fathers are more influential because sport is still considered to be a masculine-based activity, and thus children perceive their father as a more important source of sporting information than their mother.

The possibility that fathers are more influential in sport than mothers for both sons *and* daughters suggests athletic children may refer to their father for appropriate sport-related information, regardless of the child's gender. An extension of this argument is that because sport is considered a masculine domain, both male and female athletes may receive greater exposure to their father and subsequently imitate the personality dispositions of their paternal parent, and not their maternal caregiver. As a result, a same-sex hypothesis may not explain perfectionism development in sport because daughters, as well as sons, acquire perfectionism by modelling paternal perfectionism. A more accurate hypothesis would require a modification of the primary-caregiver hypothesis. As outlined above, the original primary caregiver hypothesis proposes that maternal perfectionism is more readily available for both sons and daughters to model, because it is the mother who assumes child rearing responsibilities. While this may apply to day-to-day parental activities with a non-athletic child, the central role of fathers in sport suggests paternal influence will dominant the development of elite junior athletes. In turn, fathers' perfectionism may be more readily available for junior athletes to model than maternal perfectionism.

Responding to the contention that junior athletes acquire perfectionism by modelling paternal perfectionism, the first purpose of study two was to empirically test the hypothesis that fathers' perfectionism, but not mothers' perfectionism, would be a significant predictor of similar perfectionistic tendencies in elite junior athletes. In forwarding this hypothesis, two additional points emerge that underpin an understanding of perfectionism development and thus require explanation; the importance of distinguishing between parents' self-reported perfectionism and children's perceptions of parents' perfectionism, and the differential pathways that lead to SOP, SPP, and OOP in children.

5.2.4. Parents' self-report vs. children's perceptions

When measuring the origins of perfectionism, it is important that parents' self-reported perfectionism is distinguished from children's perceptions of parental perfectionism (Flett et al., 2002), a point reinforced by Eccles' (1993) expectancy-value model. According to this model, the influence of parents on children's beliefs occurs through the children's perceptions of their mother and/or father. In particular, an athlete's goals, general self-schema, and personality are influenced by the perception of the socialisers' beliefs and behaviours, rather than reality itself (Eccles, 1993).

The influence of children's perceptions of parents for their own personality characteristics can be gleaned from the sport psychology literature on achievement goals. In a study with children attending a summer basketball club, Duda and Hom (1993) found that parents' self-reported goal orientations were not correlated with children's self-reported goal orientations; however, children's perceptions of their parents' achievement goals were significantly related to their

own goal orientations. A number of more recent studies (e.g., Bois et al., 2005; Ebbeck & Becker, 1994; Givvin, 2001; Kimiecik et al., 1996) confirm the findings of Duda and Hom. For example, using ninety junior swimmers and their most influential parent, Givvin reported that while athletes' goal orientations were unrelated to their parents' self-reported goals, they were correlated to the athletes' perceptions of their parents' goal orientations. The results from the achievement goal literature suggest a child's perception of their parents' personality dispositions exert the most influence on similar tendencies in the athletic child (Horn & Horn, 2007). Applying these findings to an understanding of perfectionism development, it is hypothesised that an athlete's interpretation of their parent's perfectionism, rather than reality itself (i.e., parental self-report), will emerge as the strongest predictor of athletes' self-reported perfectionism. A second purpose of study two was to test this hypothesis.

5.3. The differential pathways to SOP, SPP, and OOP

A second point that emerges from the social learning model is the intergenerational transmission of corresponding perfectionism dimensions, as measured by the MPS-HF. The premise of the social learning model is that children imitate the perfectionism that presumably resides within their parent. Based on this premise, it seems reasonable to predict that the strongest predictor of each perfectionism dimension (i.e., SOP, SPP, and OOP) in elite junior athletes should be the corresponding dimension in parents. For instance, athletes' self-reported SOP should be correlated most highly with perceptions of fathers' SOP. A close inspection of Speirs Neumeister's (2004) qualitative study, however, reveals complexities in the intergenerational transmission of corresponding

perfectionism dimensions.

Speirs Neumeister's (2004) findings indicate that the pathway underpinning SOP development differs somewhat to the avenue towards SPP. The findings relating to SOP were consistent with the social learning model; children reported that modelling parents' SOP was the primary contributor to their own self-oriented perfectionistic tendencies. The findings relating to SPP, however, were not consistent with the social learning model. The socially prescribed perfectionists indicated their perfectionism developed not through observing and modelling similar tendencies in their parents, but rather in response to high parental demands and the critical evaluations of their parents. Speirs Neumeister concluded that parenting style offers more explanatory power for describing the development of SPP than a modelling tendency in children.

The conclusions proffered by Speirs Neumeister (2004) make an important contribution to an understanding of the origins of perfectionism, because they reveal the unique pathways that lead to different forms of perfectionism in children. Specifically, Speirs Neumeister's conclusions suggest that while the social learning model may explain the development of SOP (and OOP), an alternative explanation is required for the development of SPP because parents' high demands and critical evaluations of their child may be the strongest predictors of this form of perfectionism. One such explanation may be found in the social expectations and social reaction models.

5.4. The origins of SPP: The social expectations and reaction models

As highlighted in chapter four, together the social expectations and social reaction models described a parenting style labelled as affectionless control

(Flett et al., 2002). Affectionless control describes a style of parenting which demands high standards from the child and is overly critical in its evaluations of the child's performance (Flett et al., 2002). In demanding high standards from their child, the affectionless controlling parent is also characterised by contingent approval; that is, the parent withholds their approval for those occasions when the child produces a perfect performance (Flett et al., 2002). Related to this issue, Randolph and Dykman (1998) proposed that parents who disparage the child when poor performance occurs are conveying conditional acceptance of the child. Parental conditional acceptance may then become internalised as rigid or perfectionistic conditions for the child's own self-acceptance.

Constant exposure to this particular family milieu leads the child to inextricable tie their self-worth to the unrealistic demands of their parents, in which feeling of self-esteem are conditional upon achieving the approval of their parent (Randolph & Dykman, 1998). In response to their contingent self-worth, the child strives relentlessly towards parent-determined standards of performance, almost as a coping mechanism, as they attempt to avoid further disapproval, rejection, or shame of their caregivers. Hewitt and Flett (1991) proposed that when achievement striving is focused upon the attainment of externally determined standards and the attainment of these standards is a prerequisite for feeling of self-esteem, the individual can be described as a socially prescribed perfectionist. Based on this argument, it is hypothesised that elite junior athletes of affectionless controlling parents will report high SPP scores.

Much of the literature of the origins of perfectionism has examined the characteristics associated with affectionless controlling parenting. Rice, Ashby,

and Preusser (1996) examined the differences between students scoring high or low on concern over mistakes with regards to perceptions of parent-child relationships, which included parental expectations and critical evaluations for their child. Using a sample of 58 undergraduate students, children classified as high in concern over mistakes reported greater expectations and more criticism from their parents than students scoring low on concern over mistakes.

This finding was replicated in a study by Randolph and Dykman (1998) with a sample of college students. Randolph and Dykman investigated the relationship between dysfunctional parenting and children's perfectionistic attitudes, as measured by Weissman and Beck's (1978) Dysfunctional Attitudes Scale. A structural equation model revealed that of the constructs representing dysfunctional parenting, critical parenting and parental expectations for their child emerged as significant predictors of dysfunctional, perfectionistic attitudes in college students. A more recent study by Rice and Mirzadeh (2000) also provides an indirect insight into affectionless controlling parenting and perfectionism development. Rice and Mirzadeh examined the relationship between child's attachment security with their parent and child's self-reported perfectionism. A cluster analysis technique grouped undergraduate students as adaptive or maladaptive perfectionists based on scores from the MPS-F. A subsequent logistic regression revealed that greater security in the attachment relationship with parents was a better predictor of adaptive perfectionism than maladaptive perfectionism. In describing the parents of maladaptive perfectionists, Rice and Mirzadeh made reference to the characteristics associated with affectionless controlling parenting. Parents of maladaptive perfectionists were described as

being overly concerned with the performance or accomplishments of their children. Moreover, these parents impose critical sanctions on their children for not measuring up to high expectations.

One of two studies to examine the origins of perfectionism in sport has also identified the contribution of affectionless controlling parenting to athletes' perfectionistic tendencies. McArdle and Duda (2004) explored the social-contextual antecedents of perfectionism in adolescent elite athletes, including parental expectations and criticism. One of the four groups to emerge from a cluster analysis was characterised by perfectionistic tendencies, reporting elevated concern over mistakes, doubts about actions, and personal standards. This cluster, subsequently labelled the "punitive, structured environment" group, also reported the highest scores of parental expectations and parental criticism. In contrast, when parents were perceived as demonstrating low standards and low criticism, athletes reported low concern over mistakes and doubts about action, but did strive for challenging personal standards.

While the reported studies address affectionless controlling parenting, they do not specifically examine the genesis of SPP. Fortunately, support for the relationship between affectionless control and children's SPP is available in the research of Enns, Cox, and Clara (2002) and Speirs Neumeister (2004). Employing both Multidimensional Perfectionism Scales, Enns et al. examined the association among parenting experiences and adaptive and maladaptive forms of perfectionism. Five subscales were employed to measure parenting experiences, including a parental expectation subscale and a critical evaluations subscale. As expected, zero-order correlations revealed a significant relationship between

students' SPP and their perceptions of parental expectations and criticalness. Enns et al. also tested a structural equation model, in which parental expectations and criticalness contributed to a "parental harshness" latent factor, while students' concern over mistakes, doubts about actions, and SPP formed a "maladaptive perfectionism" latent factor. Consistent with theorising on affectionless controlling parenting, the structural equation model revealed a significant positive path between harsh parenting and maladaptive perfectionism.

Speirs Neumeister's qualitative study also confirms the role of affectionless controlling parenting in the development of SPP. The experience of one socially prescribed perfectionist, Leigh, is particularly revealing: "I felt like my parents didn't appreciate me making A's anymore; they always expected it" (p. 266). Leigh's mother was especially critical of her daughter's achievements, maintaining that an A was the only acceptable grade. In sum, the quantitative study by Enns et al. (2002) and the qualitative findings of Speirs Neumeister (2004) support the hypothesised pathway from parents' high expectations and critical evaluations to SPP in children. Moreover, both studies reinforce Speirs Neumeister's proposal that parenting style offers an alternative explanation for the development of SPP to the social learning model.

Both Enns et al. (2002) and Speirs Neumeister (2004) tested the parental style pathway to SPP by examining parents' expectations and critical evaluations of their children. An alternative test of this pathway may be possible via the effects of parents' OOP, because OOP captures many of the defining characteristics associated with affectionless controlling parenting. OOP is defined as holding unreasonable high standards for others, and responding to the

performance of others with serve criticism (Hewitt & Flett, 1991). When parents demonstrate other-oriented perfectionistic tendencies within the home environment, the likely recipients of their excessively high standards and overtly critical evaluations are their partners and offspring, who become likely candidates for the development of SPP.

To date, two studies have examined the proposed relationship between parents' OOP and children's SPP, and equivocal results have emerged. The first study was conducted by Vieth and Trull (1999). Contrary to expectations, parents' OOP scores were not significantly related to students' SPP scores. A second unpublished study by Flynn, Hewitt, Flett, and Caelian (reported in Flett et al., 2002) did, however, find support for the proposed relationship between children's SPP and parents' (in this case mothers') OOP, in a sample of college students.

The equivocal nature of previous findings suggests that additional research is clearly warranted to further examine the parent OOP – child SPP link.

Therefore, an additional purpose of study two was to examine this link with a sample of elite junior athletes and their parents. Moreover, building upon the arguments provided by Speirs Neumeister (2004), study two sought to examine two competing approaches to SPP development; the social learning model and the affectionless controlling parenting hypothesis. Specifically, the predictive power of parents' SPP and OOP for athletes' SPP was examined. If parents' SPP emerged as the sole predictor of athletes' SPP, support for the social learning model could be offered. In contrast, the affectionless control hypothesis would receive support if parents' OOP emerged as the sole predictor of athletes' SPP. Finally, if parents' SPP *and* OOP emerged as significant predictors of athletes'

self-reported SPP, the differential pathways leading to SPP development would be revealed.

In sum, the aim of study two was to provide insight into the origins of perfectionism within elite junior sport by examining the relationship between parents' and athletes' perfectionism. The first purpose of study two was to examine the social learning model of perfectionism development (Flett et al., 2002). According to the social learning model, children acquire perfectionism by modelling similar tendencies in their parents. A further purpose was to examine an alternative pathway to the development of SPP. In line with the conclusions of Speirs Neumeister (2004), the relationship between parents' OOP and elite junior athletes' SPP was examined. The hypotheses for study two were as follows:

Hypotheses one – three were based on the social learning model of perfectionism development (Flett et al., 2002).

H1: Fathers' perfectionism, but not mother's perfectionism, will emerge as a significant predictor of elite junior athletes' perfectionism.

H2: An athlete's interpretation of their father's perfectionism will emerge as a significant predictor of athletes' self-reported perfectionism. In comparison, parents' self-reported perfectionism will not emerge as a significant predictor of athletes' self-reported perfectionism.

H3: The only predictor of SOP and OOP in elite junior athletes will be the corresponding dimension in fathers. That is, athletes' self-reported SOP will be

predicted by athletes' perceptions of their fathers' SOP, while the only predictor of athletes' self-reported OOP will be athletes' perceptions of their fathers' OOP.

Hypothesis four is based on the conclusions of Speirs Neumeister (2004) and the affectionless controlling parenting hypothesis that stems from the social expectations and reaction models (Flett et al., 2002).

H4: The sole predictor of SPP in elite junior athletes will be athletes' perceptions of their fathers' OOP.

5.5. Method

5.5.1. Participants

A number of families failed to provide data for either the mother or father, and thus two samples were employed in the current study; a mother-athlete sample and a father-athlete sample. The mother-athlete sample comprised of 302 mothers (M age = 44.0, SD = 4.99) and their athletic child (173 sons, M age = 14.76, SD = 1.70; 128 daughters, M age = 14.55, SD = 2.14). One athlete did not indicate their gender. The father-athlete sample comprised of 259 fathers (M age = 46.47, SD = 5.59) and their athletic child (151 sons, M age = 14.87, SD = 1.68; 107 daughters, M age = 14.52, SD = 2.00). One athlete did not indicate their gender. Athletes represented a number of sports including soccer, rugby league, swimming, rugby union, gymnastics, basketball, cricket, tennis, rowing, ice hockey, and squash. All participants were considered elite as they were recruited from English professional clubs and sporting academies.

5.5.2. Measures

Athlete self-report multidimensional perfectionism: The revised 15-item

MPS-HF from study one was employed to assess athletes' self-report SOP, SPP, and OOP. Responses were measured on a 7-point Likert scale (1 = *strongly disagree*, 7 = *strongly agree*). The psychometric properties associated with the revised MPS-HF are discussed in study one.

Athlete perceptions of parents' multidimensional perfectionism: To ensure consistency between measures of perfectionism, athletes also completed a further, adapted version of the revised MPS-H from study one. The scale was adapted to capture athletes' perceptions of maternal or paternal SOP (e.g., "It is very important to my parent that they are perfect in everything they attempt"), SPP (e.g., "My parent thinks that anything they do that is less than excellent will be seen as poor by those around him/her"), and OOP (e.g., "My parent cannot stand people close to him/her making mistakes"). Responses were again measured on a 7-point Likert scale (1 = *strongly disagree*, 7 = *strongly agree*).

Parents' self-report multidimensional perfectionism: To ensure consistency between measures of perfectionism, the revised MPS-HF from study one was adapted and employed to measure parents' self-reported SOP (e.g., "One of my goals is to be perfect in everything I do"), SPP (e.g., "My family expects me to be perfect"), and OOP (e.g., "I have high expectations for the people who are important to me"). The scale was adapted by replacing the sport-specific stem with the original stem from the MPS-HF 45-item scale (Hewitt & Flett, 1991). Responses were again measured on a 7-point Likert scale (1 = *strongly disagree*, 7 = *strongly agree*).

5.5.3. Procedures

The data collection procedures described in study one were also adopted

for study two, so will not be repeated in detail here. Because parents and their athletic child completed the inventory simultaneously, each participant was encouraged to focus on their own responses and to avoid communication with other family members until the questionnaire was complete.

5.5.4. Data Analysis

Descriptive statistics, reliability analyses, and zero-order correlations are reported prior to the regression analyses. The hypotheses for study two were tested using regression analyses, following the guidelines outlined by Aguinis (2004) and Frazier, Tix, and Barron (2004). Prior to conducting the regression analyses, the continuous predictors variables (i.e., parents' self-reported perfectionism and athletes' perceptions of parents' perfectionism) were standardised with a mean of zero and a standard deviation of one. Gender was coded using unweighted effect coding (female = 1, male = -1). A number of interaction terms were then created by multiplying the standardised parental perfectionism scores (both self-reported by parents and athletes' perceptions of parental perfectionism) with athletes' gender. The predictor variables and interaction terms were then entered into a series of regression analyses.

Each regression analysis included two steps. In step one, athletes' gender, athletes' perceptions of their parents' SOP, SPP, and OOP, and parents' self-reported SOP, SPP, and OOP were entered into the regression equation. In step two, interaction terms between athlete's gender and parents' self-reported perfectionism, and athlete's gender and athletes' perceptions of parents' perfectionism were entered into the regression equation. Separate regression analyses were conducted for the mother-athlete sample and the father-athlete

sample.

Support for hypotheses 1 would be forthcoming if fathers' perfectionism, but not mothers' perfectionism, emerged as a significant predictor of athletes' self-reported perfectionism. Furthermore, non-significant interaction terms were required within the father-athlete regression analyses. The interaction terms were entered into the regression equation to determine whether the parent-child perfectionism relationship was moderated by athletes' gender. A significant interaction term would indicate that the intergenerational transmission of perfectionism was specific to same-sex parent-child dyads (i.e., father and sons but not father and daughters).

Support for hypothesis two would be forthcoming if athletes' perceptions of fathers' perfectionism, but not fathers' self-reported perfectionism, emerged as a significant predictor of athletes' self-reported perfectionism. Mothers' self-reported perfectionism and athletes' perceptions of mothers' perfectionism were not expected to emerge as significant predictors of athletes' self-reported perfectionism. Based on hypothesis three, it was expected that the only significant predictor of athletes' self-reported SOP and OOP would be the corresponding perfectionism dimensions in fathers (as perceived by athletes). Finally, it was expected that athletes' perceptions of their fathers' OOP would emerge as the only significant predictor of athletes' self-reported SPP. Athletes' perceptions of mothers' OOP would not predict athletes' self-reported SPP.

5.6. Results

5.6.1. Data screening

Prior to conducting the regression analyses, the data were screened for

errors in entry and assessed for outliers following the recommendations of Tabachnick and Fidell (2007). No variable had 5% or more missing data for either the mother-athlete sample or father-athlete sample. The absent data from both samples were characterised as missing completely at random (MCAR) (Mother-Athlete sample; Little's MCAR test: $\chi^2 = 107.585$, $df = 113$, $p = .626$; Father-Athlete sample; Little's MCAR test: $\chi^2 = 100.657$, $df = 106$, $p = .628$), and thus the guidelines outlined by Tabachnick and Fidell were employed to replace the missing values. With regards to univariate outliers, no cases showed standardised scores greater than $z = 3.29$ ($p < .001$). Finally, multivariate outliers were examined by computing the Mahalanobis distance for each case. No cases showed a Mahalanobis distance greater than the critical value $\chi^2(9) = 27.877$ ($p < .001$) for each sample.

5.6.2. Descriptive Statistics and Internal Reliabilities

Descriptive statistics and internal reliabilities for all measured variables are presented in Tables 5.1 and 5.2. Overall, athletes reported moderately high levels of SOP, and moderate levels of SPP and OOP. Similarly, parents' self-reported perfectionism levels, and athletes' perception of parental perfectionism scores were moderate to moderately high.

While the reliability values for all SOP and SPP variables were acceptable ($\alpha > .67$) across both samples, this was not the case for all OOP variables ($\alpha > .47$). As a result, the following variables were excluded from the analyses: female athletes' self-reported OOP (mother and father samples), female athletes' perceptions of mothers' OOP, fathers' self-reported OOP (father-female athlete sample), and mothers' self-reported OOP (mother-male athlete sample). The

exclusion of OOP variables meant an analysis of athletes' self-reported OOP as a criterion variable with the full set of predictor variables was not possible.

However, it was possible to conduct two, one-step regression analyses with male athletes' self-reported OOP as the criterion variable. For the father-son sample, the predictor variables included athletes' perceptions of fathers' SOP, SPP, and OOP, and fathers' self-reported SOP, SPP, OOP. For the mother-son sample, the predictor variables included athletes' perceptions of mothers' SOP, SPP, and OOP, and mothers' self-reported SOP and SPP. This analysis would provide a partial examination of hypotheses two and three.

5.6.3. Correlations for female athletes

Table 5.1 presents the Pearson's zero-order correlations among all variables for female athletes. Fathers' perfectionism demonstrated significant positive relationships with female athletes' self-reported perfectionism. However, a similar set of relationship also emerged between mother and daughters' perfectionism. An inspection of the correlations also reveals that, overall, athletes' perceptions of their parents perfectionism and parents' self-reported perfectionism emerged as significant predictors of athletes' self-reported perfectionism. Third, zero-order correlations revealed that the strongest predictor of female athletes' self-reported SOP was the corresponding dimensions in their parents (as perceived by the athlete). Finally, athletes' perceptions of parents' SPP emerged as the strongest predictor of female athletes' self-reported SPP. However, it should be noted that athletes' perceptions of fathers' OOP was also significantly positively correlated with female athletes' SPP.

Table 5.1.

Descriptive Statistics, correlation coefficients, and reliability coefficients between female athletes' and parents' multidimensional perfectionism

	MSOP	MSPP	MOOP	AMSOP	AMSPP	FSOP	FSPP	AFSOP	AFSPP	AFOOP	<i>M</i>	<i>SD</i>	α
ASOP	.27(**)	.22(**)	.12	.37(***)	.25(**)	-.04	.04	.32(***)	.24(**)	.10	4.69 (M) 4.63 (F)	1.03 1.10	.73 .75
ASPP	.10	.16(*)	.02	.33(***)	.44(***)	.15	.22(*)	.31(**)	.45(***)	.24(**)	3.60 (M) 3.54 (F)	1.06 1.11	.74 .75
AMSOP	.37(***)	.27(**)	.24(**)										
AMSPP	.26(**)	.28(**)	.24(**)										
AFSOP						.24(**)	.09						
AFSPP						.14	.11						
AFOOP						-.07	-.07						
<i>M</i>	3.92	3.26	3.57	4.21	3.56	4.18	3.45	4.45	3.66	3.99			
<i>SD</i>	1.19	1.06	.95	1.05	1.16	1.25	1.03	1.15	1.07	.98			
α	.79	.77	.61	.75	.79	.80	.67	.80	.72	.65			

Note. ASOP = Athletes' self-oriented perfectionism; ASPP = Athletes' socially prescribed perfectionism; MSOP = Mothers' self-oriented perfectionism; MSPP

= Mothers' socially prescribed perfectionism; MOOP = Mothers' other-oriented perfectionism; AMSOP = Athletes' perceptions of mothers' self-oriented perfectionism; AMSPP = Athletes' perceptions of mothers' socially prescribed perfectionism; FSOP = Fathers' self-oriented perfectionism; FSPP = Fathers' socially prescribed perfectionism; AFSOP = Athletes' perceptions of fathers' self-oriented perfectionism; AFSP = Athletes' perceptions of fathers' socially prescribed perfectionism; AFOOP = Athletes' perceptions of fathers' other-oriented perfectionism; (M) = Mother Sample; (F) = Father Sample

*** p < .001 ** p < .01 * p < .05

5.6.4. Correlations for male athletes

Table 5.2 presents the Pearson's zero-order correlations among all variables for male athletes. Male athletes' self-reported perfectionism was significantly and positively correlated with both paternal and maternal perfectionism. The combined findings for male and female athletes suggest both parents contribute to athletes' perfectionism.

The correlation analysis also revealed athletes' perceptions of their parents' perfectionism and parents' self-reported perfectionism as significantly and positively correlated with athletes' self-reported perfectionism. Furthermore, the correlations for male athletes were consistent with the findings with the female sample, in that the strongest relationship emerged between male athletes' self-reported SOP and the corresponding dimension in their father (as perceived by the athlete), and between male athletes' self-reported OOP and the corresponding dimension in their father (as perceived by the athlete). Finally, the strongest relationship with male athletes' SPP was not parents' OOP, but rather athletes' perceptions of parental SPP.

Although the zero-order correlations provide insight into the relationship between the parent-athletic child perfectionism relationship, the aforementioned hypotheses were tested using regression analyses.

Table 5.2.

Descriptive statistics, correlation coefficients, and reliability coefficients between male athletes' and parents' multidimensional perfectionism.

	MSOP	MSPP	AMSOP	AMSPP	AMOPP	FSOP	FSPP	FOOP	AFSOP	AFSPP	AFOOP	<i>M</i>	<i>SD</i>	α
ASOP	.08	.02	.50(***)	.35(***)	.23(**)	.22(**)	.06	.10	.53(***)	.38(***)	.36(***)	4.96 (M) 5.01 (F)	1.10 1.12	.78 .82
ASPP	.21(**)	.19(**)	.24(**)	.50(***)	.17(*)	.18(*)	.12	.22(**)	.25(**)	.46(***)	.25(**)	3.67 (M) 3.78 (F)	1.07 1.00	.72 .68
AOPP	-.06	-.00	.10	.18(**)	.43(***)	.11	.28(**)	.07	.17(*)	.14(*)	.38(***)	4.01 (M) 4.09 (F)	1.06 1.08	.60 .67
AMSOP	.34(***)	.15(*)												
AMSPP	.22(**)	.29(***)												
AMOPP	.10	.06												
AFSOP						.35(***)	.14(*)	.17(*)						
AFSPP						.25(**)	.24(**)	.15(*)						
AFOOP						.16(*)	.18(*)	.24(**)						
<i>M</i>	3.96	3.05	4.30	3.46	3.84	4.34	3.31	4.03	4.53	3.61	4.17			
<i>SD</i>	1.21	1.05	1.03	1.00	1.00	1.23	1.06	1.04	1.03	.97	1.23			
α	.80	.78	.75	.74	.63	.82	.76	.62	.72	.76	.63			

Note. A_SOP = Athletes' Self-oriented perfectionism; A_SPP = Athletes' Socially prescribed perfectionism; A_OOP = Athletes' Other-oriented perfectionism; M_SOP = Mothers' Self-oriented perfectionism; M_SPP = Mothers' Socially prescribed perfectionism; A_MSOP = Athletes' perceptions of mothers' self-oriented perfectionism; A_MSPP = Athletes' perceptions of mothers' socially prescribed perfectionism; A_MOOP = Athletes' perceptions of mothers' other-oriented perfectionism; F_SOP = Fathers' Self-oriented perfectionism; F_SPP = Fathers' Socially prescribed perfectionism; F_OOP = Fathers' Other-oriented perfectionism; A_FSOP = Athletes' perceptions of fathers' self-oriented perfectionism; A_FSPP = Athletes' perceptions of fathers' socially prescribed perfectionism; A_FOOP = Athletes' perceptions of fathers' other-oriented perfectionism; (M) = Mother Sample; (F) = Father Sample

*** p < .001 ** p < .01 * p < .05

5.6.5. Regression Analyses

Across the regression analyses (see Tables 5.3 and 5.4), a linear combination of athletes' gender, athletes' perceptions of their parents' perfectionism, and parents' self-reported perfectionism explained between 24%-26% of the variance in athletes' self-reported SOP and SPP scores. With regards to male athletes' self-reported OOP, between 18-21% of behavioural variance in this form of perfectionism was predicted by athletes' perceptions of their parents' perfectionism and parents' self-reported perfectionism.

The regression analyses failed to offer support for hypothesis one. Although fathers' perfectionism did emerge as a significant predictor of athletes' self-reported SOP, SPP, and OOP, mothers' perfectionism also emerged as a significant predictor. However, in support of hypothesis one, none of the interaction terms explained additional variance in athletes' self-reported SOP or SPP at step two. Therefore, it can be concluded that the intergenerational transmission of corresponding perfectionism dimensions between parents and their athletic children is not isolated to same-sex dyads.

Table 5.3.

Moderated hierarchical regression analyses: Athletes' gender, fathers' multidimensional perfectionism, and athletes' perceptions of fathers' multidimensional perfectionism predicting athletes' multidimensional perfectionism

Criterion Variable	<i>F</i>	<i>R</i> ²	ΔR^2	<i>G</i>	AFSOP	AFSPP	AFOOP	FSOP	FSPP	FOOP	Unstandardised Regression Coefficients					
											<i>G</i> x AFSOP	<i>G</i> x AFSPP	<i>G</i> x AFOOP	<i>G</i> x FSOP	<i>G</i> x FSPP	<i>G</i> x FOOP
ASOP																
Step 1	12.07	.22		-.17*	.41***	.06	.11	-.02	.00							
Step 2	7.93	.26	.04	-.18**	.40***	.08	.08	-.05	.00	N/A	-.07	-.01	-.13	-.15	.11	N/A
ASPP																
Step 1	12.25	.23		-.12*	-.03	.44***	.08	.06	.05							
Step 2	7.00	.24	.01	-.13*	-.04	.44***	.09	.05	.07	N/A	.06	-.03	-.02	-.06	.13	N/A
Male AOOP																
Step 1	5.1	.18		N/A	.10	-.08	.40***	-.06	.23*	-.07						

Note: *G* = Athletes' Gender; ASOP = Athletes' self-oriented perfectionism; ASPP = Athletes' socially prescribed perfectionism; Male AOOP = Male Athletes' other-oriented perfectionism; FSOP = Fathers' self-oriented perfectionism; FSPP = Fathers' socially prescribed perfectionism; FOOP = Fathers' other-oriented perfectionism. AFSOP = Athletes' perceptions of fathers' self-oriented perfectionism; AFSPP = Athletes' perceptions of fathers' socially prescribed perfectionism; AFOOP = Athletes' perceptions of fathers' other-oriented perfectionism. Main effects entered at Step 1. Main effects and interaction terms entered at Step 2.

*** $p < .001$ ** $p < .01$ * $p < .05$

Table 5.4.

Moderated hierarchical regression analyses: Athletes' gender, mothers' multidimensional perfectionism, and athletes' perceptions of mothers' multidimensional perfectionism predicting athletes' multidimensional perfectionism

Criterion Variable	<i>F</i>	<i>R</i> ²	ΔR^2	<i>G</i>	AMSOP	AMSPP	AMOOP	MSOP	MSPP	MOOP	Unstandardised Regression Coefficients					
											<i>G</i> x AMSOP	<i>G</i> x AMSPP	<i>G</i> x AMOOP	<i>G</i> x MSOP	<i>G</i> x MSPP	<i>G</i> x MOOP
ASOP																
Step 1	15.84	.21		-.12*	.45***	.05		-.01	.02							
Step 2	10.03	.24	.03	-.12*	.42***	.06	N/A	.01	.02	N/A	-.09	-.09	N/A	.10	.06	N/A
ASPP																
Step 1	17.35	.23		-.06	-.05	.51***		.05	.03							
Step 2	10.22	.24	.01	-.06	-.03	.50***	N/A	.08	.02	N/A	.09	-.12	N/A	-.11	.06	N/A
Male AOOOP																
Step 1	8.27	.20		N/A	-.04	.10	.43***	-.13	.02	N/A						

Note: *G* = Athletes' Gender; ASOP = Athletes' Self-oriented perfectionism; ASPP = Athletes' Socially prescribed perfectionism; Male AOOOP = Male Athletes' Other-oriented perfectionism; MSOP = Mothers' Self-oriented perfectionism; MSPP = Mothers' Socially prescribed perfectionism; MOOP = Mothers' Other-oriented perfectionism. AMSOP = Athletes' perceptions of Mothers' Self-oriented perfectionism; AMSPP = Athletes' perceptions of Mothers' Socially prescribed perfectionism; AMOOP = Athletes' perceptions of Mothers' Other-oriented perfectionism. Main effects entered at Step 1. Main effects and interaction terms entered at Step 2.

*** $p < .001$ ** $p < .01$ * $p < .05$

Regression analyses offered partial support for hypotheses two and three (see Tables 5.3 and 5.4). With regards to hypothesis two, athletes' self-reported SOP and SPP were consistently predicted by athletes' perceptions of their parents' perfectionism, and not parents' self-reported perfectionism. The regression analysis for male athletes' OOP revealed athletes' perceptions of parents' OOP and fathers' self-reported SPP as significant predictors. It should be noted, however, that athletes' perceptions of their parents' OOP was the strongest predictors of athletes' self-reported OOP. With regards to hypothesis three, the sole predictor of athletes' self-reported SOP was the corresponding dimension in their parents (as reported by athlete), and the only predictor of male athletes' self-reported OOP was also athletes' perceptions of parents' OOP.

Finally, a test of hypothesis four was somewhat limited by the exclusion of a number of OOP variables. The only analysis to include athletes' self-reported SPP as a criterion variable and parents' OOP as a predictor variable was in the father-athlete sample (see Tables 5.3). Athletes' perceptions of fathers' OOP failed to emerge as a significant predictor of athletes' self-reported SPP. In contrast, athletes' self-reported SPP was significantly predicted by athletes' perceptions of their parents SPP across both samples, suggesting the current sample of athletes' acquire SPP by modelling similar tendencies in both parents.

5.7. Discussion

Study two sought to explore the contribution of parental perfectionism to the dispositional perfectionism of elite junior athletes. Specifically, study two was guided by four hypotheses. Based on the tenets of the social learning model (Flett et al.,

2002) and previous research within sport psychology (e.g., Fagot & Leinbach, 1995; Fredricks & Eccles, 2002; McHale et al., 1999; Updegraff et al., 1996), it was initially hypothesised that both male and female athletes would acquire perfectionistic tendencies by modelling paternal perfectionism and not maternal perfectionism. Moreover, it was hypothesised that athletes' perceptions of paternal perfectionism would emerge as a significant predictor of athletes' self-reported perfectionism, and not parental self-reported perfectionism. The second hypothesis was consistent with Eccles' (1993) expectancy-value model which suggests perceptions of reality (rather than reality itself) underpin the development of key personality characteristics (Horn & Horn, 2007). Third, it was hypothesised that athletes' perceptions of their fathers' SOP and OPP would emerge as the strongest predictor of corresponding dimensions in athletes. For example, it was predicted that athletes' perceptions of their fathers' SOP would emerge as the strongest predictor of athletes' self-reported SOP, while athletes' perceptions of their fathers' OOP would emerge as the strongest predictor of athletes' self-reported OOP. A fourth hypothesis was forwarded regarding the development of SPP based on Speirs Neumeister's (2004) suggestion that a social learning model does not provide an accurate explanation for the development of this form of perfectionism. Rather, a differential pathway is thought to lead to SPP that is captured by a parents' OOP.

5.7.1. Hypothesis one: Examining the contribution of paternal perfectionism and maternal perfectionism

The hypothesis that fathers' perfectionism, but not mothers' perfectionism, would emerge as a significant predictor of male and female athletes' perfectionism

did not receive support in the current study. Regression analyses revealed that fathers' and mothers' multidimensional perfectionism emerged as significant predictors of athletes' self-reported SOP and SPP, explaining between twenty-four – twenty-six per cent of variance. Furthermore, the regression analyses for male athletes' self-reported OOP also revealed paternal and maternal perfectionism as significant predictors. These findings fail to substantiate previous suggestions within sport psychology that children acquire sport-related personality characteristics by modelling similar characteristics in their paternal parent (Horn & Horn, 2007). In contrast, study two provides initial evidence that elite junior athletes model the perfectionistic tendencies of both parents. A number of explanations may be offered to explain the incongruence between the forwarded hypothesis and current findings.

An initial explanation for the current findings relates to the involvement of each parent in the rearing of their child. Although previous theorising (e.g., Horn & Horn, 2007) has identified the central role of fathers in the development of children's sport-related personality characteristics, the involvement of each parent may be determined by the competitive status of the athlete. Responding to the identification of their child as elite, both parents may take an interest in their offspring's participation in sport and become actively involved in their child's athletic career. This explanation suggests a modification of the primary-caregiver hypothesis is required to explain perfectionism development in elite junior sport. The traditional primary-caregiver hypothesis associates child-rearing with the mother, while an application in sport shifts the focus upon fathers. With regards to the development of perfectionism in elite junior athletes, however, the identification of their child as a

gifted performer may encourage mothers, as well as fathers, to become involved in the sporting career of their child. In turn, the perfectionism of both parents becomes readily available for the child to model. Future studies examining the perfectionism development in sport could test this contention by measuring the extent to which mothers and fathers are involved in the careers of young, perfectionistic athletes.

A second explanation for the current findings emerges from the general parenting literature, which suggests that while children acquire personality characteristics via social modelling, children do not systematically imitate one parent (Maccoby, 1998). Rather, a child's modelling tendency is guided by an inherent desire to acquire characteristics appropriate to their own gender and/or central to their own development. Within this theoretical framework, it can be suggested that children model the parent or parents that demonstrate personality characteristics consistent with their needs (Barkley, Ullman, Otto, & Brecht, 1977; Perry & Bussey, 1979). For elite junior athletes, whose sporting progression may depend on the consistent attainment of high standards, one such need may be perfect performance and thus the child models the perfectionistic tendencies of significant others. As outlined previously, one source of perfectionism for athletic children is the parent, and in their attempts to progress within elite sport the junior athlete may model the perfectionistic tendencies of their parent, regardless of their caregiver's gender. In turn, perfectionistic values are exhibited in the achievement striving and performance evaluations of the athlete. This second explanation would also explain why the interaction terms in the regression analyses failed to achieve significance; both male

and female elite junior athletes imitate the perfectionism that presumably resides in both their perfectionistic father and mother.

5.7.2. Hypotheses two and three: Athletes' perceptions of parents' perfectionism or parents' self-reported perfectionism predicting corresponding perfectionism dimensions in athletes

The hypothesis that athletes' perceptions of parents' perfectionism, but not parents' self-reported perfectionism, would emerge as significant predictors of athletes' self-reported, corresponding perfectionism dimensions was supported via regression analyses. As a result, the current findings offer support for hypotheses two and three. This is consistent with previous research within the sport psychology literature that has examined the concordance between parents' and athletes' achievement goals (e.g., Bois et al., 2005; Duda & Hom, 1993; Ebbeck & Becker, 1994; Givvin, 2001; Kimiecik et al., 1996). The findings are also consistent with the premise of Eccles' (1993) expectancy-value model that it is a child's perception of reality that underpins the development of key personality characteristics, rather than reality itself (i.e., parents' self-reported perfectionism).

The findings that athletes' perceptions of parents' perfectionism and not parents' self-reported perfectionism significantly predict the perfectionistic tendencies in elite junior athletes requires careful explanation. It has been suggested that children may provide a biased report of parental attitudes (McArdle & Duda, 2004), especially when two variables relating to parent-child interactions are under investigation (Soenens, Elliot, et al., 2005). If the current sample did provide an inaccurate report of their parents' perfectionism, then it would be difficult to conclude

that perfectionism is passed from generation to generation, eventually residing in the elite junior athlete. However, prior to forwarding this conclusion, it is worth noting that previous research has also shown that children provide reports of their parents to nearly the same degree as parental self-report (Gonzales, Cauce, & Mason, 1996; Schwartz, Barton-Henry & Pruzinsky, 1985). Within the current study, the mean scores for athletes' perceptions of parents' perfectionism and parents' self-reported perfectionism were similar across the three dimensions, and thus it may be concluded that athletes did provide an accurate representation of their parents' perfectionistic tendencies. In turn, the athletes' ability to accurately recall their parents' perfectionism would offer support for the hypothesis that perfectionism develops in elite junior athletes as a result of intergenerational transmission from parent to child.

With regards to hypothesis three, it can be concluded that a significant proportion of variance in athletes' SOP and OOP is explained by the child's perceptions of corresponding perfectionism dimension in parents. One explanation for this finding is consistent with the main premise of Flett et al's (2002) social learning model that children consciously model their parents' perfectionism. That is, the athletic child seeks out and subsequently internalises their parents' perfectionism within their own self-schema, as they attempt to replicate the values of their perfectionistic mother and/or father. An alternative explanation is that children do not necessarily choose to model their parents' perfectionistic tendencies, but rather acquire perfectionism via continual exposure to perfectionistic parents from an early age, and the subsequent internalisation of perfectionistic parents' values as the child matures. Longitudinal research is required to provide insight into the two

explanations, as they have specific implications for preventing the development of perfectionism in elite junior athletes. If athletes actively seek the perfectionism of their parents, then sport psychologists should focus their intervention strategies on the child. However, if the acquisition of perfectionism in elite junior athletes is an unconscious process, the focus of intervention should be aimed at educating parents about the implications of their own perfectionism for the psychological well-being and long-term athletic career of their child.

It is also worth noting that the current findings do not dismiss alternative pathways to SOP and OOP in elite junior athletes, as outlined by the conceptual model of perfectionism development (Flett et al., 2002). A number of studies within the general psychology literature have consistently demonstrated that specific parenting behaviours, goals, and attitudes contribute to debilitating forms of perfectionism in children. Ablard and Parker (1997) demonstrated that a significant proportion of children's MPS-F perfectionism scores were predicted by parents' achievement goals for their child. This finding was replicated by McArdle and Duda (2004), who reported upon the role of parents' achievement goals for the personal standards, concern over mistakes, and doubts about action in a sample of gifted athletes. Currently, the implications of parents' achievement goals for athletes' perfectionism as measured by the MPS-HF are unknown, and will thus be the focus of study four.

5.7.3. Hypothesis four: The relationship between parents' OOP and elite junior athletes' SPP

A test of hypothesis four was somewhat limited given the low internal

reliability values of a number of OOP variables. In fact, the regression analyses were limited to athletes' perceptions of fathers' OOP as a predictor of athletes' self-reported SPP. This analysis failed to support the hypothesis that paternal OOP would emerge as the sole predictor of athletes' self-reported SPP. To date, only two other studies have examined the direct relationship between parents' OOP and children's SPP, with discrepant results emerging. The findings of Flynn et al. revealed that children's OOP was significantly correlated to their perceptions of parents' SPP. However, Flett et al. (2002), who reported upon the findings of Flynn and colleagues, failed to divulge further information on the analyses conducted in this study and whether the authors moved beyond mere bivariate correlations. Vieth and Trull (1999) also provided a test of the parent OOP-child SPP relationship, extending the analysis to a hierarchical multiple regression. Consistent with the findings of Vieth and Trull (1999), the current study revealed that parents' OOP scores were not significantly related to students' SPP scores.

In contrast to the theoretical argument provided by Speirs Neumeister (2004), the regression analyses in the current study did reveal athletes' perceptions of parents' SPP as a significant predictor of athletes' self-reported SPP, providing support for a social learning model of SPP development. While this finding suggests elite junior athletes acquire SPP in a similar manner to SOP and OOP, alternative pathways to SPP should not be excluded from future research in sport psychology. Based on interviews with gifted students, Speirs Neumeister proposed that a parenting style characterised by high standards and critical tendencies may offer more explanatory power for describing the development of SPP than a social learning

model. The current study attempted to capture this form of parenting via Hewitt and Flett's OOP dimension. However, because the OOP subscale captures exacting standards for significant others per se, and not one's offspring, it cannot be referred to as a specific measure of parenting style and may have failed to provide an explicit measure of the parenting characteristics referred to by Speirs Neumeister. In contrast, a specific measure of parenting style may prove more revealing and offer support for Speirs Neumeister's conclusions regarding the alternative pathway to children's SPP.

Support for the inclusion of a specific measure of parenting when examining the origins of SPP is available in previous studies. Flett, Hewitt, and Singer (1995), for example, examined the relationship between children's SOP, SPP, and OOP and parents' authority style. The measure of parenting authority style included an authoritarianism subscale, which captures a parent's tendency to be overcontrolling with their demands of the child, and punitive in their evaluations of the child. Consistent with the theorising of Speirs Neumeister, Flett et al (1995) reported a significant correlation between children's SPP and an authoritarianism parenting style. Based on the promising nature of Flett et al's findings, future research efforts regarding the origins of SPP in elite junior athletes may wish to include a specific measure of parenting style, in addition to a measure of parents' SPP. Such research would then be able to empirically test both the social learning model and affectionless controlling parenting hypothesis of SPP development, and determine the degree to which parenting style and parental SPP explain the development of athletes' SPP.

5.7.4. Limitations of study two and conclusions

Although revealing, the findings from study two should be interpreted in light

of a number limitations. A number of the OOP subscales produced unacceptable internal reliability values and were subsequently excluded from the study. This limited an analysis of the origins of OOP in female athletes and the alternative pathway to SPP, as outlined by Speirs Neumeister (2004). Future research is clearly warranted to address this issue and re-examine the revised MPS-HF for employment in sport.

As with previous investigations of the origins of perfectionism, the results are correlational in nature and cannot determine causality. While there appears to be cross-generational transmission of perfectionism between parents and athletic children, parental perfectionism may also emerge in response to children's perfectionism. This position is supported by a recent study by Pinguart and Silbereisen (2004), who reported that adolescents' values at Time 1 predicted changes in parental values over a year. A recent study by Holt, Tamminen, Black, Mandigo, and Fox (2009) also revealed that athlete-children have some reciprocal influence over parental styles and practices. To address the direction of cross-generational perfectionism transmission, experimental research on the origins of perfectionism in sport is clearly warranted.

The homogeneous composition of the sample is an additional limitation of study two. The child sample primarily consisted of adolescent, white athletes, which may limit generalisability. Future studies may wish to repeat the current research with a sample of younger, culturally diverse athletes, where alternative findings may emerge. For example, additional research is required with African, Asian, or Chinese families. While the dominant parenting style within African, Asian, or Chinese

families is characterised by other-oriented perfectionistic tendencies, including punitive responses and overcontrolling demands, this form of parenting may be adaptive within these cultures and limit the development SPP in children (Speirs Neumeister, 2004).

It is also plausible that parental factors will have a stronger impact on the development of perfectionism in younger children. Brustad and Partridge (2002) proposed that the nature and extent of parental influence varies substantially throughout childhood, and parental evaluations are used more extensively by young children than adolescents. Consequently, a parent's influence on perfectionism development may be strongest during early and middle childhood, and lessens during adolescence when parental factors are supplemented by significant others (i.e., teachers, coaches, peers; Flett et al., 2002).

Despite these limitations, the present study supports the social learning model of perfectionism development (Flett et al., 2002) within elite junior sport, and provides an insight into one parental pathway to athletes' SOP, SPP, and OOP. Research is now required to examine additional pathways to perfectionism within a range of elite junior athletes, by focusing upon additional parental factors (e.g., achievement goals), the influence of other social actors (e.g., coaches), and the mediating processes in the intergenerational transmission of perfectionism.

A consideration of mediating factors is especially important if researchers are to understand why children acquire similar perfectionistic tendencies as their parents. One avenue is available in the research of Soenens, Elliot et al. (2005), who recently demonstrated that the cross generational transmission of perfectionism between

parents and female students was mediated by psychological control; a rearing style that pressures children to comply with parental standards through excessive guilt induction and love withdrawal (Barber, 1996). Therefore, in an attempt to extend the current findings regarding the origins of perfectionism in sport, study three examined the mediating role of parenting characteristics in the intergenerational transmission of perfectionism between parents and their athletic children. Specifically, study three considered the mediating role of parents' psychological control and empathy towards their child.

**Chapter Six: Examining the intergenerational transmission
of perfectionism in elite junior athletes: The mediating role of parents' empathy
and psychological control**

Study three considered the mediating role of parental empathy and psychological control in the intergenerational transmission of perfectionism. In doing so, the study examined the origins of perfectionism within the tenets of Darling and Steinberg's (1993) contextual model of parenting. According to Darling and Steinberg's model, the transmission of personality characteristics from one generation to the next is mediated by crucial parenting styles and practices. Recently, this statement received support within the general perfectionism literature (e.g., Soenens, Elliot, et al., 2005). Soenens, Elliot, et al. demonstrated that cross-generational continuity of maladaptive perfectionism was mediated by parental psychological control. However, this finding was limited to a student-based sample, and therefore the first purpose of study three was to extend Soenens, Elliot et al.'s research with a group of elite junior athletes. A second purpose was to explore the suggestions of Soenens and colleagues regarding the relationship between parents' perfectionism and their employment of psychological control. Soenens et al. proposed that, in a similar manner to the intergenerational transmission of perfectionism, the relationship between parents' perfectionism and psychological control is mediated by key parenting styles, including empathy (or lack of) towards the child. This suggestion was included in a

hypothesised model (see Figure 6.1) which formed the theoretical framework of study three.

6.1. The intergenerational transmission of perfectionism: Examining Darling and Steinberg's (1993) contextual model of parenting

Central to Flett et al's (2002) conceptual model of perfectionism development is the intergenerational transmission of perfectionism between parents and their offspring. As explained in chapter four, one interpretation of this pathway is captured by the social learning model. According to this model, children reportedly acquire perfectionism by modelling the behaviour of their mother and/or father. The results of study two support this theoretical explanation within the context of elite junior sport; athletes' perceptions of their parents' perfectionism emerged as a significant predictor of athletes' self-reported perfectionism. The findings of study two make an important contribution to an understanding of perfectionism in sport, revealing one avenue towards the acquisition of perfectionism in elite junior athletes. However, focusing solely upon this direct pathway between parents' and children's perfectionism may result in an incomplete understanding of perfectionism development. This is because theoretical models of parenting emphasise important processes that mediate the transmission of values and goals from one generation to the next. One such model was proposed by Darling and Steinberg (1993).

Based on a number of inconsistencies within the parent-child literature, Darling and Steinberg (1993) proposed an integrative model of parenting that placed equal emphasis upon the intergenerational transmission of personality characteristics

and the mediating processes that underpin such transmission. The previous inconsistencies stemmed, in part, from Baumrind's (1971) conceptualisation of parenting styles. Baumrind proposed three styles of parenting – authoritarian, permissive, and authoritative. Authoritarian parents demonstrate many of the characteristics outlined in the social expectations and reaction models of perfectionism development; they are restrictive, punitive, and overcontrolling. Conversely, permissive parents show little interest in their child's development, while authoritative caregivers set clear standards for their children, but these guidelines are communicated in a warm and caring manner (Baumrind, 1971). One may expect, based on Baumrind's conceptualisation, that authoritarian and permissive parenting lead to negative outcomes in children, and an authoritative approach is most beneficial for children. Early research with White, middle class families supported this contention (for a review, see Baumrind, 1991). However, as studies expanded beyond this limited sample, the influence of each parenting style varied depending upon the social milieu in which the family was embedded. Darling and Steinberg explained the diversity of research findings via their theoretical model, which disentangled three aspects of parenting.

The three parenting components proffered by Darling and Steinberg (1993) included: parents' goals and values when socialising their children; the practices used by parents to help children reach their goals, and the parenting style, or emotional climate, within which socialisation occurs. Parenting practices and style differ, with the former defined by specific content and socialisation goals (Darling & Steinberg, 1993). For example, attending training and competition are both examples

of parenting practices because they are specific to the context of sport. Parenting styles, in contrast, were defined by Darling and Steinberg as a constellation of attitudes communicated towards the child across a wide range of situations. Despite the differences between parenting practices and styles, both play an important moderating and/or mediating role in Darling and Steinberg's conceptual model of parenting. Specifically, although children may acquire similar values and goals as their parents via intergenerational transmission, it is only through parenting practices and styles that the cross-generational continuity of personality characteristics can occur.

Darling and Steinberg's (1993) theorising made an important contribution to the parent-child literature, providing researchers with a theoretical explanation for the divergent findings regarding the effects of authoritarian, permissive, and authoritative parenting. In addition to understanding the differential effects of authoritarian, permissive, and authoritative parenting, Darling and Steinberg's (1993) contextual model may also provide an insight to the origins of athletes' perfectionism. This is because parents characterised by perfectionistic tendencies engage in a pattern of parenting styles and practices that may increase their child's predisposition towards perfectionism.

6.2. Perfectionists and their parenting styles/practices

Prior to Soenens's systematic programme of research (e.g., Soenens, Elliot, et al., 2005; Soenens, Luyckx, et al., 2008; Soenens, Vansteenkiste, et al., 2008; Soenens, Vansteenkiste, Duriez, & Goossens, 2006; Soenens, Vansteenkiste, Luyten, in press; Soenens, Vansteenkiste, Luyten, Duriez, & Goossens, 2005), there was a

dearth of studies regarding the parenting styles and practices of perfectionistic individuals. As a result, an understanding of this area is somewhat limited. However, indirect evidence for the parenting styles of perfectionistic individuals is available via a consideration of the interpersonal nature of perfectionism.

Habke and Flynn (2002) provided a summary of research studies examining the interpersonal effects of perfectionism within close relationships (e.g., between husbands and wives), and proffered two explanations for the interpersonal difficulties experienced by perfectionists. The first explanation considers the indirect effects of perfectionism for interpersonal functioning. According to Habke and Flynn, many of the personality disorders experienced by perfectionistic individuals (e.g., depression, anxiety) are important interpersonal precursors that help define features and consequences of close relationships. A second explanation considers the direct effects of perfectionism via relationship interactions, relationship adjustment, and functioning within intimate relationships. Habke and Flynn proposed that as perfectionists become pre-occupied with attaining impossibly high standards and reaffirming a contingent self-worth, the individual will experience frustrations. These frustrations can be directed externally towards significant others in the form of other-direct anger and blame. Within the context of the parent-child relationship, this negative pattern of interpersonal affect and behaviour may be directed externally by the parent, which may subsequently impact upon the offspring's psychological development.

Further support for the negative parenting of perfectionistic individuals emerged as psychologists began to examine the origins of perfectionism. Speirs

Neumeister's (2004) qualitative study with gifted students, for example, reveals the authoritarian nature of perfectionistic parents. One student (Dave), who was classified as a socially prescribed perfectionist, described the physical punishment he would receive from his "perfectionistic" father when misbehaving during his childhood. Dave also described the parenting practices of his father with relation to sporting performance. When underperforming in baseball or failing to adhere to an intensive workout regime, Dave described his father's tendency to "blow up" at him verbally. The authoritarian nature of his father was cited by Dave as contributing to his own SPP and associated psychological maladjustment.

A relationship between Baumrind's (1971) authoritarian style and perfectionism is also available in a research study conducted by Snell, Overby and Brewer (2005). In investigating this relationship, Snell and colleagues constructed a multidimensional perfectionism scale to capture perfectionistic tendencies in parents (the Multidimensional Parenting Perfectionism Questionnaire; MPPQ). The MPPQ is a 65-item scale that examines eleven aspects of perfectionistic parenting. The subscales included within the MPPQ are based on the original multidimensional perfectionism scales (i.e., MPS-F and MPS-HF), such as self-oriented parenting perfectionism, which involves extremely high self-standards for oneself as a parent, and societal prescribed parenting perfectionism, which involves the belief that society in general expects one to be a perfect parent. Using the MPPQ, Snell et al. conducted a canonical correlation analysis to determine the relationship between parents' perfectionistic tendencies and parenting style. A canonical correlation analysis demonstrated that parents classified as authoritarian scored higher on nine of the

eleven subscales, including self-oriented and societal prescribed parenting perfectionism.

Complementing an authoritarian style, perfectionistic individuals also rely on an overcontrolling parenting style. An initial insight into the overcontrolling nature of perfectionistic parents was provided by Randolph and Dykman (1998), who examined the mediating role of students' perfectionistic attitudes in the relationship between parenting style and students' proneness towards depression. Students' perceptions of their mothers' and fathers' parenting styles included overcontrolling tendencies and a modified version of the SPP subscale. The overcontrolling subscale measured a mother's or father's attempt to control all aspects of the child's development, while the original SPP subscale was modified by Randolph and Dykman to focus students on their perceptions of parents' perfectionistic expectations for their child. As expected, bivariate correlations revealed a positive correlation between parents' perfectionistic expectations for their child and a tendency to be overcontrolling. The findings of Randolph and Dykman received additional support by Enns, Cox, and Clara (2002). Using a sample of college students, perceptions of parents' expectations for their child were significantly and positively correlated with parents' tendency to be over-protective of their child.

This body of research suggests an over-controlling parenting style characterises perfectionistic individuals. Before drawing such firm conclusions regarding the nature of perfectionistic parenting, however, it should be noted the reported studies relied upon general measures of parental control and failed to address advancements within the general parenting literature (e.g., Barber, 1996) that

distinguish between two types of control; behavioural control and psychological control. Historically, the parenting literature examined behaviour control, which focuses upon the quantity of control exercised over a child's actions (Barber, 2002), although with the re-introduction of psychological control, the focus shifted from mere quantity towards the location of control in a parent-child relationship. In doing so, the question becomes less "how much control is appropriate?" (i.e., behavioural control), towards a concern with "what areas of a child's life is control facilitative or inhibiting?" (i.e., psychological control) (Barber, 1996). This qualitative distinction between types of parental control is vital within cross-generational transmission of perfectionism because Soenens and his colleagues have demonstrated that perfectionistic parents rely upon psychological control when rearing their offspring, and it is this form of controlling parenting that promotes perfectionism in children.

6.3. The role of psychological control in the intergenerational transmission of perfectionism

Prior to the work of Barber (1996; 2002), empirical investigations of psychological control were limited. However, early conceptualisations of parenting (e.g., Baumrind, 1971; Becker, 1964; Schaefer, 1965a, 1965b) did examine this aspect of the parent-child bond. According to Barber (1996), initial definitions converged on the belief that psychological control is an insidious form of parenting that inhibits a child's psychological development. Specifically, the child's development is stunted via "manipulation and exploitation of the parent-child bond (e.g., love-withdrawal and guilt induction), negative, affective-laden expressions and criticisms (e.g., disappointment and shame), and excessive personal control (e.g.,

possessiveness and protectiveness)” (Barber, 1996, p. 3299). Psychological controlling parents are nonresponsive to the child’s emotional needs, and stifle the development of their child’s independent identity in an attempt to maintain their own (i.e., the parent’s) dominant position within the parent-child relationship (Barber, 1996). The child, in turn, responds to the implied derogation of their parents with an unhealthy awareness of self, which has subsequent implications for interactions with others, the development of self-efficacy, and the establishment of a stable identity (Barber, 2002). Research has demonstrated that psychologically controlling parenting is associated with depression in children (Soenens et al., in press; Soenens, Luyckx, et al., 2008; Soenens, Vansteenkiste, et al., 2005), anxiety (Pettit & Laird, 2002), loneliness (Soenens, Vansteenkiste, et al., 2006) and low self-esteem (Soenens, Vansteenkiste, et al., 2005) (for a summary, see Barber & Harmon, 2002).

Based on the maladaptive developmental outcomes associated with parental psychological control, Barber, Bean, and Erickson (2002) encouraged greater research attention to the precursors of this parenting style. In response, a number of studies identified children’s externalising problem behaviour (Pettit, Laird, Dodge, Bates, & Criss, 2001) and inter-parental hostility or conflict (Stone, Buehler, & Barber, 2002; Krishnakumar, Buehler, & Barber, 2003) as important aetiological factors of psychological control. However, little was known about the role of parental resources and personality characteristics in the development of psychological controlling parenting. This limitation was recently addressed by Soenens and his team. Across a series of studies, Soenens and colleagues (Soenens et al., in press; Soenens, Elliot, et al., 2005; Soenens, Vansteenkiste, et al., 2006) have demonstrated

that psychological control is consistently predicted by parents' maladaptive perfectionism. Moreover, Soenens, Elliot, et al. reported that parental psychological control is an important mediating mechanism in the intergenerational transmission of maladaptive perfectionism.

Soenens, Elliot, et al. (2005) proposed that psychological control would be predicted by parents' perfectionism and, in particular, maladaptive perfectionism. The theoretical explanation underpinning the proposed association concerned the maladaptive perfectionist's neglect of mature, mutually satisfying relationships with their child in favour of egoistic goals. The implications of this rigid and inflexible approach to achievement striving is that perfectionistic parents are less attuned to their child's behaviour and development needs (Soenens, Elliot, et al., 2005); characteristics that are central to psychological control. A further explanation is that maladaptive perfectionism is characterised by harsh and critical self-evaluations, and thus regardless of actual performance outcomes, these individuals experience goal discrepancy and subsequent feelings of worthlessness. In addition to directing this constant self-scrutiny internally towards oneself, the maladaptive perfectionist also engages in externally-focused demands, pressuring significant others to meet their exaggerated and unrealistic standards (Hewitt & Flett, 1991). Within the context of the parent-child relationship, the maladaptive perfectionist will demand unrealistic standards from their offspring, critically appraising the child's behaviour, and reserving approval (and possibly love) for those occasions when perfection is attained by the child. For the child, contingent parental approval facilitates a sense of guilt and self-doubt, and this debilitating pattern of cognition and affect underpins a host of

internalised psychological problems, such as depression, low self-esteem, and loneliness (Barber & Harmon, 2002).

In addition to underpinning poor psychological well-being in children, Soenens, Vansteenkiste, et al. (2005) and Soenens, Elliot, et al. (2005) argued that psychological controlling parenting contributes to the development of perfectionistic tendencies in children. The proposed link between psychological control and perfectionism was originally outlined by early perfectionism theorists (e.g., Blatt, 1995; Burns, 1980; Hamachek, 1978; also, see Flett et al., 2002). Hamachek proposed that neurotic perfectionism emerged as a result of conditional parental approval, while Burns suggested that perfectionism develops in response to a controlling family environment, where parents resort to love withdrawal and critical evaluations of their child. Likewise, Blatt contended that adolescents pursue perfectionistic expectations when parental responsiveness is contingent upon the successful attainment of certain norms and standards. Common to these theoretical account are defining facets of psychological control, such as parents' intrusiveness and excessive use of guilt induction and love withdrawal, reinforcing this form of parenting as an important precursor to children's perfectionism.

A number of studies by Soenens and his team provide empirical support for the proposed relationship between maladaptive perfectionistic parents and their employment of psychological control, as well as the role of psychological control in the prediction of children's perfectionism. For example, an initial study by Soenens, Vansteenkiste, et al. (2005) with Belgian families provided evidence of a relationship between psychological control and daughters' maladaptive perfectionism.

Participants, including fathers, mothers, and daughters, completed the personal standards, concern over mistakes, and doubts about actions subscales from the MPS-F. The personal standards subscale was used as an indicator of adaptive perfectionism, and a maladaptive perfectionism construct was formulated by computing the mean items tapping concern over mistakes and doubts about action. Parental psychological control was measured using a subscale from Schaefer's (1965a) Children's Report of Parents' Behavior Inventory. Both parents and daughters completed the measures of perfectionism and parental psychological control (i.e., daughters reported upon their parents' use of psychological control). Using regression analyses, psychological control emerged as a significant predictor of daughters' maladaptive perfectionism scores. A second regression analysis was then conducted, to determine whether mothers' psychological control contributes to the prediction of daughters' perfectionism above and beyond maternal perfectionism. Soenens, Vansteenkiste, et al. reported that, while both predictor variables accounted for fourteen per cent of the variance in daughters' maladaptive perfectionism, mothers' perfectionism did not emerge a significant predictor.

A second study by Soenens, Vansteenkiste, et al. (2006) employed a sample of 677 adolescents (337 boys and 340 girls), 540 mothers, and 473 fathers, who completed a host of scales including the same perfectionism subscales as the Soenens, Vansteenkiste, et al. (2005) study, and the Psychological Control Scale–Youth Self Report (PCS-YSR; Barber, 1996). SEM analyses revealed that parents' maladaptive perfectionism was a significant positive predictor of psychological control in both the maternal and paternal models. More recently, Soenens et al. (in

press) have examined the proposed relationship between parents' maladaptive perfectionism and psychological control with a multidimensional measure of psychologically controlling parenting. Soenens et al. proposed two different forms of psychological control; dependency-oriented psychological control, that is, the use of psychological control as a means to keep children within close physical and emotional boundaries, and achievement-oriented psychological control, that is, the use of psychological control to make children comply with parental standards for achievement. The results of study one revealed that achievement-oriented psychological control was positively correlated with a "perfectionistic family environment", represented by parental expectations and criticism subscales from the MPS-F. The results of a second study confirmed the earlier findings of Soenens, Vansteenkiste, et al. (2006). Parental maladaptive perfectionism was found to be uniquely related to the achievement-oriented psychological control.

In addition to reporting upon the independent relationships between parents' perfectionism, psychological control, and children's perfectionism, Soenens, Elliot, et al. (2005) examined the mediating role of psychological control in the cross-generational continuity of perfectionism with a sample of 128 Belgian families. Each family comprised the father, mother, and daughter, and all participants completed the same MPS-F subscales as employed by Soenens, Vansteenkiste, et al. (2005). Parental psychological control was measured using a subscale from Schaefer's (1965) Children's Report of Parents' Behavior Inventory. Via SEM analyses, psychological control emerged as an intervening variable in the relationship between parents' and daughters' maladaptive perfectionism. In sum, the findings of Soenens et al. (Soenens

et al., in press; Soenens, Elliot, et al., 2005; Soenens, Vansteenkiste, et al., 2006) expand upon previous correlational research that has established a relationship between parents' perfectionism and general parenting styles (e.g., Randolph & Dykman, 1998; Enns et al., 2002). Specifically, Soenens's research confirms that perfectionistic parents are psychologically controlling, and this intrusive parenting style is a key aetiological factor underpinning the development of perfectionism in children.

While the research of Soenens et al. is revealing, there are a number of important extensions that require immediate attention as we seek to further our understanding of the processes involved with the intergenerational transmission of perfectionism. One avenue for future research is to establish the generalisability of Soenens et al.'s findings beyond Belgian families and children to alternative achievement-based sample such as elite junior athletes. A second extension is to employ an alternative conceptualisation of perfectionism, and re-examine the mediating role of psychological control in the intergenerational transmission of perfectionism. Hewitt and Flett's (1991) multidimensional framework may prove especially fruitful in this respect, considering the interpersonal implications associated with SOP, SPP, and OOP. Finally, building upon the mediating processes within the intergenerational transmission of perfectionism, a third avenue may be to explore the mechanisms within the specific relationship between parents' perfectionism and employment of psychological control. According to the suggestions of the Soenens, Elliot, et al. (2005), a number of important processes mediate the parental perfectionism – psychological control relationship, including

empathetic concern towards children (or lack of). However, to date, this suggestion remains untested. The primary purpose of study three was to provide a test of the aforementioned extensions, with the aim of expanding upon Soenens et al's research within the context of elite junior sport. In the following sections, each extension will be analysed and testable hypotheses will be forwarded.

6.4. Extending the work of Soenens et al. within elite junior sport: Using the MPS-HF

Although SOP was originally conceptualised from an intrapersonal perspective, it is hypothesised each of Hewitt and Flett's (1991) perfectionism dimensions have implications for parent – child interactions. A number of studies were reported earlier in this chapter outlining the interpersonal nature of the perfectionism construct. A further inspection of the perfectionism literature reveals that Hewitt and Flett's dimensions are all tied to dominant and hostile interpersonal traits (Flynn, Hewitt, Broughton, & Flett, 1998; Hill, Zrull, & Turlington, 1997) that reflect problems with control, manipulation, and lack of empathy; all important facets of psychological control.

The relationship between parents' perfectionism and their employment of psychological control may be most obvious when examining the OOP dimension. This is because the perfectionist's expectations and demands are externally-focused. Within the context of the parent-child bond, the adult may employ these standards as a form of control over their child. Furthermore, the harsh, externally focused criticism of OOP is conceptually similar to the negative, affective-laden expressions and criticisms central to psychologically controlling parenting. Therefore, a positive and

significant correlation is hypothesised between parents' OOP and psychological control. Likewise, adults demonstrating a self-oriented and socially prescribed perfectionistic orientation will resort to psychological controlling parenting. Whether the mother/father is attempting to attain internally- (i.e., SOP) or externally-determined (i.e., SPP) standards of perfection in their parenting, psychological control ensures the child develops in a manner consistent with the needs of the caregiver. That is, in their efforts to achieve the status of "perfect parent" and reaffirm self-worth, the perfectionistic adult controls the psychological development of their offspring to ensure their own needs are fulfilled. Based on this analysis, it is also hypothesised that parents reporting high SOP and SPP will engage in psychologically controlling parenting.

In turn, it is hypothesised that psychologically controlling parenting will play an important role in the transmission of SOP, SPP, and OOP from one generation to the next. With regards to the development of OOP, exposure to psychological control may eventually encourage similar controlling tendencies within the child (Soenens, Luyckx, et al., 2008), who will demand perfection from, and critically evaluate the performance of significant others (e.g., team-mates). In terms of SOP and SPP, Soenens, Luyckx, et al. (2008) proposed that in response to psychologically controlling parenting, children internalise their parents' harsh and rigid standards and eventually impose these standards upon themselves. Furthermore, children of psychologically controlling parents engage in negative self-evaluations (e.g., guilt, self-scrutiny, and worthlessness) when they perceived a discrepancy between socially prescribed or self-imposed standards and actual standards (Flett et al., 2002). The

implications of Soenens, Luyckx, et al's theorising is that psychological control encourages children to strive towards parental-determined goals, and, based on the perceived importance assigned by their parents to the successful attainment of these standards, a sense of worthlessness when goal discrepancy is encountered. As indicated in chapter two, striving towards parental-determined standards and defining self-worth based on the successful accomplishment of these standards are key facets of SPP, and therefore it is hypothesised that psychological control will underpin the development of SPP in children.

According to Flett et al's (2002) conceptual model of perfectionism development, psychological control will also underpin the development of SOP in children. Once externally-determined demands are internalised by the child, the child strives towards their own self-set standard of perfection (Soenens, Luyckx, et al., 2008). The relationship between parental psychological control and their offspring's SOP is further reinforced in light of Flett et al's suggestion that psychologically controlling parents facilitate negative self-evaluations and harsh self-scrutiny in children, which are key features of SOP. Consistent with OOP and SPP, psychological control is also hypothesised to mediate the intergenerational transmission of SOP.

Overall then, there is reason to expect that psychological control will mediate the cross-generational continuity of each perfectionism dimension as proposed by Hewitt and Flett (1991). The current study sought to test this contention with a sample of elite junior athletes.

6.5. Extending the work of Soenens et al. within elite junior sport: Examining the mediating role of parents' empathy

In response to the linkage between parents' perfectionism and use of psychological control, Soenens, Elliot, and colleagues (2005) speculated about why maladaptive perfectionists engage in a form of child rearing that has negative connotations for their offspring's development. One construct identified by Soenens, Elliot et al. concerned a parent's inability to empathise with their child (i.e., low empathic concern). Because perfectionistic parents are preoccupied with their own psychological development and attainment of perfection, these individuals experience difficulties in developing secure relationships with their offspring and are unable to appropriately identify the needs of their child (Soenens, Elliot, et al., 2005). On the occasions when parent-child interactions occur, the caregiver lacks the necessary sensitivity and empathetic concern towards their child, and thus is perceived to engage in an intrusive and autonomy-inhibiting child rearing style characteristic by psychological control (Soenens, Elliot, et al., 2005). It is for this reason that parents' empathy towards their child (or lack of) is hypothesised to mediate the relationship between parents' perfectionism and psychological control.

To date, researchers have failed to consider the mediating role of parents' empathy in the relationship between parents' perfectionism and psychological control. However, a study by Hill et al. (1997) confirms that Hewitt and Flett's (1991) perfectionism dimensions are associated with an interpersonal style reflecting problems with empathy. Thus, the initial evidence suggests that perfectionistic individuals are unable to empathise with others, and within the context of the parent-

child relationship, the lack of empathy may subsequently lead to a form of parenting characterised as psychologically controlling. A further purpose of the current project was to test this contention with a sample of elite junior athletes; that is, study three examined the relationship between parents' perfectionism and psychological control, and considered whether parental empathy mediates this relationship.

In sum, study three aimed to extend Soenens's programme of research and examine the mediating processes in the intergenerational transmission of perfectionism between parents and their athletic children. This aim was achieved via a number of specific objectives, which are represented by the structural equation model displayed in Figure 6.1. One objective was to examine the mediating role of parental empathy in the relationship between parents' SOP, SPP, and OOP and use of psychological control. The hypothesis guiding this part of the structural equation model was:

H1: Parental empathy (or lack of) towards their child will mediate the relationship between parents' SOP, SPP, and OOP and employment of psychological control.

An additional purpose was to examine whether the intergenerational transmission of SOP, SPP, and OOP between parents and their athletic children was mediated by key parenting factors, including empathy and psychological control. The hypothesis guiding this section of the model was:

H2: The intergenerational transmission of SOP, SPP, and OOP between parents and their athletic children will be fully mediated by parents' empathy (or lack of) and

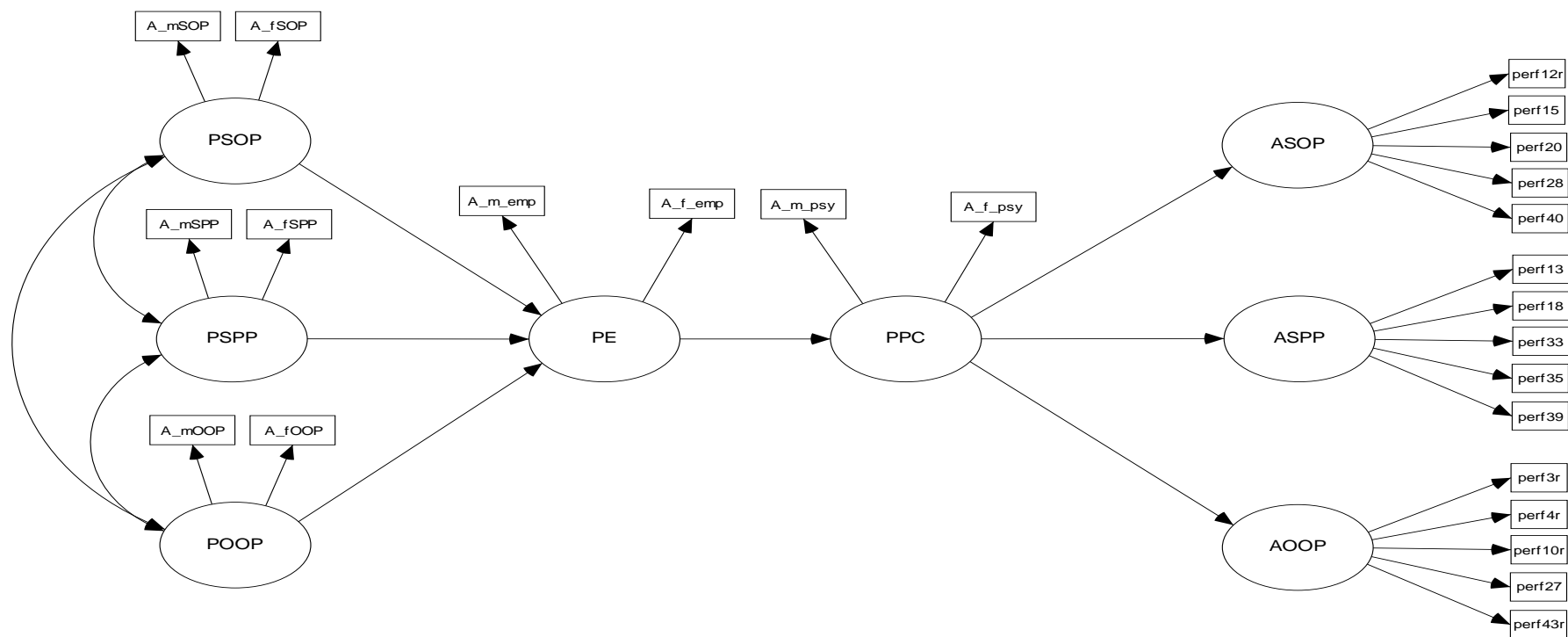


Figure 6.1 – Hypothesised model of the relationships between athletes’ perceptions of parents’ perfectionism, parents’ empathy, parents’ psychological control, and athletes’ self-reported perfectionism

Note. PSOP = Athletes’ perceptions of parents’ SOP; A_mSOP = athletes’ perceptions of mothers’ SOP; A_fSOP = athletes’ perceptions of fathers’ SOP; PSPP = athletes’ perceptions of parents’ SPP; A_mSPP = athletes’ perceptions of mothers’ SPP; A_fSPP = athletes’ perceptions of fathers’ SPP; POOP = Athletes’ perceptions of parents’ OOP; A_mOOP = Athletes’ perceptions of mothers’ OOP; A_fOOP = Athletes’ perceptions of fathers’ OOP; PE = athletes’ perceptions of parents’ empathy; A_m_emp = athletes’ perceptions of mothers’ empathy; A_f_emp = athletes’ perceptions of fathers’ empathy; PPC = athletes’ perceptions of parents’ psychological control; A_m_psy = athletes’ perceptions of mothers’ psychological control; A_f_psy = athletes’ perceptions of fathers’ psychological control; ASOP = athletes’ self-reported SOP; ASPP = athletes’ self-reported SPP; AOOP = athletes’ self-reported OOP.

psychological control (i.e., parents' perfectionism → parents' empathy → parents' psychological control → athletes' perfectionism).

6.6. Method

6.6.1. Participants

The sample consisted of 49 elite junior gymnasts and 127 football players. The mean age for female athletes ($n = 83$) was 14.40 years ($SD = 2.27$), and for male athletes ($n = 93$) the mean age was 14.70 years ($SD = 2.02$). The average number of years athletes had been participating in their sport was 7.90 ($SD = 2.95$) and the average number of years associated with their current club was 4.63 ($SD = 3.42$). The mean age for athletes' mothers was 44.01 ($SD = 5.03$) and the mean age for athletes' fathers was 45.77 ($SD = 5.69$).

6.6.2. Measures

All athletes answered a multi-section inventory that included demographic questions relating to gender, age, sport played, the number of years they had been participating in their sport, and the number of years associated with their current club. Athletes also completed the following questionnaires (see Appendix E).

Athlete self-report multidimensional perfectionism: The revised 15-item MPS-HF from study one was employed to assess athletes' self-report SOP, SPP, and OOP. Responses were measured on a 7-point Likert scale (1 = *strongly disagree*, 7 = *strongly agree*). The psychometric properties associated with the revised MPS-HF are discussed in study one.

Athlete perceptions of parents' multidimensional perfectionism: Based on the findings of study two, parents' perfectionism was measured via athletes' perceptions.

Athletes completed a second, adapted version of the revised MPS-HF (see study one). The scale was adapted to capture an athlete's perceptions of their mother's and father's SOP (e.g., "It is very important to my mother/father that they are perfect in everything they attempt"), SPP (e.g., "My mother/father thinks that anything they do that is less than excellent will be seen as poor by those around him/her"), and OOP (e.g., "My parent cannot stand to see people close to him/her make mistakes"). Responses were measured on a 7-point Likert scale (1 = *strongly disagree*, 7 = *strongly agree*). Athletes completed two versions of this scale; one relating to perceptions of fathers' perfectionism and one relating to perceptions of mothers' perfectionism.

Athlete perceptions of parents' empathy: The Parent/Partner Empathy Scale (PPES; Feshbach & Caskey, 1985) was adapted to measure athletes' perceptions of their parents' empathy. The original PPES is a 40-item, self-report inventory designed to assess parents' empathy toward their children and empathy toward their spouse or partner. Seventeen items capturing parents' empathy towards their child were selected for the current study, and re-worded to focus athletes' on their perception of parental empathy (e.g., "My parent is quick to pick up on my likes and dislikes"). Athletes responded to a 4-point Likert type scale with anchors of *not true* (1) to *always true* (4), and completed two versions of the scale; one focusing upon maternal empathy and one scale for paternal empathy. Nine items are reversed scored, and the items are then summed to provide a composite mother empathy score and father empathy score. A higher composite subscale score is indicative of higher

empathy. Perez-Albeniz and de Paul (2004) confirmed the internal consistency for “Empathy toward the child” scale was acceptable ($\alpha = .77$).

Athlete perceptions of parents’ psychological control: The eight item Psychological Control Scale – Youth Self-Report (PCS-YSR; Barber, 1996) was employed to measure athletes’ perceptions of parental psychological control. Barber (1996) included three psychologically controlling tactics in the PCS-YSR; constraining verbal expression (e.g., “My mother/father often interrupts me”), invalidation of feelings (e.g., “My mother/father is always trying to change how I feel or think about things”), and personal attack (e.g., “My mother/father brings up my past mistakes when criticising me”). Athletes responded to a 3-point Likert type scale with anchors of *not like my mother/father* (1) to *a lot like my mother/father* (3), and completed two versions of the scale; one focusing upon maternal psychological control and one scale for paternal psychological control. Barber (1996) and Soenens, Luyckx, et al. (2008) have confirmed the internal reliability of the PCS-YSR, with Cronbach’s alphas ranging from .72 to .86. The construct validity of the PCS-YSR has also been supported by Barber.

6.6.3. Procedures

The reader is referred to studies one and two for an overview of the data collection procedures adopted in the current study.

6.6.4. Data Analysis

The hypotheses for study three were tested via structural equation modelling using AMOS 16.0 software. SEM was the preferred statistical analysis technique compared to path analysis with manifest variables or multiple regression. Even with a

small sample size ($n < 200$) SEM automatically corrects for unreliability of the mediators and thus increases the power of testing indirect effects (Hoyle & Kenny, 1999). Model fit was tested using the same fit indices outlined in study one.

The guidelines outlined by Gaudreau and Antl (2008) and MacKinnon (2008) were employed when conducting the SEM analyses. A CFA was initially performed to assess the suitability of the proposed measurement model. A preliminary test was then performed to determine whether a significant association existed between the independent variable(s) and dependent variable(s) without the presence of the mediator(s) in each of the predetermined hypotheses of mediation (parents' perfectionism → parents' psychological control; parents' perfectionism → athletes' perfectionism). According to Holmbeck (1997), this initial test of incomplete and misspecified models sets up the logical argument of mediation; it does not provide evidence of goodness-of-fit.

Next, a series of latent path analyses were performed with a view of assessing the fit of the proposed structural model. The full mediation model was examined first (see Figure 6.1), and then two predetermined partial mediation models were tested and compared against the full mediation model. Support for the full mediation model is available if the partial mediation models fails to provide a better fit to the data (i.e., the newly added paths are not significant). The final step involved examining the direct and indirect effects of the newly added paths (MacKinnon, Lockwood, Hoffman, West, & Sheets, 2002). The association between an independent variable with a dependent variable represents the direct effect, while the indirect effect corresponds to the effect of one or more mediating variables in that relationship

(Gaudreau & Antl, 2008). A significant indirect effect ($Z > 1.96$) provides evidence for a fully mediated relationship. In contrast, a significant indirect and direct effect provides support for the partially mediated relationship. Standard error terms are central to examining the direct and indirect effects ($B/SE = Z$), and were provided by bootstrapping techniques. Bootstrapping techniques also provide 95% confidence intervals (CI), which provide a further test of the direct and indirect effects. MacKinnon (2008) proposed the mediated effect is statistically significant when zero is outside the confidence intervals.

6.7. Results

6.7.1. Data screening

Prior to SEM analyses, the data were screened for missing entries and normality following the recommendations of Tabachnick and Fidell (2007). Although there were no variables with missing values, standardised z-scores were inspected and revealed two cases as univariate outliers ($z > 3.29$, $p < .001$). Furthermore, three cases with a Mahalanobis distance greater than $\chi^2(10) = 29.59$ were identified. With the removal of univariate and multivariate outliers, the final sample for study three was 171 athletes. The remaining data ($n = 171$) was considered to be approximately univariate normal (absolute skewness $M = .10$, $SD = .55$, absolute kurtosis $M = .08$, $SD = .41$), although there was still evidence of multivariate non-normality in the data (Mardia's coefficient = 30.801). In line with the procedures outlined in study one, SEM analyses was conducted using maximum likelihood estimation coupled with bootstrapping procedures.

6.7.2. Descriptive statistics, internal reliabilities, and zero-order correlations

Descriptive statistics and internal reliabilities for all measured variables are presented in Table 6.1. The Cronbach's alpha values (see Table 6.1) for the SOP and SPP subscales ranged from .69 to .74. As with study two, the athletes' self-reported OOP failed to achieve a minimum Cronbach's alpha of 0.60 ($\alpha = .55$), and thus OOP was excluded from the analysis. The current sample of athletes reported moderately high levels of SOP and moderate levels of SPP. The athletes also reported similar levels of SOP and SPP in their mothers and fathers. Athletes' perceptions of parents' empathy were moderately high and perceptions of parents' psychological control were moderately low.

Zero-order correlations (see Table 6.1) provide support for the findings of study two; athletes' self-reported SOP and SPP were significantly and positively associated with corresponding perfectionism dimensions in parents. Parents' SPP was also significantly and positively correlated with psychological control, and significantly and negatively correlated with empathy. Conversely, the relationships between parents' SOP and empathy, and parents' SOP and psychological control were non-significant. Finally, a significant and negative relationship emerged between parents' empathy and psychological control. Because parents' SOP was unrelated to the mediator variables, SEM analyses were isolated to the processes mediating the intergenerational transmission of SPP. However, a direct path between parents' and athletes' SOP was included in the structural models to capture the cross-generational continuity of this perfectionism dimension.

Table 6.1. Descriptive statistics, correlation coefficients, and reliability coefficients between athletes' SOP, SPP, and perceptions of parental characteristics

	ASPP	AMSOP	AMSPP	AFSOP	AFSPP	AMEm	AFEm	AMPC	AFPC	<i>M</i>	<i>SD</i>	<i>α</i>
ASOP	.47(***)	.45(***)	.20(**)	.52(***)	.26(***)	.17(*)	-.15(*)	-.01	.01	4.90	1.06	.74
ASPP		.37(***)	.46(***)	.45(***)	.52(***)	-.09	.07	.29(***)	.31(***)	3.62	1.07	.73
AMSOP			.56(***)	.79(***)	.47(***)	.03	.02	.03	.06	4.28	1.01	.72
AMSPP				.52(***)	.82(***)	-.18(*)	-.20(**)	.24(**)	.25(**)	3.45	1.05	.74
AFSOP					.58(***)	.04	-.07	-.04	.11	4.55	1.09	.73
AFSPP						-.21(**)	-.27(***)	.25(**)	.26(***)	3.60	1.03	.71
AMEm							.64(***)	-.25(**)	-.14(*)	3.13	.31	.69
AFEm								-.19(**)	-.25(**)	2.96	.36	.77
AMPC									.73(***)	1.34	.34	.76
AFPC										1.38	.36	.77

Note. ASOP = Athletes' self-oriented perfectionism; ASPP = Athletes' socially prescribed perfectionism; AMSOP = Athletes' perceptions of mothers' self-oriented perfectionism; AMSPP = Athletes' perceptions of mothers' socially prescribed perfectionism; AFSOP = Athletes' perceptions of fathers' self-oriented perfectionism; AFSPP = Athletes' perceptions of fathers' socially prescribed perfectionism; AMEm = Athletes' perceptions of mothers' empathy; AFEm = Athletes' perceptions of fathers' empathy; AMPC = Athletes' perceptions of mothers' psychological control; AFPC = Athletes' perceptions of fathers' psychological control

*** p < .001 ** p < .01 * p < .05

6.7.3. Measurement Model

A measurement model with six inter-related latent variables (parents' SOP, parents' SPP, parental empathy, parents' psychological control, athletes' self-report SOP, athletes' self-report SPP) was initially tested. In response to the findings of study two, in which both parents' contributed to the intergenerational transmission of perfectionism, and the work of Soenens (Soenens, Elliot, et al., 2005; Soenens, Luyckx, et al., 2008; Soenens, Vansteenkiste, et al., 2005), which suggests there is no significant difference between mothers and fathers in the perfectionism-psychological control relationship, latent variables for parents' perfectionism, empathy, and psychological control were included in the model. Each latent variable was represented by two indicators; a mother indicator and father indicator (see Fig. 6.2). Athletes' self-report SOP and SPP were represented by relevant items from the revised MPS-HF (see study one).

The measurement model was considered to provide acceptable fit ($\chi^2 = 162.04$, $df = 120$, $p < .01$, $\chi^2/df = 1.35$, CFI = .97, SRMR = .05, RMSEA = .05 (90% CI = .025 to .062)) (see Table 6.2). In addition, all factor loadings were statistically significant ($p < .004$). Standardised factor loadings ranged from .83 to .95 for parents' SOP; from .87 to .94 for parents' SPP; from .79 to .81 for parents' parental empathy; .77 to .94 for parents' psychological control; from .26 to .79 for athletes' SOP; and from .42 to .67 for athletes' SPP. Error-free correlations revealed that the relationships between parents' SOP and parental empathy, between parents' SOP and parents' psychological control, between parental empathy and athletes' SOP, between

parental empathy and athletes' SPP, and between parents' psychological control and athletes' SOP were non-significant.

6.7.4. Prerequisite condition of mediation

A first model examined the path from athletes' perceptions of parents' SPP to athletes' perceptions of parents' psychological control. Parents' psychological control was predicted by parents' SPP ($\beta = .32, p < .001$). As expected, a second model revealed a significant association between athletes' perceptions of their parents' SPP and athletes' self-reported SPP ($\beta = .65, p < .001$), and athletes' perceptions of parents' SOP and athletes' self-reported SOP ($\beta = .59, p < .01$). Altogether, these results met Holmbeck's (1997) prerequisite condition for the subsequent test of mediation.

6.7.5. Structural model one: Fully mediated model

The work of Soenens, Elliott et al. (2005) has demonstrated that intergenerational transmission of perfectionism is fully mediated by key parenting variables. In line with this research, Figure 6.1 hypothesised that parents' empathy and psychological control would fully mediate the parent-athlete perfectionism relationship. Based on the zero-order correlations and internal reliabilities, the fully mediated model was specified as per Figure 6.1, but with the parents' SOP – empathy path and OOP variables excluded. Each parental latent variable was represented by two indicators; a mother indicator and father indicator. The parameters in the fully mediated model were all significant ($p < .01$). Fit indexes confirmed that the proposed model fit the data marginally ($\chi^2 = 249.75, df = 129, p < .001, \chi^2/df = 1.94$, Bollen-

Stine Statistic = .001, CFI = .90, SRMR = .13, RMSEA = .07 (90% CI = .060 to .088)) (see Model 1 in Table 6.2).

6.7.6. Structural model two: Direct paths from athletes' perceptions of parents' SPP to parents' psychological control

The first hypothesis of the current study proposed that parental empathy would mediate the parent perfectionism-psychological control relationship. Thus, a further aim of the structural equation modelling analyses was to determine whether this specific relationship was either fully or partially mediated. This was achieved by adding a direct path from parents' SPP to psychological control, and subsequently re-analysing model fit. Fit indexes again revealed marginal support for the hypothesised model ($\chi^2 = 239.55$, $df = 128$, $p < .001$, $\chi^2/df = 1.87$, Bollen-Stine Statistic = .002, CFI = .91, SRMR = .11, RMSEA = .07 (90% CI = .057 to .086)). The newly added path from parents' SPP to psychological control was significant ($p < .01$) and yielded a significant improvement in fit compared to model one: $\Delta \chi^2 (1) = 10.2$ ($p < .01$) (see Model 2 in Table 6.2).

Results of the tests of direct and indirect effects are presented in Table 6.3. The indirect effects of parents' perfectionism on parents' psychological control was not significant at the 0.05 criteria, achieving a z score 1.91. In this case, a strict interpretation of statistical significance is not warranted given the relatively low power to direct and indirect effects in mediational analyses (Hoyle & Kenny, 1999). An inspection of Table 6.3 also revealed that for both the direct and indirect effects, confidence intervals did not include zero. Including an indirect effect of parents' SPP on psychological control through empathy in the final model thus seemed more

prudent than disregarding this path. Altogether, the results indicate that parents' empathy partially mediates the relationship between parents' perfectionism and psychological control. The direct path from parents' perfectionism to psychological control was retained in the second mediation model.

6.7.7. Structural model three: Direct paths from athletes' perceptions of parents' SPP to athletes' self-reported SPP

As outlined above, the fully mediated mediate model (model one) was significantly improved when adding a direct path from parents' SPP to psychological control (model two). Consistent with this approach, a final path was added between parents' SPP and athletes' SPP (model three) and improvement in model fit examined. The addition of this path tested whether the intergenerational transmission of SPP is fully mediated or partially mediated by key parenting variables. The newly added path was significant ($p < .001$) and yielded a significant improvement in model fit compared to model 2: $\Delta \chi^2 (1) = 48.8$ ($p < .01$). The overall fit of this model was also acceptable ($\chi^2 = 190.75$, $df = 127$, $p < .001$, $\chi^2/df = 1.50$, Bollen-Stine Statistics = .044, CFI = .95, SRMR = .07, RMSEA = .05 (90% CI = .038 to .070) (see Model 3 in Table 6.2). Direct and indirect effects were both significant, and the confidence intervals did not include zero (see Table 6.3). Thus, the sequence running from parents' empathy to psychological control partially mediated the intergenerational transmission of SPP. This model was assumed to be the best fitting structural model (see Figure 6.2).

Table 6.2. Fit indices of the measurement and structural models

	χ^2	<i>df</i>	χ^2/df	BS	CFI	SRMR	RMSEA (90% CI)	$\Delta \chi^2$	Δdf
	Structural Model								
Measurement Model	162.04	120	1.35		.97	.05	.05 (.025 to .062)		
1. Full Mediation	249.75	129	1.94	.001	.90	.13	.074 (.060 to .088)		
2. Partial Mediation I ^a Model 3 vs. 2	239.55	128	1.87	.002	.91	.11	.072 (.057 to .086)	10.2*	1
3. Partial Mediation II ^b Model 4 vs. 3	190.75	127	1.50	.044	.95	.07	.054 (.038 to .070)	48.8**	1

Note. BS = Bollen-Stine Statistics All χ^2 were significant at $p < .001$

^a Direct path from athletes' perceptions of parents' SPP to athletes' perceptions of parents' psychological control

^b Direct path from athletes' perceptions of parents' SPP to athletes' self-reported SPP

* $p < .01$, ** $p < .001$

Table 6.3 Significance test of the unstandardised direct and indirect effects

	Total		Direct Effect			Indirect Effect			
	<i>B</i>	<i>B</i>	SE	Z	95% CI	<i>B</i>	SE	Z	95% CI
Partial mediation I: Direct path from parents' SPP to psychological control	0.11	.089	.030	2.97***	.03 - .15	0.21	.011	1.91*	.01 - .06
Partial mediation II: Direct path from parents' SPP to athletes' SPP	0.16	.63	.11	5.72***	.42 - .89	0.71	.036	1.97**	.02 - .17

Note. * $p < .057$, ** $p < .05$, *** $p < .01$

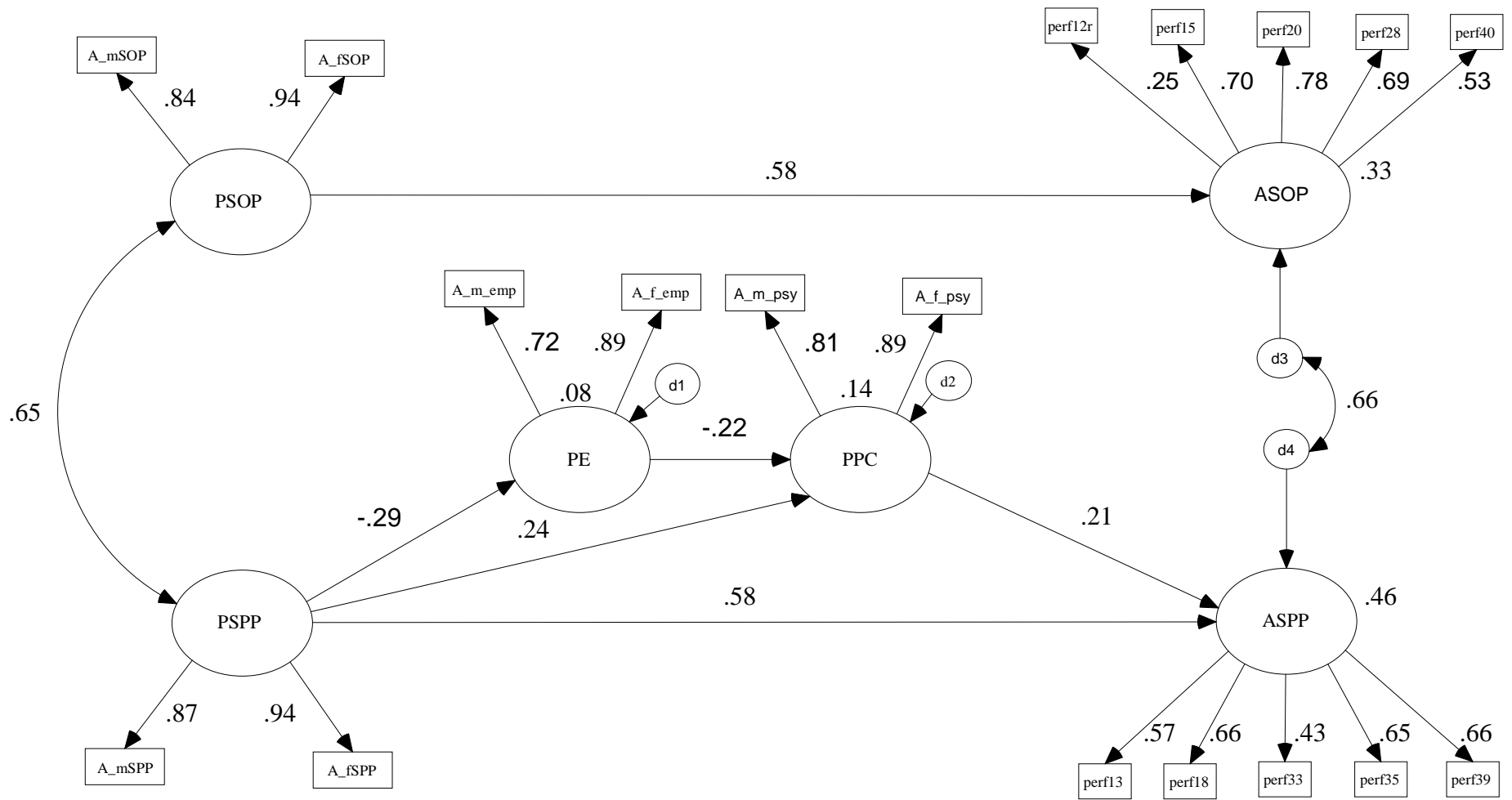


Figure 6.2 – Partially mediated model of the associations between athletes’ perceptions of parents’ perfectionism, empathy, psychological control, and athletes’ self-reported perfectionism. All parameters were significant at $p < .05$

6.8. Discussion

Guided by Darling and Steinberg's (1993) conceptual model of parenting and the empirical work of Soenens (Soenens et al., in press; Soenens, Elliot, et al., 2005; Soenens, Vansteenkiste, et al., 2006), study three sought to identify the mediating processes within the intergenerational transmission of perfectionism between parents and their athletic children. Specifically, two mediational hypotheses were tested in study three. Based on the suggestions of Soenens, Elliot, et al., it was hypothesised that parental empathy (or lack of) would mediate the parental perfectionism – psychological control relationship. Second, it was hypothesised the intergenerational transmission of perfectionism would be fully mediated by parental empathy and psychological control; that is, parents' perfectionism would be negatively correlated with parental empathy, which in turn would lead to psychologically controlling parenting. Parental psychological control would then explain the development of perfectionistic tendencies in athletic children (i.e., parents' perfectionism → parents' empathy → parents' psychological control → athletes' perfectionism). Both hypotheses were tested as part of a structural equation model.

6.8.1. Empathy mediating the parental perfectionism – psychological control relationship.

The first hypothesis in the current study suggested that athletes' perceptions of parental empathy would mediate the relationship between parents' multidimensional perfectionism (i.e., SOP, SPP, and OOP) and psychological control. An inspection of the findings revealed partial support for hypothesis one. Partial support was obtained because the mediating role of empathy was limited to the

parents' SPP – psychological control relationship. Furthermore, while it was originally hypothesised that athletes' perceptions of parental empathy would fully mediate the linkage between parental perfectionism and psychological control, support was found for partial mediation. This was because the inclusion of a direct path between parents' SPP and psychological control led to a significant improvement in model fit. The direct path and tests of direct and indirect effects were significant (or at least approached significance), and the relevant confidence intervals did not include zero. Inspection of the final structural equation model revealed that athletes' perceptions of parental SPP accounted for eight per cent of variance in their perceptions of parental empathy, while a combination of parental SPP and empathy accounted for fourteen per cent of variance in athletes' perceptions of psychologically controlling parenting. Overall then, the current findings are in line with Soenens, Elliot, et al's (2005) suggestion that parental perfectionism is associated with psychological control via parental empathy.

In explaining these results, two points are worthy of consideration. First, an explanation is required for the mediating role of empathy within the parental SPP – psychological control relationship. With regards to this point, it is interesting to note that athletes' perceptions of parents' SPP were significantly correlated with both parental empathy (negative correlation) and psychological control (positive correlation). The reported correlations are interesting because they provide insight into the parenting styles of mothers and fathers with a socially prescribed perfectionistic orientation. While previous research from the general perfectionism literature (for a recent summary of research, see Habke & Flynn, 2002) confirms the

debilitating nature of SPP for interpersonal relationships, the focus of this research is limited to interactions between intimate partners. The present study indicates that the debilitating nature of SPP for interpersonal functioning extends beyond the relationship between husband and wife, and influences the bond between perfectionistic parents and their children (at least from the child's perspective).

In particular, the current findings suggest socially prescribed perfectionists employ low empathy towards their children, which in turn promotes intrusive parenting practices. This latter finding is consistent with the theoretical suggestions of Soenens, Elliot, et al. (2005). According to Soenens, Elliot, and colleagues (2005), maladaptive perfectionistic parents lack sensitivity and the necessary empathic concern towards their child because, in their attempts to avoid imperfection and protect self-worth, the maladaptive perfectionistic becomes over-preoccupied with fulfilling their own needs and consequently forfeits a secure relationship with their child (Soenens, Elliot, et al., 2005). The explanation proffered by Soenens, Elliot, et al. is also applicable to parents with a socially prescribed perfectionistic orientation. SPP is characterised, in part, by feelings of self-worth that are conditional upon the successful attainment of externally-determined standards and norms. Thus, socially prescribed perfectionistic individuals strive relentlessly towards these goals, as well as ruminate about externally-determined standards when striving is not possible (Hewitt & Flett, 1991). When socially prescribed perfectionists assume child rearing responsibilities, their unhealthy preoccupation with externally-determined standards may come at the expense of the child's psychological development. As a result, the perfectionistic parent is less attuned to the developmental and empathetic needs of

their child, and may resort to the type of autonomy-inhibiting and intrusive behaviours traditionally associated with psychological control.

It is also worth reinforcing the direct relationship between athletes' perceptions of parents' SPP and psychological control. This finding is important because it reveals that, regardless of an inability to empathise with their child, socially prescribed perfectionistic parents are perceived by their child to engage in psychological control. One possible explanation for this direct relationship concerns the perfectionist's overbearing need to attain externally-determined standards and protection of their self-worth. If these needs transfer to the domain of parenting, performance standards and self-worth become intertwined with being perceived as the "perfect" parent. In their attempts to achieve this status, one strategy is for the mother/father to focus upon their own behaviours. However, they are also somewhat dependent upon the progression of their child, as it is through rearing a "perfect" child that the socially prescribed perfectionist may be regarded as a "perfect" parent. When exposed to this type perfectionistic parent, the athlete may perceive their caregiver as guilt-inducing, withdrawing love, and engaging in harsh criticism. This is because it is through psychological controlling behaviours that the mother or father is able to ensure their offspring complies with their personal standards (Soenens, Elliot, et al., 2005).

A second point that requires elaboration relates to the non-significant correlations between athletes' perceptions of parental SOP, empathy, and psychological control. Although SOP is conceptualised as an intrapersonal perfectionism dimension, it was predicted that through intense achievement striving

and frustrations with goal unattainment, self-oriented perfectionists would experience poor interpersonal functioning (Habke & Flynn, 2002). In the context of parenting, poor interpersonal functioning was expected to be captured by low empathic concern towards children and the employment of psychological control; however, the current findings failed to support this hypothesis. A number of explanations may be offered for the null finding. The first explanation has specific reference to the measurement of psychological control. In the current study, Barber's (1996) general measure of psychological control was employed. While the PCS-YSR is a reliable and valid psychometric tool, this measure fails to specify the issues involved in parents' use of psychological control (Soenens et al., in press). Soenens et al. (in press) recently addressed this shortcoming, proposing a multidimensional measure of psychological control, namely the Dependency-Oriented and Achievement-Oriented Psychological Control Scale (DAPCS).

The DAPCS makes an important contribution to the perfectionism literature, because it may reveal the type of psychological control employed by self-oriented perfectionistic parents. Specifically, it is predicted that athletes' perceptions of parents' SOP will be positively correlated with an achievement-oriented form of psychological controlling, which measures psychologically controlling behaviour aimed at making children comply with parental standards for achievement. When demonstrating achievement-oriented psychological control, parents are preoccupied with their child achieving perfection and engage in a critical orientation towards their offspring (Soenens et al., in press). Based on Soenens et al.'s conceptualisation, it seems reasonable to predict that parental SOP will demonstrate a significant and

positive correlation with the achievement-oriented subscale. This is because SOP is characterised by intense achievement striving and the avoidance of imperfection. In their attempts to achieve perfection, the mother and/or father may demand similar high standards from their offspring. Initial evidence from Soenens and colleagues (in press) confirms the potential for a relationship between SOP and achievement-oriented psychological control. Children's perceptions of parental achievement-oriented psychological control were positively associated with a high score on parental expectations and parental criticism, while in a second study, parental maladaptive perfectionism was uniquely related to achievement-driven psychological control. In light of these findings, it is vital that future research examining the relationship between parental SOP and types of psychological control include the DAPCS.

A second possible explanation for the null findings concerns athletes' perceptions of their self-oriented perfectionistic parents. The literature concerning the origins of perfection indicates that children perceive their parents as "seemingly perfect" (Flett et al., 2002). Although speculative, it is proposed that, in order to maintain the perfect image of their self-oriented perfectionistic parent, the child may be unwilling to disclose a lack of empathy or employment of psychological control by their mother or father. Alternatively, parents classified as self-oriented perfectionists may exert additional pressures on their offspring to help create an idealistic image of their mother or father as the perfect caregiver. While these pressures likely include those captured by psychologically controlling parenting, the consequences of disclosing this information is such that the child reinforces the

“perfect” status of their parent. Future research may overcome this issue by including objective, observational ratings of perfectionistic parents and their use of empathy and/or psychological control (for an example of observational ratings see Kenney-Benson & Pomerantz, 2005).

6.8.2. The intergenerational transmission of perfectionism: The mediating role of parental empathy and psychological control.

The hypothesis that parental empathy and psychological control would mediate the intergenerational transmission of perfectionism between parents and elite junior athletes also received partial support in the current study. Partial support was obtained because mediation was limited to the SPP dimension. Furthermore, it was originally hypothesised that the intergenerational transmission of perfectionism would be fully mediated by parental empathy and psychological control. However, the best fitting and parsimonious model included a direct path from athletes’ perceptions of parental SPP to athletes’ self-reported SPP, indicating partial mediation. Inspection of the final structural equation model revealed that forty-six per cent of variance in athletes’ self-reported SPP was explained by parental SPP and psychological control. Consistent with the findings from study two, the final model also included a direct path from athletes’ perceptions of parental SOP to athletes’ self-reported SOP. Parental SOP explained thirty-three per cent of variance in athletes’ SOP. The implications for an understanding of perfectionism development in elite junior sport are twofold; first, the current findings support the conclusions offered in study two regarding the intergenerational transmission of SOP and SPP; and second, the present results indicate that SPP is transmitted from parents to their

athletic children through specific qualities of the parent-child relationship (i.e., low empathic concern and psychological control).

The latter finding is consistent with Flett et al.'s (2002) conceptual model of perfectionism development. According to Flett et al., and as outlined in chapter four, children are particularly susceptible to the development SPP when their parents are affectionlessly controlling. Affectionless control characterises parents who are overcontrolling with their expectations, and engage in extremely harsh and critical evaluations of their offspring. The child subsequently internalises these expectations and strives relentlessly towards parentally-determined standards in a desperate attempt to gain the recognition and acceptance of their mother and/or father.

Based on the current study, it would seem that socially prescribed perfectionistic parents create a family environment in which children are exposed to a similar form of affectionless controlling parenting. That is, because socially prescribed perfectionistic parents are self-involved with their own needs, they are unable to emphasise with their children, regardless of their offspring achievement efforts and persistence in the face of obstacles. The employment of psychologically controlling parenting also suggests the athletic child is exposed to harsh criticism from their parents and love-withdrawal when certain parental expectations remain unmet (Barber, 1996). From the final structural equation model, it would seem that athletic children respond to this criticism and love-withdrawal by adhering to parental expectations for perfection. In fact, the relationship between psychological control and athletes' self-reported SPP indicates that the self-worth of the child becomes conditional upon successful attainment of these expectations. The combined

implications of internalising parental expectations and the development of a contingent self-worth are captured with the athletes' own socially prescribed perfectionistic orientation. Overall then, the present study illustrates both the direct pervasive effect of parents' SPP (i.e., a modelling effect) and the sequential pathway by which this form of perfectionism leads to similar tendencies in elite junior athletes (i.e., mediating processes).

6.8.3. Limitations of study three and conclusions

A number of the limitations identified in study two are applicable to study three. In line with study two, the internal reliability of the athletes' self-reported OOP subscale was less than desirable, and thus the mediating processes in the intergenerational transmission of OOP remain to be examined. Future research is clearly warranted to replicate the current study with a reliable measure of OOP.

A further limitation is the cross-sectional nature of the findings. As outlined in study two, while the current study is guided by the intergenerational transmission of perfectionism from parents to children, it is conceivable that parents acquire perfectionism via their perfectionistic children. Longitudinal research may address this limitation and establish the direction of cross-generational perfectionism transmission, as well as the mediating role of empathy and psychological control over time. Related to this latter point, initial evidence from Soenens, Luyckx, et al. (2008) suggests parents' psychological control at time one predicts increases in adolescents' maladaptive perfectionism scores adolescents one year later. Sport psychologists should aim to extend Soenens, Luyckx, et al's longitudinal findings with elite junior athletes, as well as examining the long-term of effects of parents' perfectionistic

tendencies for their employment of psychological control and children's self-reported perfectionism.

A related limitation pertains to the measurement of parental characteristics via athletes' report. One disadvantage of using athletes' perceptions of parents' perfectionism, empathy, and psychological control is an overestimation of the associations among these constructs with athletes' self-reported perfectionism (Soenens, Luyckx, et al., 2008). The problem of shared variance is particularly problematic when examining controlling parenting practices and perfectionism because the perfectionist's experience of their caregiver may be inaccurate (Soenens, Elliot, et al., 2005). An inaccurate perception of parental style and behaviour occurs because the perfectionist projects their own expectations onto their environment (including their parents; Hewitt & Flett, 1991), and thus their experience of parental empathy and psychological control may be a function of the athletes' own perfectionism. With regards to this potential limitation, it is worth reiterating the findings from study two of the current programme of research, in which athletes' report of parental perfectionism and parents' self-report of perfectionism were positively and significantly correlated. Thus, there is initial evidence to suggest that elite junior athletes are able to accurately recall their mothers' and fathers' parenting practices and styles. Despite the findings from study two, however, sport psychologists may obtain a more accurate measure of parental perfectionism, empathy, and psychological control when measured constructs are represented by athletes' *and* parents' indicators (Soenens, Elliot, et al., 2005; Soenens, Luyckx, et al., 2008).

The current study was an initial examination of the mediating processes in the intergenerational transmission of perfectionism between parents and elite junior athletes. Consequently, there is great scope for future research. As indicated above, subsequent attempts to investigate the mediating role of psychological control should employ Soenens et al's (in press) recently developed DAPCS. This is particularly important as sport psychologists seek to identify the parenting processes that mediate the cross-generational transmission of SOP. The mechanisms by which SOP filters from one generation to the next may also emerge via alternative parenting styles or practices. For example, sport psychologists may wish to examine the mediating role of Baumrind's (1971) parenting styles. A small body of research (Speirs Neumeister, 2004; Speirs Neumeister & Finch, 2006) has identified that parents with a self-oriented perfectionistic orientation engage in an authoritative approach to child rearing, and children respond to the presence of authoritative parents by raising their own goals and aspirations; a strategy that may eventually manifest as SOP (Flett et al., 1995; Speirs Neumeister, 2004).

Finally, sport psychologists should continue to investigate the relationship between parents' perfectionism and employment of psychological control, focusing specifically upon mediating processes. For example, alongside parental empathy, parent's own contingent self-worth may intervene in this relationship. Soenens, Elliot, and associates (2005) proposed that perfectionistic parents have a contingent sense of self-worth, which is characterised by feelings about oneself that are conditional upon perfection (e.g., perfect parent). When these contingencies are directed externally towards their child, the perfectionistic parent will communicate

love and acceptance on those rare occasions when the child meets parental standards and expectations. As indicated previously in this chapter, the use of contingent acceptance and love-withdrawal are key indicators of psychological control.

Notwithstanding the limitations of this study, the current findings demonstrates that, while elite junior athletes acquire perfectionism by modelling similar tendencies in their parents, a number of key parenting processes are also responsible for the acquisition of SPP in sporting performers. In combination with the findings for study two, study three also provides empirical support for a specific pathway towards perfectionism development. Research is now required to examine alternative pathways underpinning the acquisition of perfectionism in elite junior athletes, and this objective receives attention in study four. One such pathway was recently identified by McArdle and Duda (2004), who demonstrated that parents' achievement goals for their children were key predictors of athletes' scores on the MPS-F. The purpose of study four was to extend McArdle and Duda's findings regarding the pathway between parents' achievement goals and athlete's perfectionistic tendencies.

Chapter Seven: Examining the origins of perfectionism in elite junior athletes:

The contribution of parents' achievement goals

Study three highlighted the central role of parents' psychological control in the intergenerational transmission of perfectionism. Building upon this finding, the current study examined an alternative facet of parents' control in the development of perfectionism. Specifically, study four focused upon parents' behavioural control and was guided by Flett et al's (2002) social expectations model. According to the social expectations model, children acquire perfectionism via excessive parental standards, which are reflected in the achievement goals that parents hold for their athletic child. Using previous research (e.g., Ablard & Parker, 1997; McArdle & Duda, 2004), it will be argued that parents' achievement goals, in turn, underpin the development of SOP and SPP in elite junior athletes. It will also be hypothesised that the relationship between parents' achievement goals and athletes' perfectionism determines the processes regulating achievement motivation in sport. That is, as a direct response to parents' achievement goals, it was expected that athletes' SOP and SPP would be associated with self-determined and/or controlled motivational regulation. The overall purpose of study four therefore was to test a structural equation model (see Fig. 7.1) in which parents' achievement goals predict elite junior athletes' dispositional SOP and SPP, which subsequently underpin the processes regulating the athlete's achievement motivation.

7.1. The social expectations model: Examining the behavioural component of parental control

In discussing the relationship between parental control and children's psychological development, Barber (1996) has emphasised the importance of investigating behavioural and psychological components of the construct. An extension of Barber's theorising is that parents' behavioural control *and* psychological control are also important precursors of children's perfectionistic tendencies. This suggestion was partially supported in study three, where parents' psychological control mediated the intergenerational of SPP. However, study three was also limited in scope because the influence of parents' behavioural control was excluded. Thus, to build upon the findings reported in study three, and to address the suggestions proffered by Barber regarding the multidimensional nature of parents' control, it is vitally important that researchers complement studies of parents' psychological control by examining the role of parents' behavioural control in the aetiology of perfectionism.

The role of parents' behavioural control in the origins of children's perfectionism is central to Flett et al's (2002) social expectations model. According to this model, high parental expectations and conditional parental approval contribute to a family environment that promotes perfectionism in children and adolescents. High parental expectations are conceptually similar to the notion of behaviourally controlling parenting (Barber, 1996). This is because by demanding unrealistic performance standards from their offspring, the caregiver is able to manipulate the child's goal-directed behaviour and achievement-based striving towards parentally-

determined standards (Greenspon, 2000). When enveloped within the behaviourally controlling family environment that expects and reserves approval for exceptional performance, children will likely develop perfectionistic tendencies (Flett et al., 2002).

With regards to the development of SPP, the type of behavioural controlling parenting described above (i.e., high parental expectations) encourages children to strive towards parentally-determined goals and to base feelings of self-worth on the successful attainment of their parents' standards (Hewitt & Flett, 1991). One strategy available to the child as they strive towards their parents' goals is to successfully produce a perfect performance, because by avoiding even minor flaws the child is deemed worthy of parental approval (Greenspon, 2000; Sorotzkin, 1998). When the child associates feelings of self-worth with perfection and the attainment of parental-determined standards, their personality will be characterised by SPP (Hewitt & Flett, 1991).

Parental behavioural control is also hypothesised to contribute to children's SOP. According to the conceptual model of perfectionism development (Flett et al., 2002), some children will internalise the expectations of their parents to the extent that externally-determined standards influence the child's own desires and aspirations for perfection. Should the internalisation of parental goals occur, it is expected that children will demand perfectionistic standards of themselves because the attainment of exceptional goals validates self-worth. In sum, this internally-focused orientation towards perfection and self-validation will be reflective of self-oriented perfectionistic striving (Hewitt & Flett, 1991).

Evidence from the general perfectionism literature has consistently identified a linkage between parents' unrealistic expectations for their offspring and a child's perfectionistic tendencies (Flett, Hewitt, Blankstein & Gray, 1998; Miller-Day & Marks, 2006; Randolph & Dykman, 1998; Rice, Lopez, & Vergara, 2005). Support for Flett et al's (2002) social expectations model also extends to the sport domain. As reported in chapter two, recent adaptations of the MPS-F (e.g., the Multidimensional Perfectionism Scale for Sport-2; Gotwals & Dunn, 2009) are based, in part, on the premise that parental expectations and criticism are key precursors of athletes' perfectionism (Anshel & Eom, 2003). Studies by McArdle and Duda (2004; 2008) also reinforce the social expectations model within the context of sport. With a sample 196 young athletes, McArdle and Duda's (2004) study highlighted positive and significant correlations between parental expectations and intra-personal facets of perfectionism (i.e., personal standards, concern over mistakes, and doubts about action). A subsequent cluster analysis revealed four "groups" of athletes, two of which reflected higher parental expectations and criticism, as well as higher scores on personal standards, concern over mistakes, and doubts about action.

A second study by McArdle and Duda (2008) employed hierarchical regression techniques to examine the effects of parents' expectations and criticism for athletes' perfectionism, self-esteem, and labile self-esteem. Although zero-order correlations between parental expectations and athletes' intra-personal perfectionism (i.e., high personal standards, concern over mistakes, and doubts about action) failed to emerge, high parental expectations significantly predicted athletes' labile self-esteem. This finding is important because labile self-esteem represents the degree of

short-term fluctuations experienced in contextual based global self-esteem (Greenier, Kernis, & Waschull, 1995) and is conceptualised as a central component of SPP (Hall et al., 2008). Overall then, the findings reported by McArdle and Duda (2004; 2008), as well as the evidence from the general perfectionism literature, provides initial support for a relationship between parents' behavioural control, as measured using the MPS-F, and children's perfectionistic tendencies.

An alternative approach to parental expectations: Exploring the relationship between parents' achievement goals and athletes' dispositional perfectionism

The majority of research concerning parents' behavioural control in the aetiology of children's perfectionism has focused upon parental expectations. However, two additional studies (Ablard & Parker, 1997; McArdle & Duda, 2004) have provided an alternative approach to this issue, by examining parental expectations via the caregivers' achievement goals. Initially, Ablard and Parker (1997) argued that a parent's view of success and failure, which are subsequently transmitted to their offspring via goal orientations, can encourage the socialising of perfectionistic tendencies in children. Ablard and Parker proposed that parents are classified as ego-oriented when success and failure are defined with direct reference to external indicators of performance (Dweck, 1986). When success and failure are defined in this manner, Ablard and Parker argued that ego-oriented parents demand high performance standards because it signifies competence within an achievement domain. In fact, because ego-oriented parents assign such importance to the successful attainment of high standards, their approval is often reserved for those occasions when the child attains an error-free performance (Ablard & Parker, 1997).

According to Ablard and Parker, it is the combination of high standards and unconditional acceptance associated with a parent's ego orientation that socialises a child towards perfectionistic tendencies. Ablard and Parker sought to empirically test their assumption in 127 sets of parents and their gifted student-children

Each participant in Ablard and Parker's (1997) study completed the MPS-F. Mothers and fathers also provided their academic goals for their children, and based on these goals, were classified as task-oriented or ego-oriented. Because Ablard and Parker were interested in children's patterns of perfectionism scores, they conducted a cluster analysis. In support of Ablard and Parker's assumptions, the classification of data revealed that children of ego-oriented parents were significantly more likely to be grouped in the dysfunctional perfectionism group (i.e., high scores on the MPS-F subscales) than children of task-oriented parents.

Building upon Ablard and Parker's (1997) study with gifted students, McArdle and Duda (2004) sought to determine whether talented young athletes who differed in terms of their perceptions of parental achievement goals, parental expectations and criticism, and perceptions of family flexibility also differed in terms of their perfectionistic tendencies, goal orientations, and motivational regulations. With regards to parents' achievement goals, McArdle and Duda's study differs from Ablard and Parker's project in two ways. McArdle and Duda obtained children's perceptions of their parents' achievement goals, and children provided responses for either the mother *or* father, determined by the caregiver who was most involved with their sport participation. The sample comprised male and female junior athletes from a variety of team and individual sports. Four clusters emerged from the analysis,

including a group of athletes who were partly characterised by a high parental task orientation and a low parental ego orientation. This combination of parental goal orientations was associated with low concern over mistakes, doubts about actions, but high personal standards in the athletic children. In contrast, athletes reported maladaptive perfectionistic tendencies when their parent's achievement goal profile was high in both a task and ego orientation.

Ablard and Parker's study with gifted students and McArdle and Duda's (2004) project with talented athletes make an important contribution to the literature, establishing parents' achievement goals as significant precursors to athletes' perfectionistic tendencies. Research is now required to test whether parents' achievement goals also underpin the development of athletes' dispositional SOP and SPP. To date, the relationship between parents' achievement goal orientation and athletes' SOP and SPP has failed to receive attention of researchers. However, indirect support can be gleaned from a number of studies that have considered the association between athletes' dispositional perfectionism and self-reported achievement goals. A consistent finding within this research is a relationship between a task and ego orientation with SOP (Appleton et al., in press), or defining facets of SOP (Dunn, Causgrove Dunn, & Syrotuik, 2002; Hall et al., 1998; 2008; Ommundsen, Roberts, Lemyre, & Miller, 2005; Stoeber, Stoll, et al., 2008; Stoeber, Stoll, et al., 2009; Stoeber et al., in press). Defining features of SPP on the other hand have been positively correlated with an ego orientation (Dunn et al., 2002; Hall et al., 1998; 2008; Ommundsen et al., 2005). In response to the reported relationships, Appleton and colleagues (in press) recently proposed that specific patterns of goal

orientations help to define the nature and form of perfectionistic striving. Building upon this suggestion, it is also conceivable that parents' achievement goals may also underpin the nature and form of an athlete's dispositional perfectionism and associated perfectionistic striving.

In light of previous research that has examined the relationship between athletes' self-reported perfectionism and achievement goals, it is hypothesised that parents with a high task and ego orientation will encourage dispositional SOP in the athletic child. When demonstrating this combination of goal orientations, the parent evaluates their child's sporting performance based on both skill acquisition *and* superior normative ability. In response to this complex pattern of parents' achievement goals, the athletic child is driven to put forth effort and demonstrate personal mastery. At the same time, however, a parental ego orientation suggests the child is also driven by the demonstration of superior comparative ability, as well as avoiding performance errors (Hall, 2006). When the athletic child's achievement motivation is conceptualised in this manner, that is underpinned by both approach and avoidance tendencies, it is representative of Covington's (1992) overstriving concept. According to Covington, overstrivers strive towards personal mastery and superior comparative ability because their self-worth is dependent upon avoiding substandard performances. Initially, a seemingly positive approach toward personal mastery may lead to exceptional sporting performance, and reaffirm feelings of self-worth. Eventually though, a preoccupation with superior comparative ability and avoiding mistakes fuels the overstriver's doubts regarding the quality of their action, which further intensifies achievement motivation when expected failure becomes a

reality. Moreover, when perceived goal discrepancy is encountered, the overstriver engages in a pattern of harsh self-criticism which ultimately has negative ramifications for feelings of self-worth (Hall et al., 2008).

Overall then, exposure to parents' task and ego orientation leads children to strive relentlessly towards rigid self-set standards, to base feeling of self-worth upon the successful attainment of these standards, and to experience concern over mistakes and doubts about action in response to goal discrepancy. An inspection of the perfectionism literature reveals the pattern of cognition, affect, and behaviour associated with Covington's (1992) overstriver is conceptually similar to Hewitt and Flett's SOP dimension (Hall, 2006; Hall et al., 2008). Based on these similarities, it is proposed that parents' task orientation and ego orientation will significantly predict athletes' SOP in the current study.

In contrast to SOP, the pattern of parental achievement goals associated with athletes' SPP will be dominated by an ego orientation. In line with the tenets of achievement goal theory, ego-oriented parents adopt a differentiated conception of competence when evaluating the performance of their athletic children (Nicholls, 1989). That is, the ego-oriented mother or father equates their child's sporting success with superior athletic ability in comparison to other athletes (Roberts, Treasure, & Hall, 1994). Within the context of elite junior sport, the demonstration of superior ability may be closely intertwined with exceptionally high performance standards and thus ego-oriented parents may demand perfection from their child. A preoccupation with their child's comparative ability may also encourage ego-oriented parents to reserve their appraisal, approval, and even love for those occasions when their child

“is the best athlete”. In short, ego-oriented parents are characterised by demanding perfection from their child, in addition to rewarding their son or daughter on those occasions when superior ability is demonstrated. For the child, constant exposure to unrealistic parental expectations and contingent approval may contribute to an interpretive lens in which self-worth is entirely dependent upon achieving a favourable performance outcome in comparison to other performers (Dweck, 1999). Moreover, the child believes that successful accomplishment of these expectations will lead to parental approval. In sum, by encouraging their child to define self-worth in terms of parentally-determined standards, it is hypothesised that the predominantly ego-oriented parent will lead their athletic child towards SPP.

7.3. Patterns of parents' achievement goals, athletes' dispositional perfectionism, and the nature of perfectionistic striving

While parents' achievement goals may be associated with athletes' SOP and SPP, it is important to remain cognisant of Appleton et al's (in press) suggestion that patterns of achievement goals may define the *nature* and *form* of perfectionistic striving. Expanding upon Appleton et al's suggestion, it is proposed that patterns of parents' achievement goals not only influence children's dispositional perfectionism, but also the nature of perfectionistic striving associated with SOP and SPP. In the current study, the nature of perfectionistic striving was represented by self-determined and controlled forms of motivational regulation.

A growing body of research (Gaudreau & Antl, 2008; Hewitt & Flett, 1991; McArdle & Duda, 2004; McArdle, Duda, & Hall, unpublished manuscript; Mills & Blankstein, 2000; Miquelon, Vallerand, Grouzet, & Cardinal, 2005; Stoeber &

Eismann, 2007; Van Yperen, 2006) reveals that SOP is associated with self-determined (i.e., intrinsic) and controlled (i.e., extrinsic) forms of motivation. Given the avoidance needs associated with SOP, it is unsurprising that SOP is associated with controlled forms of regulation (e.g., introjected and external regulation). Self-oriented perfectionists view achievement situations as tests of their basic worthiness (McArdle et al., unpublished manuscripts), and thus excessive perfectionistic striving is often exhibited in response to an overbearing need to validate tenuous feelings of self-worth (Dykman, 1998). When characterised in this manner, self-oriented perfectionistic striving leads to a sense of obligation that one should perform to exceedingly high standards. This sense of obligation is reflected by introjected regulation (see Deci & Ryan, 2007). Emanating from their quest for self-validation, the self-oriented perfectionist also approaches every achievement situation needing to demonstrate personal mastery and superior comparative ability (McArdle et al., unpublished manuscript). As a result, self-oriented perfectionistic striving is not only characterised by feeling of obligation, but also a fear of failure and anxiety regarding the potential implications of an unsuccessful performance. This fear and anxiety is characteristic of external regulation, which is also a defining facet of controlling motivation (Deci & Ryan, 2007). Overall then, there is reason to expect parental task and ego orientations will be correlated with SOP in athletic child, which will subsequently lead to controlled forms of motivation.

Revealing the complex nature of SOP, it is also hypothesised that this dispositional perfectionism dimension will lead to self-determined motivation. On first view, the proposed relationship between SOP and self-determined regulation

juxtaposes the debilitating motivational nature of this perfectionism dimension as described above. However, the approach and avoidance needs that emanate from parents' task and ego orientations ensure that the child remains focused on self-set standards during attempts at self-validation (Hall, 2006). This internal focus may be sufficient to facilitate a sense of intrinsic motivation in the self-oriented perfectionist, because control over one's achievement standards is retained. A further argument for the relationship between SOP and intrinsic motivation is also available in the writing of Hall (2006). Hall theorised that when an activity is central to one's identity, the self-oriented perfectionist will be reluctant to admit that their investment is not regulated by intrinsic reasons (i.e., interest in the sport). To do so would be an indirect act of self-deprecation, undermining attempts at self-validation (Hall, 2006). SOP is therefore forwarded as an energising factor for both self-determined and controlled forms of regulation.

Because athletes' SPP will be underpinned by parents' ego orientation, the relationship between this form of perfectionism and motivation will be limited to controlled regulation. In response to their parent's ego orientation, socially prescribed perfectionists' attempts at self-validation are energised by a need to avoid the criticism and disapproval of their parents. This statement was initially proposed by Hewitt and Flett (1991), who proffered that socially prescribed perfectionists are predominantly focused on avoiding the disapproval of others, because the perceived recognition of others is a necessary prerequisite for feelings of self-worth. Based on the suggestions of Hewitt and Flett, it is proposed that the motivation of socially prescribed perfectionist is energised by an overriding need to avoid failure (Hall, 2006). When

characterised in this manner, it is expected that socially prescribed perfectionists will engage with achievement-based activities in response feelings of anxiety, pressure, and guilt. That is, motivation will be low in self-determination because the child feels obliged to strive towards parentally-determined standards (Hall, 2006). Hall also proposed a relationship between SPP and external forms of regulation. This is because socially prescribed perfectionists have a tendency to perceive that achievement standards are largely controlled by significant others. Based on this theorising, a relationship between SPP and controlled motivational regulation was expected in the current study.

In light of the preceding conceptual reasoning, the aim of study four was to determine whether parents' achievement goals (for their athletic children) are associated with elite junior athletes' SOP and SPP, and whether athletes' SOP and SPP in turn lead to self-determined or controlled forms of motivational regulation. This aim was achieved by testing a structural equation model (SEM) presented in Figure 7.1. In line with theoretical and empirical advances in the perfectionism literature, Figure 7.1 was guided by the following hypotheses:

H1: Parents' task *and* ego orientation (for their athletic child) will be significantly correlated with athletes' dispositional SOP. In turn, SOP will be associated with self-determined and controlling motivation.

H2: Parents' ego orientation (for their athletic child) will also be significantly correlated with athletes' dispositional SPP. In turn, SPP will be associated with controlling motivation.

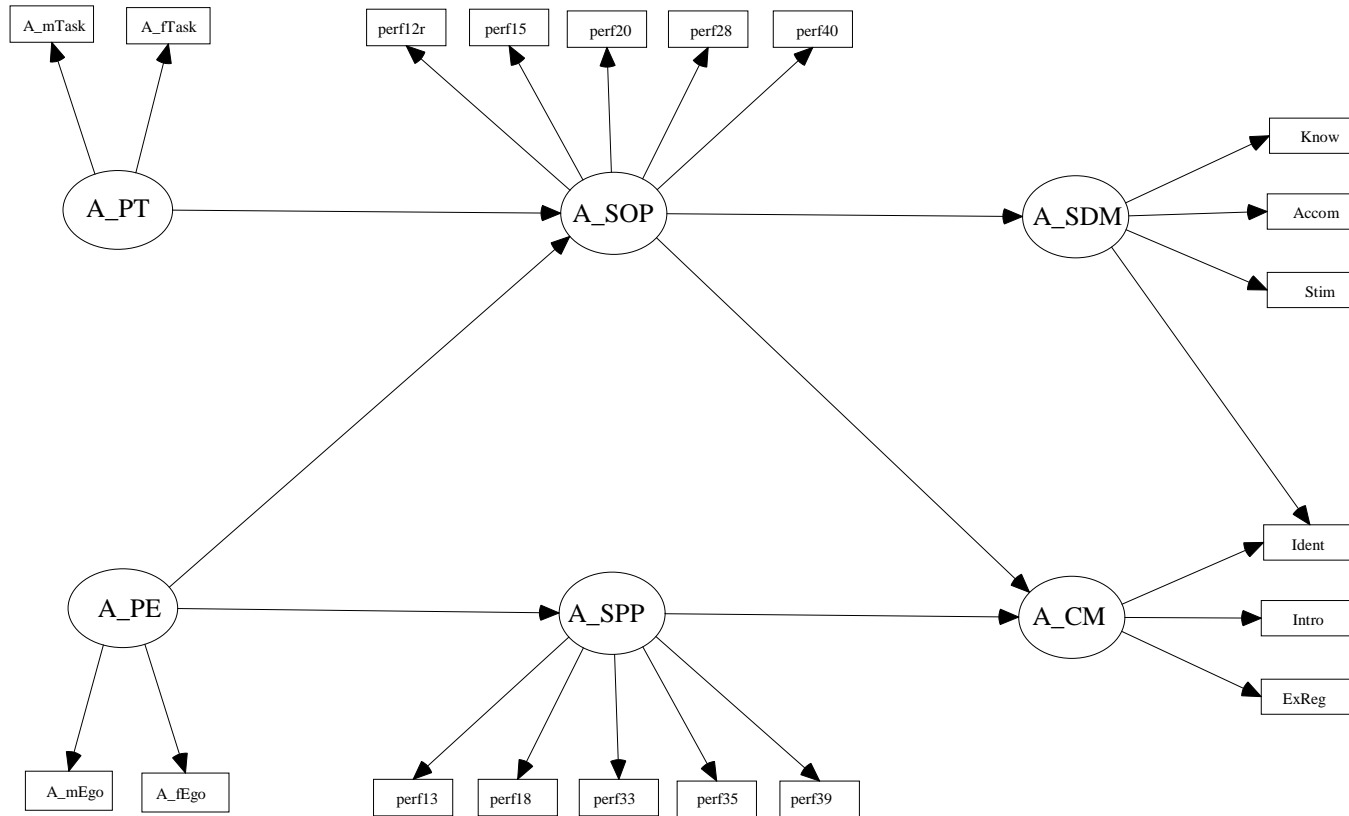


Figure 7.1 – Hypothesised model of the relationships between athletes' perceptions of parents' achievement goal orientations, athletes' self-report SOP and SPP, and athletes' self-report motivation

Note. A_PT = athletes' perceptions of parents' task orientation; A_mTask = athletes' perceptions of mothers' task orientation; A_fTask = athletes' perceptions of fathers' task; A_PE = athletes' perceptions of parents' ego orientation; A_mEgo = athletes' perceptions of mothers' ego orientation; A_fEgo = athletes' perceptions of fathers' ego orientation; A_SOP = athletes' self-reported SOP; A_SPP = athletes' self-reported SPP; A_SDM = athletes' self-determined motivation; A_CM = athletes' controlled motivation; Know = intrinsic motivation to know; Accom = intrinsic motivation towards accomplishment; Stim = intrinsic motivation to experience stimulation; Ident = identified regulation; Intro = introjected regulation; ExReg = external regulation.

7.4. Method

7.4.1. Participants

In order to investigate the viability of Figure 7.1, data from 187 elite junior athletes were used. Athletes represented a number of sports including badminton ($n = 13$), basketball ($n = 12$), cricket ($n = 8$), ice hockey ($n = 4$), judo ($n = 8$), netball ($n = 5$), rugby league ($n = 32$), rugby union ($n = 25$), squash ($n = 13$), swimming ($n = 27$), and tennis ($n = 10$). The mean age for female athletes ($n = 71$) was 15.00 years ($SD = 1.72$), and for male athletes ($n = 116$) the mean age was 14.83 years ($SD = 1.40$). The average number of years athletes had been participating in their sport was 6.97 ($SD = 2.57$) and the average number of years associated with their current club was 4.53 ($SD = 2.89$). The mean age for athletes' maternal parent was 44.17 ($SD = 5.01$) and the mean age for athletes' paternal parent was 47.08 ($SD = 5.54$).

7.4.2. Measures

A multi-section inventory was completed by the athletes (see Appendix F). The inventory included demographic questions relating to gender, age, sport played, the number of years participating in their sport, and the number of years associated with their current club. Athletes also completed the following questionnaires.

Athlete perceptions of parents' achievement goal orientations: The Perceptions of Success Questionnaire (POSQ; Roberts, Treasure, & Balague, 1998) was adapted for the current study to measure parents' achievement goals for their child, as perceived by the elite junior athletes. Comprising twelve items, the original POSQ requires respondents to think about when they feel most successful in sport. Six items are dedicated to measuring a task orientation (e.g., "In my sport, I feel

successful when I try hard”) and six items measure an ego orientation (e.g., “In my sport, I feel successful when I win). Responses are rated on a 5-point scale (1 = *strongly disagree*, 5 = *strongly agree*). Duda and Whitehead (1998) summarised research examining the psychometric properties of the POSQ, and support this measure as a valid and reliable instrument for assessing achievement goals in sport.

The original POSQ was adapted in the current study to focus athletes’ on their perceptions of parental task orientation (e.g., “My mother/father feels I am most successful in sport when I try hard”) and ego orientation (e.g., My mother/father feels I am most successful in sport when I win). Athletes provided separate responses with reference to their mother’s and father’s achievement goals. The POSQ has been successfully amended in previous research (e.g., Escartí, Roberts, Cervelló, & Guzmán, 1999) to capture athletes’ perceptions of their parents’ achievement goals, and the adapted subscales have demonstrated acceptable levels of internal consistency (e.g., $\alpha = .91$).

Athlete self-report multidimensional perfectionism: The revised MPS-HF from study one was employed to assess athletes’ self-report SOP and SPP. Responses were measured on a 7-point Likert scale (1 = *strongly disagree*, 7 = *strongly agree*). The psychometric properties associated with the revised MPS-HF are discussed in Study One.

Athlete self-report motivation: Types of motivation were measured in the current study using the Sport Motivation Scale (SMS; Pelletier, Fortier, Vallerand, Tuson, Brière, & Blais, 1995). The SMS is a 28-item scale that captures seven types of motivation; intrinsic motivation to know (e.g., “I participate in my sport for the

pleasure it gives me to know more about my sport”), intrinsic motivation towards accomplishment (e.g., “I participate in my sport because I feel a lot of personal satisfaction while mastering certain difficult training techniques”), intrinsic motivation to experience stimulation (e.g., “I participate in my sport for the pleasure I feel in living exciting experiences”), identified regulation (e.g., “I participate in my sport because, in my opinion, it is one of the best ways to meet people”), introjected regulation (e.g., “I participate in my sport because I would feel bad if I was not taking time to do it”), external regulation (e.g., “I participate in my sport because it allows me to be well regarded by people I know”), and amotivation (e.g., “I used to have good reasons for participating in my sport, but now I’m asking myself if I should continue”). Each subscale is captured by four items. The current study focused on the initial six forms of motivation because they represented self-determined and controlled motivational regulation. Responses were provided on a 7-point Likert scale anchored by 1 (“*does not correspond at all*”) and 7 (“*corresponds exactly*”). In developing the SMS, Pelletier and his collaborators reported satisfactory internal consistency, a seven-factor structure that corresponded to the forms of motivation targeted by the scale, adequate construct validity, and moderate-to-high indices of temporal stability (Pelletier & Sarrazin, 2007). A host of subsequent studies also support the structure, reliability, and construct validity of the SMS with a diverse range of sport participants (for a recent summary of research, see Pelletier & Sarrazin, 2007).

7.4.3. Procedures

For an overview of the procedures adopted in the current study, the reader is

referred to study one.

7.4.4. Data Analysis

The hypothesised model for study four was tested via structural equation modelling using AMOS 16.0 software. Model fit was tested using the same fit indices outlined in study one.

7.5. Results

7.5.1. Data screening

The recommendations of Tabachnick and Fidell (2007) regarding missing data and normality of data were adhered to prior to conducting SEM analyses. There were no variables with more than 5% missing values, and thus Tabachnick and Fidel's strategy for replacing missing values was followed. Three cases had univariate outliers ($z = 3.29, p < .001$) and two cases with a Mahalanobis distance greater than $\chi^2(14) = 36.123$ were identified. With the deletion of these cases, the final sample comprised of 182 athletes. The remaining data ($n = 182$) was considered to be approximately univariate normal (absolute skewness $M = .44, SD = .36$, absolute kurtosis $M = .21, SD = .32$), although multivariate non-normality was evident in the data (Mardia's coefficient = 39.194). As a result, SEM analyses were conducted using the procedures outlined in study one.

Box's test of the equality of covariance matrices across gender and sport type (i.e., team vs. individual sport) revealed the covariance matrix was homogenous across gender (Box's $M = 107.560, F = 1.274, p > .05$) but heterogeneous across sport (Box's $M = 144.530, F = 1.723, p < .001$). However, because separate SEM

analyses for individual versus team sport would limit the power to detect significant model fit, the data was pooled into one sample.

7.5.2. Descriptive statistics, internal reliabilities, and zero-order correlations

Table 7.1 provides an overview of the internal reliabilities, descriptive statistics, and zero-order correlations for all measured variables. The Cronbach's alpha values provide evidence that all subscales were internally consistent ($\alpha \geq .70$). As with previous studies within the current programme of research, athletes' levels of SOP were moderately high and SPP scores were moderate. In terms of motivation scores, athletes reported moderate to moderately high scores on each SMS subscale. A closer inspection reveals athletes' motivation scores increased from external regulation through to identified regulation, and the highest scores were associated with intrinsic motivation. Finally, athletes reported a high mother/father task orientation, and moderately high scores on mother/father ego orientation.

Zero-order correlations (see Table 7.1) revealed positive correlations between athletes' SOP, SPP, and perceptions of parents' ego orientation. Conversely, athletes' perceptions of their mothers' task orientation was positively correlated with athletes' SOP and negatively associated with athletes' SPP, while fathers' task orientation was non-significantly related with athletes' perfectionism scores. Examination of zero-order correlations indicated positive correlations between athletes' SOP and each motivation type, except for identified regulation. The strongest correlation emerged with intrinsic motivation towards accomplishment, and the weakest correlation with external regulation. The correlations between SPP and motivation types were, as expected, somewhat limited. SPP was significantly and positively associated with

Table 7.1.

Reliability coefficients, descriptive statistics, and correlation coefficients between parents' goal orientations for their athletic children, athletes' SOP, SPP, and motivation

	A_MT	A_FT	A_ME	A_FE	A_SOP	A_SPP	Know	Stim	Accom	Ident	Intro	Ex_Reg
A_FT	.64(***)											
A_ME	-.07	.01										
A_FE	-.04	.00	.74(***)									
A_SOP	.14(*)	.08	.26(***)	.26(***)								
A_SPP	-.15(*)	-.06	.28(***)	.22(**)	.27(***)							
Know	.25(***)	.15(*)	-.11	-.15(*)	.25(***)	-.09						
Stim	.17(*)	.15(*)	.04	.03	.35(***)	-.01	.59(***)					
Accom	.14(*)	.11	.06	.05	.42(***)	.02	.64(***)	.67(***)				
Ident	.14(*)	.20(**)	.14(*)	.11	.10	.07	.40(***)	.46(***)	.35(***)			
Intro	.01	.06	.24(**)	.27(***)	.37(***)	.23(**)	.24(**)	.29(***)	.30(***)	.49(***)		
Ex_Reg	-.04	.08	.43(***)	.39(***)	.22(**)	.28(***)	.16(*)	.23(**)	.26(***)	.51(***)	.60(***)	-
<i>M</i>	4.54	4.56	3.64	3.76	4.82	3.71	5.26	5.63	5.47	4.94	4.12	4.25
<i>SD</i>	.47	.51	.79	.82	1.05	1.07	1.00	.83	.92	1.15	1.20	1.20
<i>α</i>	.80	.85	.84	.86	.77	.74	.82	.70	.79	.77	.73	.74

Note. A_MT = Athletes' perceptions of mothers' task orientation; A_FT = Athletes' perceptions of fathers' task orientation; A_ME = Athletes' perceptions of mothers' ego orientation; A_FE = Athletes' perceptions of fathers' ego orientation; A_SOP = Athletes' self-oriented perfectionism; A_SPP = Athletes' socially prescribed perfectionism; Know = Intrinsic motivation to know; Stim = Intrinsic motivation to experience stimulation; Accom = Intrinsic motivation towards accomplishment; Ident = Identified regulation; Intro = Introjected regulation; Ex_Reg = External regulation.

*** p < .001 ** p < .01 * p < .05

introjected regulation and external regulation.

7.5.3. Structural Model

The structural equation model was specified as per Figure 7.1.

Athletes' perceptions of their mothers' task orientation and fathers' task orientation were used as indicators of a latent factor representing parents' task orientation.

Likewise, athletes' perceptions of mothers' ego orientation and fathers' orientation were used as indicators of a latent factor representing parents' ego orientation.

Athletes' self-reported SOP and SPP were represented by their respective subscale items. Finally, the three forms of intrinsic motivation and identified regulation were used as indicators of a self-determined motivation latent construct. The three forms of extrinsic motivation were used as indicators of a controlled motivation latent construct. Identified regulation was permitted to load on both self-determined and controlled motivation constructs to allow for a direct comparison with previous investigations of perfectionism and motivation. For example, Gaudreau and Antl's (2008) self-determined motivation construct was comprised of intrinsic motivation and identified regulation, while non-self-determined motivation was comprised of extrinsic and amotivation. In contrast, Van Yperen (2006) study included a controlled motivation variable that aggregated identified, introjected, and external regulation.

Results of the SEM analysis suggested that, overall, the hypothesised model provided fit to the data ($\chi^2(161) = 288.489, p = .000, \chi^2/df = 1.792$, Bollen-Stine, $p = .002$, RMSEA = .07 (90% CI = .054 to .078), SRMR = .09, CFI = .90). Inspection of the model (see Fig. 7.2) revealed a non-significant path from athletes' perceptions of parents' task orientation to SOP. Both paths from parents' ego

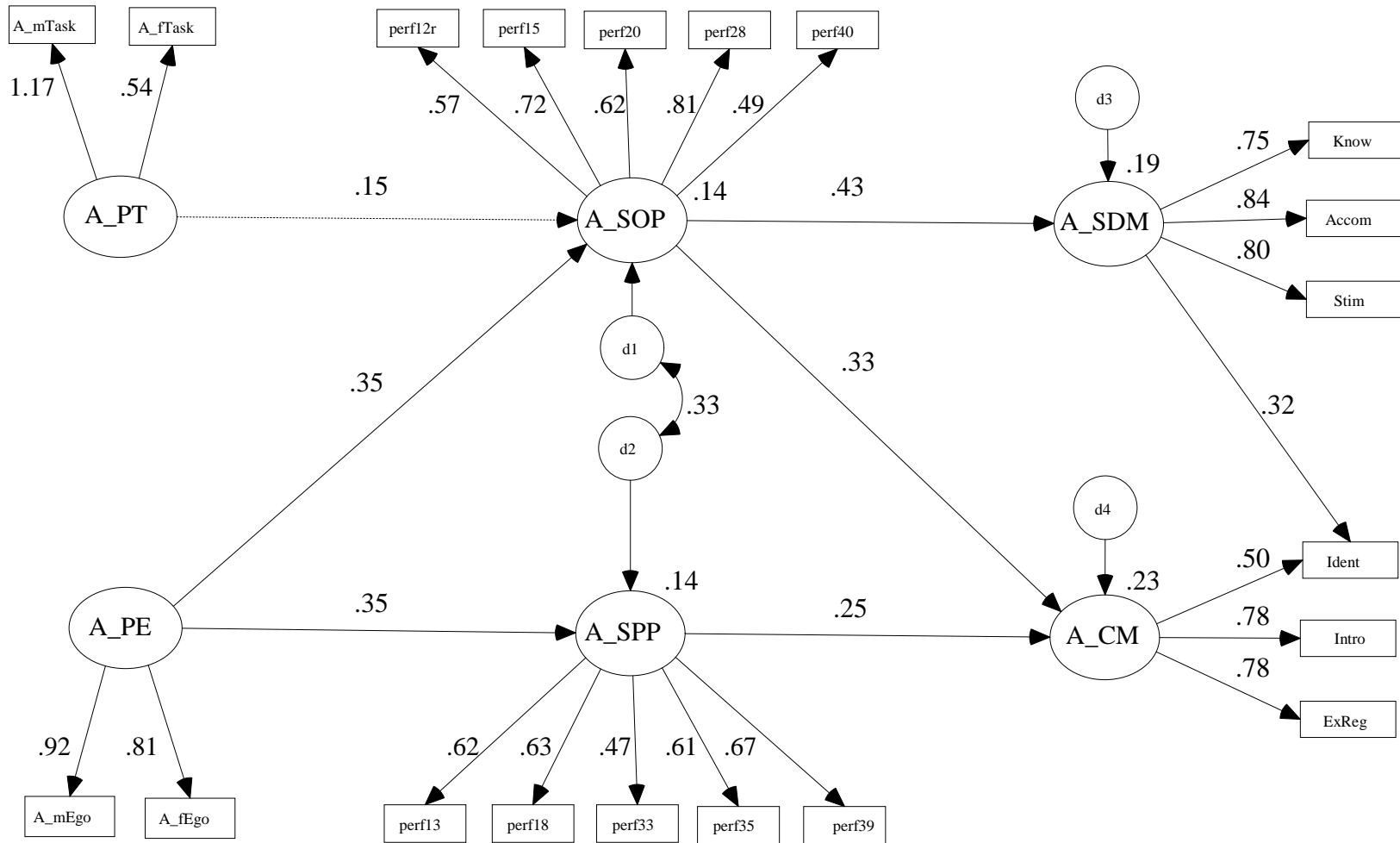


Figure 7.2 – SEM of the associations between parents’ achievement goal orientation, athletes’ SOP and SPP, and motivation

N.B. Dashed lines indicate non-significant paths.

orientation to athletes' perfectionism dimensions were significant and positive. Athletes' perceptions of parents' ego orientation predicted 14% of variance in athletes' SOP and 14% of variance in athletes' SPP. With regards to the relationship between perfectionism and athletes' motivation, all paths were positive and significant. 19% of variance in self-determined motivation was predicted by athletes' SOP, and 23% of variance in controlled motivation was predicted by athletes' SOP and SPP.

7.5.4. Re-examining the influence of parents' task orientation

As indicated above, the paths between parents' task orientation and athletes' perfectionism failed to achieve significance in the hypothesised model. Because it was originally hypothesised that parents' task orientation would be associated with athletes' SOP, and because this hypothesis was supported at the correlational level with relation to mothers' task orientation, it was decided to examine the independent effects of mothers' and fathers' achievement goals. This analysis was also conducted using SEM, which allows one to test for multigroup invariance across components of a structural model. Prior to testing for multigroup invariance, Byrne (2001) suggests individual baseline models should be examined for the respective groups. Any difference between the baseline models are then incorporated into a test of multigroup invariance, where the differences are estimated freely between the groups. However, because the current analysis was limited to the paths originating from parents' task orientation, separate baseline models for mothers and fathers were deemed sufficient to examine the difference effects of each parent's task orientation (Byrne, 2001).

Baseline models for mothers and fathers were similar to Figure 7.1 except that three randomly created parcels were employed as indicators of mothers' or fathers' task orientation, and three randomly created parcels were indicators of mothers' or fathers' ego orientation (see Figure 7.3). The baseline model for mothers approached an acceptable fit ($\chi^2(200) = 380.687, p = .000, \chi^2/df = 1.903$, Bollen-Stine, $p = .001$, RMSEA = .07 (90% CI = .060 to .081), SRMR = .09, CFI = .87). Inspection of the paths from mothers' task orientation revealed a positive and significant correlation with athletes' SOP. The baseline model for fathers was also deemed acceptable ($\chi^2(200) = 340.064, p = .000, \chi^2/df = 1.70$, Bollen-Stine, $p = .003$, RMSEA = .06 (90% CI = .051 to .073), SRMR = .89, CFI = .90). Consistent with the correlational analysis, the path from fathers' task orientation to athletes' SOP dimensions was non-significant.

7.6. Discussion

The aim of this study was to examine the relationship between parents' achievement goals (for their athletic children) and athletes' dispositional perfectionism (i.e., SOP and SPP), and to determine whether athletes' dispositional perfectionism subsequently leads to particular forms of motivational regulation. Guided by Flett et al's (2002) social expectations model and recent advances in the perfectionism literature (e.g., Appleton et al., in press), it was hypothesised that parents' task and ego orientation would be correlated with athletes' SOP, which then energises self-determined and controlled forms of motivation. With regards to athletes' dispositional SPP, the influence of parents' achievement goals was hypothesised to be limited to an ego orientation. In turn, it was expected that athletes'

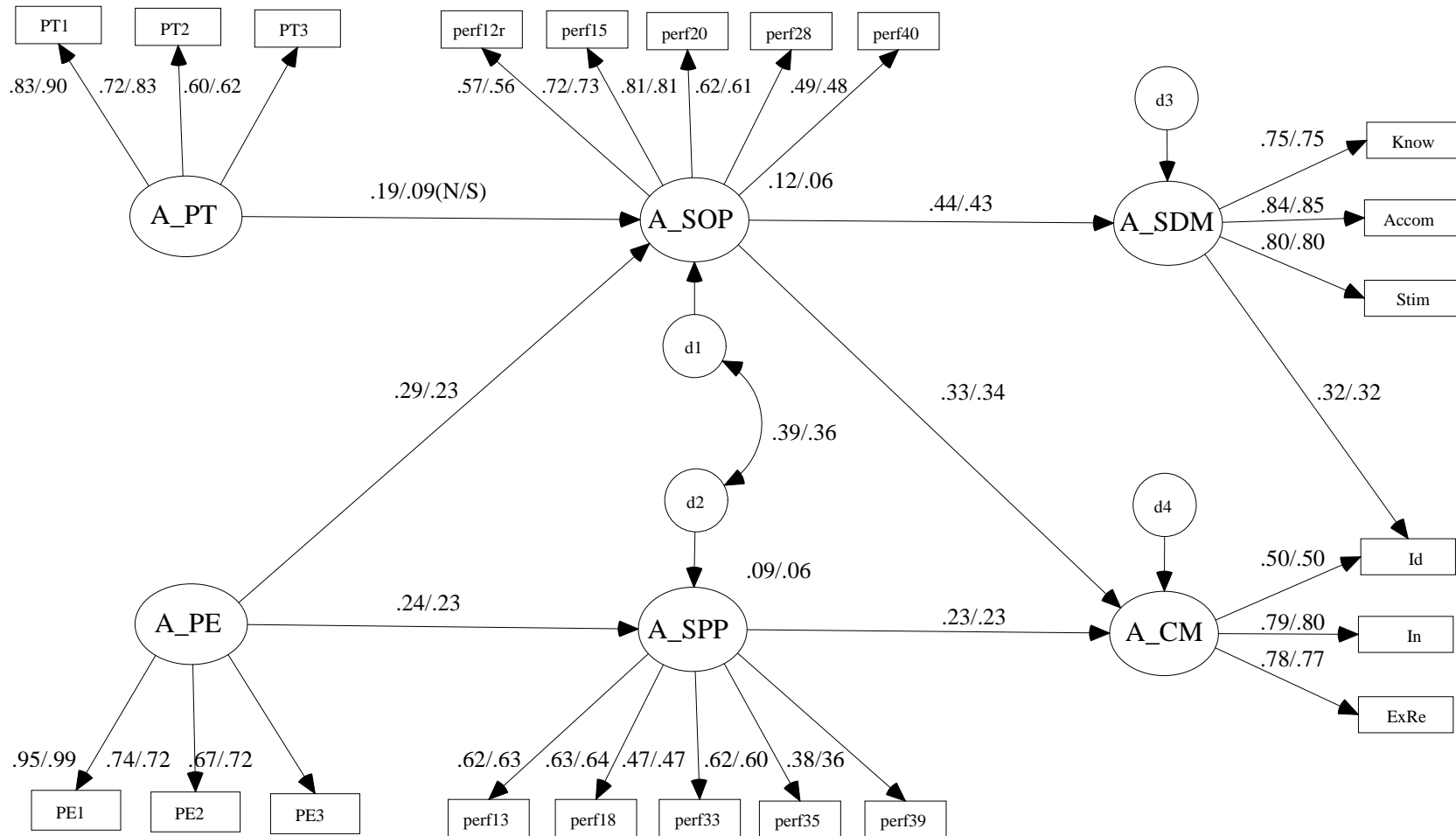


Figure 7.3 – SEM analyses of the independent effects of mothers’ and fathers’ achievement goal orientation, athletes’ SOP and SPP, and motivation

N.B. The left coefficients refer to athletes’ perceptions of mothers, and the right coefficients refer to athletes’ perceptions of fathers.

SPP would give rise to controlled forms of motivation only.

Overall, the results provide partial support for the theoretical propositions. The pathways from mothers' task and ego orientations towards athletes' SOP were significant and positive. In contrast, the pathway from fathers' achievement goals to athletes' SOP was limited to an ego orientation. Support did emerge for the hypothesised relationships between athletes' SOP and both self-determined and controlled forms of motivation. The results for athletes' SPP also mirrored the hypothesised relationships. The findings revealed a significant and positive pathway between parents' ego orientation and athletes' dispositional SPP, which subsequently led to controlled forms of motivation.

7.6.1. Parents' achievement goals, athletes' dispositional SOP, and the nature of perfectionistic striving

The mother-based SEM provided support for the proposed relationship between parents' goal orientations and elite junior athletes' SOP. This finding was expected, because maternal task and ego orientations encourage a pattern of overstriving in the athlete that is characteristic of SOP (Hall, 2006). When an athlete's mother is task- and ego-oriented, she not only values their child's personal development in sport, but also approves of superior comparative ability (Nicholls, 1989). Exposed to their mother's expectations, the child learns that exceptional sporting performance is a pre-requisite for feelings of self-worth. However, first and foremost, the child understands that avoiding failure is essential in their attempts towards self-validation. Guided by this perceptual lens, the child begins to develop a rigid persistence towards internally-determined standards, and continues to pursue high standards regardless of performance

setbacks. This form of achievement striving is necessary if personal development and superior comparative ability are to occur, and failure outcomes avoided. Interestingly, Hall et al. (2008) contended that this form of rigid, persistent overstriving will be intensified further in response to the maladaptive outcomes associated with failure. This is because to extricate oneself from a domain that is central to self-worth would be to undermine attempts at self-validation. When characterised by a relentless pursuit towards internally-determined goals, despite the aversive consequences of failure, the achievement striving of the athletic child resembles many of the qualities associated with Hewitt and Flett's (1991) SOP dimension. Based on the findings of the current study, this statement is supported and provides initial support for mothers' task and ego goal orientation as predictors of SOP in elite junior athletes.

The current findings also indicate a relationship between a father's ego orientation and their athletic child's SOP. When considered in combination with the mother-based structural equation model, this finding would indicate that an ego-oriented father and/or mother with high task and ego orientations encourage a similar perceptual lens of athletic competence within the athletic child. With regards to the ego-oriented father, athletes may respond to this form of parental goal orientation by placing unrealistic demands on themselves, and rigidly adhering to unattainable self-set standards as they attempt to validate self-worth by outperforming significant others. Under these circumstances, the child will likely develop a perfectionistic orientation characteristic of SOP. This position is consistent with Flett et al's (2002) conceptual model of perfectionism development. According to this model, SOP develops when the expectations of

significant others are internalised by the child and subsequently adopted as their own standards.

The present findings also provide insight into the nature of perfectionistic striving associated with SOP. Expanding upon the theorising of Appleton et al. (in press), the current study tested the assumption that the relationship between parents' achievement goals and athletes' dispositional perfectionism subsequently determine the processes regulating achievement striving. The SEM confirmed that dispositional SOP is correlated with a complex form of perfectionistic striving characterised by self-determined and controlled forms of motivational regulation. This finding may explain why SOP has been described in the perfectionism literature as a vulnerability factor (Flett et al., 1994; Hewitt & Flett, 1993; 2002; Hewitt et al. 1996). SOP is defined in this manner because following success, the perfectionist's self-worth is validated and they are able to derive a sense of enjoyment, pride, and satisfaction from their athletic endeavours (Hall, 2006). In these circumstances, the motivational regulation associated with SOP will likely be intrinsic in nature.

In contrast, self-oriented perfectionists greet failure with a diminished sense of self-worth and subsequently experience heightened pressure to achieve exceptional levels of performance as they attempt to re-validate their identity (Flett & Hewitt, 2006). Under conditions of performance set-backs, it is this pressure to validate self-worth and anxiety associated with avoiding further failure that characterises the achievement motivation of self-oriented perfectionists (Hall, 2006). When regulated by this controlled pattern of motivation, it is unsurprising that SOP also gives rise to a dysfunctional pattern cognition, affective responses,

and achievement behaviour under conditions of perceived failure (Hall, 2006; Hall et al., 2008). Future research is now required to expand upon the current study by testing Hall's assumption. That is, future research should examine whether the debilitating nature of SOP is regulated by controlled motivation, while more self-determined forms of motivational regulation explain the positive outcomes associated with SOP.

7.6.2. Parents' achievement goals, athletes' dispositional SPP, and the nature of perfectionistic striving

Consistent with the forwarded hypothesis, the SEM revealed a significant pathway between parents' ego orientation and athletes' dispositional SPP, which subsequently predicted controlled forms of motivational regulation. The relationship between parents' ego orientation and athletes' dispositional SPP was expected. As explained with regards to self-oriented perfectionists, children of ego-oriented caregivers learn that parental approval is contingent upon meeting the mother's and father's demands for high achievement (Nicholls, 1989). With specific reference to an ego orientation, parental demands are focused entirely upon their child's normative ability, and thus the son or daughter is only deemed successful when a superior comparative performance is consistently demonstrated (McArdle & Duda, 2004). Some children may internalise parental standards for exceptional performance and respond with self-set demands for perfection (Flett et al., 2002). In this scenario, SOP is the likely outcome because the athlete is striving towards internally-determined standards. In contrast, other children may initiate a pattern of achievement striving focused solely upon fulfilling parentally-determined standards. These children respond to their parents' standards by

initiating a pattern of achievement behaviour directed towards avoiding the non-attainment of perfection. Ultimately, avoiding imperfection will ensure the child is able to outperform their opponents and subsequently fulfil parental expectations. In turn, the athletic child may be deemed worthy of parental approval. Because striving towards parentally-determined standards and caregiver's approval are central facets of the SPP dimension (Hewitt & Flett, 1991), the current findings extend previous research (Ablard & Parker, 1997; McArdle & Duda, 2004) by highlighting parents' ego orientation as a possible precursor to athletes' dispositional SPP.

A second, related explanation may also explain why, in response to their father's ego orientation, some children respond with SOP, while other children respond to their parents' ego orientation with SPP. An examination of the final model revealed a positive correlation between athletes' SOP and SPP. This relationship between athletes' SOP and SPP is consistent with previous research in sport (e.g., Appleton et al., in press; Hall et al., 2009; Hill et al., 2008) and general psychology (see Flett & Hewitt, 2002a) that has adopted the MPS-H, and would suggest the perfectionism dimensions are not exclusive. That is, it may be possible for elite junior athletes to experience high SOP scores and elevated SPP levels simultaneously. Based on this relationship, and consistent with the conceptual model of perfectionism development, it is speculated that elite junior athletes recognise the importance of striving towards their own standards for perfection (i.e., SOP) as a strategy to fulfil parental-determined demands for superior comparative ability (i.e., SPP). In other words, an athletes' SOP emanates from the relationship between parents' ego orientation and elite junior athletes'

SPP. This assumption awaits investigation in future longitudinal research.

The SEM also revealed the form of perfectionistic striving associated with dispositional SPP in elite junior athletes. Unlike their self-oriented perfectionistic counterparts who demonstrate a complex pattern of self-determined and controlled motivation, SPP leads to controlled forms of motivational regulation only. The reported association between SPP and controlled motivational regulation in the current study is important because it reveals one pathway by which SPP underpins highly dysfunctional outcomes in elite junior athletes (Flett & Hewitt, 2005; Hall, 2006). In their attempts to meet parentally-determined standards for superior comparative ability, the socially prescribed perfectionist's motivation is characterised by feelings of dread regarding the possible implications of imperfection. Such negative emotions lead the individual to strive towards parentally-determined standards not through any intrinsic desire for self-improvement, but because they feel an obligation towards their caregivers to outperform competitors (Hall, 2006). According to self-determined theory (see Deci & Ryan, 2007), it is this sense of external control and obligation towards externally-determined standards that fosters ill-being in athletes. Future research is therefore required to determine whether the relationship between SPP and negative outcomes is mediated by controlled forms of motivational regulation.

The present findings also confirm that, unlike self-oriented perfectionists who demonstrate the potential for adaptive functioning via a relationship with self-determined motivation, there is little opportunity for the socially prescribed perfectionistic athlete to experience positive outcomes in sport. Previous research from within sport and exercise psychology also supports this statement. While

SOP demonstrates an inverse correlation with athlete burnout, SPP has been consistently associated with high athlete burnout scores (Appleton et al., in press; Hill et al., 2008), low levels of goal satisfaction (Appleton et al., in press), and labile self-esteem (Hall et al., 2009). Based on the current findings, it is proposed that socially prescribed perfectionists will experience severe emotional and cognitive difficulties in elite junior sport as a result of controlled motivation regulation, and unless adaptive coping strategies are adopted, the child may eventually exit their chosen activity. Again, future research is required to test this proposal with elite junior athletes.

7.6.3. Limitations of study four, future research directions and conclusions

Despite the revealing nature of study four, the correlational design precludes definitive inferences regarding the causal association between variables. As indicated in previous chapters, longitudinal investigations are required to determine whether parents' achievement goals influence athletes' dispositional perfectionism, or vice-versa. It is also worth reinforcing that in the current study, parents' achievement goals were measured via athlete report. The over-reliance on athletes' report is a further limitation of this study, as this particular approach may overestimate associations among measured constructs.

A number of avenues for future studies were outlined above. Complementing these ideas, additional research is necessary to expand upon the pathway between parents' achievement goals and athletes' dispositional perfectionism. It would be useful to know, for example, whether this relationship is mediated by key parenting processes. Based on Darling and Steinberg's (1993) conceptual model of parenting and the findings presented in study three, parental

empathy and psychological control may function to mediate the effects of parents' achievement goals. By focusing upon their child's personal development and skill acquisition, task-oriented parents are expected to empathise with their child and report low levels of psychological control. Conversely, ego-oriented parents may psychologically control their child due to a preoccupation with comparative athletic ability.

In addition to measuring parents' achievement goals for their athletic son or daughter, future research should also consider the implications of parents' own achievement goals for perfectionism development in children. Pomerantz, Grolnick, and Price (2005) reasoned that when ego-oriented, parents' self-worth is contingent upon their own performance as a mother or father. It could be argued that central to one's performance as a parent are the actions and successes of our offspring, and thus children's performance also has important ramifications for the mother's or father's self-esteem (Grolnick, Gurland, DeCoursey, & Jacob, 2002). Under these conditions of ego involvement, the parent may pressure their child towards elevated performance standards and in doing so, engages with controlling child-rearing practices. For the child, exposure to an ego-oriented, controlling parenting may encourage a form of achievement striving associated with either SOP and/or SPP. Empirical studies with elite junior athletes should provide a test of this contention.

Future research should continue to examine the effects of parents' achievement goals for the nature and form of perfectionistic striving associated with dispositional perfectionism SOP and SPP. An initial avenue for research may be to consider the psychological processes that mediate the relationship between

dispositional perfectionism and motivational regulation. For example, self-determination theory posits the fulfilment of three psychological needs, including a need for competence, autonomy, and relatedness fuel self-determined motivation within the sporting context. In contrast, the thwarting of psychological needs energises controlled forms of motivation, as well as amotivation (see Hagger & Chatzisarantis, 2007 for a recent review). Because research findings from the general perfectionism literature indicate that SOP and SPP are significant predictors of psychological needs, future research that examines the mediating role of elite junior athletes' psychological needs in the relationship between perfectionism and motivation is clearly justified.

While future research will expand upon the current findings, the current study supports an avenue from parents' achievement goals towards athletes' SOP and SPP. Furthermore, the findings confirm that parents' achievement goals are associated with the motivational regulation emanating from athletes' SOP and SPP. With regards to the relationship between parents' achievement goals and athletes' perfectionism, it is worth noting that Flett et al's (2002) social expectations model was tested from a rather limited perspective in the current study. By restricting the focus to parents' achievement goals, the study failed to examine wider social influences on the development of athletes' perfectionism. Within the context of sport, such influences may extend to coaches who exert a significant influence over and above the contribution of parents. Recent developments in the measurement of perfectionism support this contention, highlighting the central role of coaches for an understanding of perfectionistic cognitions and behaviour within athletes (Anshel & Eom, 2003; Dunn et al., 2006;

Gotwals & Dunn, 2009). Research is thus clearly warranted to determine the coach's role in the aetiology of athletes' perfectionism. This objective was addressed in study five.

Chapter Eight: Examining the origins of perfectionism in elite junior athletes: The role of parent-initiated and coach-created motivational climates

The final study of the current programme of research had two purposes. First, study five provided a further test of the social expectations model (Flett et al., 2002) by examining the relationship between the parent-initiated motivational climate and athletes' perfectionistic cognitions. Flett et al. proposed that while parental expectations and achievement goals are important contributors to children's perfectionism, children only develop perfectionistic tendencies when continually exposed to an environment that captures and emphasises these parental tendencies. In the current study, the parent-initiated motivational climate was assessed to try to capture the goal-related qualities which parents transmit to their children through the family environment.

A second purpose was to examine a further pathway towards perfectionism development in elite junior athletes. Flett et al. encouraged researchers to remain mindful of the complexity and diversity of factors that give rise to perfectionistic tendencies, focusing upon processes that originate in the parent, child, and broader social environment. To date, researchers have ignored the influence of a child's social environment, and thus the current project sought to address this limitation in the perfectionism literature. Specifically, this project examined the degree to which the coach-created motivational climate predicts athletes' perfectionistic cognitions, above and beyond the contribution of the parent-initiated motivational climate.

8.1. Expanding upon the social expectations model

Study four provided support for the social expectations model within the context of sport, revealing a positive relationship between parents' achievement goals and athletes' dispositional perfectionism. While making an important contribution of the sport-related perfectionism literature, the investigation provided just one perspective of the model. An alternative view is that, although a direct pathway exists between parents' achievement goals and athletes' SOP and SPP, the mechanisms by which parental expectations and unconditional acceptance are transmitted are via the achievement climate residing within the child's home environment (Flett et al., 2002). According to Flett et al's theorising, it is this parent-initiated achievement climate that facilitates perfectionism in children. In response to Flett et al's theorising, investigations of the social expectations model should therefore provide a direct measure of the parent-initiated achievement climate.

Indirect support for a relationship between the parent-initiated climate and children's perfectionism is available from the perfectionism literature. A previous study on the origins of perfectionism by Kawamura, Frost, and Harmatz (2002), for example, revealed that children who perceived their family environment as harsh and demanding reported higher scores on the MPS-F. Likewise, a study by Enns et al. (2002) revealed that children reported heightened maladaptive perfectionism scores (represented by concern over mistakes, doubts about actions, and SPP) when they perceived the family environment as critical, overprotective, conditionally approving, and demanding. While revealing, it should be noted the reported studies examined the relationship between parenting styles and children's

perfectionism, and a direct measure of the parent-initiated environment was not included. For a specific insight into the relationship between the parent-initiated climate and children's perfectionistic tendencies, the sport psychology literature should be consulted.

Krane, Greenleaf, and Snow (1997) interviewed a former elite gymnast (Susan) and reported upon the factors that contributed to her perfectionism, as well as maladaptive sporting behaviours (e.g., competing while injured; unhealthy eating patterns) and eventual drop-out from gymnastics. The authors identified that one of the most salient contributors to Susan's perfectionism was the parent-initiated motivational climate. Krane et al. reported that Susan's family environment was rife with cues towards winning, perfect performance, and exemplar body appearance. Furthermore, Susan's parents contributed to an athletic environment that strongly emphasised striving for perfection as the only acceptable goal. The perfectionistic tones of her family environment forced Susan to constantly focus upon achieving perfection, but self-doubts and high anxiety meant that she suffered from anger, frustration, and depression due to her inability to demonstrate sufficient competence. Clearly, Susan considered that the motivational climate created by her parents underpinned her perfectionistic tendencies.

McArdle and Duda's (2004) study further reinforces the family environment as an important predictor of athletes' perfectionistic tendencies. As reported earlier (chapter seven), McArdle and Duda examined the relationship between aspects of the family environment (including parents' achievement goals, the degree to which expectations and goal were flexible, expectations, and

criticism) and athletes' perfectionism. Of the four clusters to emerge, the fourth cluster is particularly relevant to the current study. Assigned the label "Punitive, Structure Environment", athletes within this cluster reported the highest parental expectations and criticism, as well as low parental flexibility, and were subsequently characterised by high concern over mistakes, personal standards, and doubts about action. Conversely, athletes scoring low in intra-personal aspects of perfectionism were clustered within a "Task-Involving, Flexible Environment", and described their parents as having lower expectations, criticism, and ego-orientation, and a higher task orientation and flexibility than other clusters.

In sum, the available evidence from both the general perfectionism literature and sport psychology supports Flett et al's (2002) contention that parental influence is transmitted via the family environment, and the potential for perfectionistic tendencies is heightened when the child is continually exposed to specific achievement-related elements that reside within their family environment. Specifically, these elements include unrealistic parental expectations and conditional approval, and are reflective of what White and colleagues (1996, 1998; 2007; White, Duda, & Hart, 1992; White, Kavussanu, & Guest, 1998) have labelled a worry-conducive motivational climate.

8.2. The parent-initiated motivational climate

The parent-initiated motivational climate is an essential component of the wider literature on the motivational climate, and it originated from the basic tenets of achievement goal theory (Ames, 1992a, 1992b; Dweck, 1986, 1999; Nicholls, 1984, 1989). A central premise of achievement goal theory is that a number of key social agents influence the differential structures of a motivational climate, and

within the sporting domain this includes the coach (see Duda & Balaguer, 2007), one's peers (see Ntoumanis, Vazou, & Duda, 2007), and our parents (see White, 2007).

Consistent with the literature in other achievement domains (e.g., the classroom) and research on coach- and peer-created motivational climates in sport, White (1996, 1998; 2007; White et al., 1992; 1998) identified two higher-order parent-initiated motivational climates. The higher-order climates, in turn, are represented by a number of specific achievement-related structures (i.e., lower-order factors). The first climate was termed "mastery" (i.e., task-involving) and the second a "performance" climate (i.e., ego-involving). A mastery climate dominates when the parents encourage their child towards learning new sport-related skills and, more importantly, to derive a sense of enjoyment and personal satisfaction from the process of skill acquisition (learning/enjoyment climate). Within a learning/enjoyment climate, the child is focused upon mastering basic skills, whilst acknowledging that mistakes will be encountered during the learning process. When performance errors are encountered, they are viewed as an essential component of the learning process, and thus the child does not worry about the ramifications associated with failure (White, 1996).

Conversely, a performance climate is represented by two lower-order factors, including a worry-conducive environment and a success-without-effort environment. When it is perceived that parents emphasise the negative connotations associated with performance errors, a worry-conducive climate resides within the child's sporting environment. Within a worry-conducive environment, the child becomes overly concerned about underperforming and

begins to doubt the quality of their action. When exposed to the latter climate (success-without-effort), the child perceives that sporting success is valued by their caregiver on those occasions when effort expenditure was minimal.

Of the three parent-initiated climates proposed by White (1996, 1998; 2007; White et al., 1992; 1998), it is hypothesised that athletes will be particularly vulnerable to the development of perfectionism when exposed to a worry-conducive environment. A worry-conducive environment shares many of the achievement-related structures identified in previous research on the origins of perfectionism (e.g., Enns et al. 2002; Flett et al., 2002; Kawamura et al., 2002; McArdle & Duda, 2004). It is speculated, for example, that a parent's concern for performance errors will become closely intertwined with high expectations for their athletic child. That is, when exposed to a motivational climate that emphasises error-free performance, the child may perceive their parent/s as demanding exceptionally high (and possibly unrealistic) performance standards. This is because within the domain of sport, minor discrepancies are regularly occurred and thus parents' desires for an error-free performance may be regarded as a difficult (albeit not impossible) goal. It is also suggested that conditional parental approval characterises a worry-conducive environment. Within this particular ego-oriented climate, the athlete learns that performance errors are the stimulus for parental disapproval (e.g., "when learning a new skill in sport my mother/father makes me worried about failing because it will appear negative in their eyes"), while parent approval is forthcoming when an error-free performance is produced.

Thus, when continually exposed to a worry-conducive motivational

climate, the child not only adopts strategies to avoid performance errors, but regards parental approval as conditional upon the avoidance of performance deficiencies. A relationship is therefore expected between a parent-initiated worry-conducive climate and junior athletes' perfectionism, because it is through prolonged exposure to a family environment that demands and reserves approval for error-free performance that the child internalises these expectations and subsequently values the attainment of perfection. In particular, it is predicted the child will develop a cognitive pattern characterised by excessive rumination about perfection, as well as a cognitive awareness of his or her imperfections (Flett et al., 2002; Flett, Hewitt, Whelan, & Martin, 2007). In light of this explanation, the first purpose of study five was to examine the proposed relationship between athletes' perceptions of the parent-initiated motivational climate and their perfectionistic tendencies.

In contrast to studies one – four, which provided a measure of dispositional perfectionism, the current project focused upon athletes' perfectionistic cognitions. Flett et al. (2002; 2007) recently proposed that perfectionism is exceedingly complex construct, and encouraged researchers to broaden their focus beyond dispositional perfectionism (i.e., SOP, SPP, and OOP) towards additional aspects of the construct (e.g., perfectionistic self-presentation; see Hewitt, Flett, Sherry, Habke, Parkin, Lam, McMurty, Ediger, Fairlie, & Stein, 2003). One such aspect, perfectionistic cognitions, is reflected by direct thoughts characterised by a need for perfection and a heightened awareness of one's imperfections. Moreover, perfectionistic cognitions concern the frequency of thoughts experienced during the previous week, and are thus more “state-like” in

nature than Hewitt and Flett's (1991) MPS dimensions. Perfectionistic cognitions have been reliably measured using the Perfectionistic Cognitions Inventory (PCI; Flett et al., 2002; 2007), and predict unique variance in debilitating outcomes (e.g., anxiety, depression, and distress) over and above dispositional perfectionism, confirming the destructive nature of the universal perfectionism construct.

To date, research on perfectionistic cognitions has established the psychometric properties of the PCI (e.g., Flett et al., 2002; 2007), as well as establishing this cognitive personality component as a significant predictor of poor psychological and physical well-being (e.g., Besser, Flett, Guez, & Hewitt, 2008a; Besser, Flett, Hewitt, & Guez, 2008; Sturman, Flett, Hewitt, & Randolph, in press). The aetiology of perfectionistic cognitions has, in contrast, received scant empirical attention. The current study therefore makes an important contribution to understanding an alternative aspect of the perfectionistic construct.

8.3. An alternative pathway to perfectionistic cognitions: The coach-created motivational climate

Flett et al's (2002) conceptual model of perfectionism development places central emphasis upon parents and their influence upon children's acquisition of perfectionistic tendencies. The current programme of research supports the applicability of Flett et al's model to elite junior athletes across studies two – four, and will received further examination in the current study via the parent-initiated motivational climate. McArdle and Duda's (2004; 2008) research also provides empirical support for the "parent factors" component of Flett et al's model (see chapter four). Our understanding of perfectionism development would therefore

be clearly undermined if this vital component of Flett et al.'s model was ignored. However, just as our understanding would be limited via exclusion of parental influence, researchers should remain cognisant of the wider social influences that exert influence over children's predisposition towards perfectionistic cognitions. The influence of a child's social context was highlighted by Flett et al., who purposely included an "environmental pressures" component within the conceptual model of perfectionism development. The environmental pressures component captures the influence of specific environmental contexts (e.g., cultures, occupation) as well as other social agents (e.g., peers, teachers). Environmental pressures are hypothesised to influence the development of perfectionism in a variety of ways, including via the importance placed on meeting expectations and standards, the importance assigned to obtaining social approval, and the creation of a climate in which social comparison and normative standards are frequently emphasised (Flett et al., 2002).

Given the apparent influence of the wider social context for perfectionism development, it is somewhat surprising that researchers have failed to address this issue (Flett et al., 2002). In fact, except for one correlational study from the general psychological literature (Stoeber & Eismann, 2007) and Speirs Neumeister's (2004) qualitative study, support for Flett et al.'s "environmental pressures" component is derived predominantly from sport-related research. The gifted students in Speirs Neumeister's (2004) study indicated that in addition to parental demands, classmates held high expectations in the academic and social realms which subsequently contributed to their own socially prescribed perfectionistic tendencies. In particular, students reported an unspoken

expectation from their peers to maintain high academic standards, while failure to excel resulted in social exclusion. Complementing the finding that peers are a significant source of pressure, Stoeber and Eismann's (2007) investigation provides evidence that teachers may also facilitate perfectionistic tendencies in talented children. Although the primary purpose of their study was to examine how different aspects of perfectionism are related to motivation, effort, achievement and distress in a sample of talented young musicians, Stoeber and Eismann's reported upon the intercorrelations between perfectionism subscales. Zero-order correlations revealed significant and positive relationships between inter-personal aspects (i.e., parent and teacher pressures) and intra-personal aspects of perfectionism (i.e., perfectionistic striving and negative reactions to imperfection), supporting the contention that children's perfectionistic tendencies are fuelled, in part, by parents *and* other social actors.

Extending Flett et al's (2002) "environmental pressures" component beyond teacher- and peer-influence pressures, sport psychologists have identified a pathway from the performance expectations and achievement evaluations of coaches to athletes' perfectionistic tendencies (e.g., Anshel & Eom, 2003; Dunn et al., 2006; Gotwals & Dunn, 2009). The role of perceived coach pressures in the development of perfectionism initially emerged as a result of sport-specific perfectionism scales (e.g., S-MPS and S-MPS-2). Expanding upon the structure of Frost et al's (1990) MPS, sport-specific inventories comprise subscales measuring athletes' personal standards, concern over mistakes, doubts about actions, organisation, and perceived parental pressures. In addition, a measure of perceived coach pressure was included to capture a coach's unrealistic performance

expectations and overly critical evaluations of their athletes.

Subsequent employment of the scales has facilitated an understanding of perfectionism in sport and exercise, confirming the debilitating nature of the universal perfectionism construct for athletes. Furthermore, and with specific reference to the current project, a number of studies provide insight into the relationship between coach pressures and athletes' intra-personal perfectionistic tendencies (e.g., personal standards and concern over mistakes). For example, a positive correlation between athletes' intra-personal facets of perfectionism and perceptions of coach pressures has emerged (Anshel & Eom, 2002; Dunn, Gotwals, Causgrove Dunn, & Syrotuik, 2006; Vallance, Dunn, Causgrove Dunn, 2006), while canonical correlation analyses demonstrate a function characterised by high personal standards, concern over mistakes, and perceived coach pressure (Dunn et al., 2002; Dunn, Gotwals et al., 2006; Vallance et al., 2006).

The available evidence from sport psychology reinforces the proposed pathway from coach-based pressures to athletes' perfectionism, and provides initial support for Anshel and Eom's (2002) conclusions that coaches contribute to the perfectionistic tendencies of elite junior athletes. However, prior to concluding that athletes' perfectionism is underpinned by coach pressures, a word of caution is necessary. As with the general psychology literature that has examined the role of parental expectations and criticism in development of perfectionism (see chapter seven), the reported correlations between coach pressures and athletes' intra-personal perfectionistic tendencies are limited to intercorrelations between the subscales from the S-MPS. Clearly, a further examination of the "environmental pressures" pathway to athletes' perfectionistic cognitions is

required using an alternative measure of coach-based expectations and criticism. One such measure may be the coach-created motivational climate.

As with the parent-initiated motivational climate, a number of achievement-related structures determine the over-riding coach-created motivational climate within an athlete's sporting environment (Duda & Hall, 2001; Ntoumanis & Biddle, 1999). The nature of each structure was outlined above, and when applied to the coaching context include; how practices and training drills are structured by the coach; the degree to which a coach controls important decisions regarding the athlete's progression; the type and frequency of coach's recognition, as well as the distribution of rewards amongst athletes; the manner in which athletes are grouped by their coach; a coach's evaluation of standards and achievements; and the time allocated by the coach for learning and skill acquisition. Each structure can either be task-involving or ego-involving, which lays the foundations for athletes' perceptions of a mastery climate or performance climate (Duda & Hall, 2001). When a coach rewards improvement and skill acquisition, ensures that athletes assist one another during practice, and values the contribution of every athlete, a mastery climate will dominant. In contrast, a performance climate is dominant when a coach's recognition and evaluation is focused upon athletes' ability (rather than personal improvement), mistakes are punished, and athletes from the same team/club compete against one another for the coach's approval.

The relationship between the coach-created motivational climate and athletes' perfectionism initially emerged in Krane et al's (1997) qualitative study. Susan's (i.e., the subject) gymnastic environment was dominated by coach-created

ego-involving structures; perfection was demanded by her coach, both in terms of performance and physical appearance, and compliance to their harsh training methods; the coach's recognition was entirely dependent upon normative based achievement standards and an unyielding dedication towards physical perfection; and when Susan's performance included mistakes, the coach resorted to physical punishment (e.g., extending training sessions). The achievement structures operating within this motivational climate were predominantly focused upon obtaining a coach's approval and recognition, often by minimising the discrepancy between actual performance outcomes and the coach's expectations for high ability (Duda & Hall, 2001). These ability-focused structures have significant implications for the athlete, as they become preoccupied with the presentation of self and experience a heightened sense of self-awareness (Ames, 1992b; Kaplan & Maehr, 2002). Furthermore, within this performance-based context, one's experience of coach recognition and self-validation is entirely dependent upon demonstrating superior ability in comparison to other performers. For the athlete participating within this environment, his or her thought pattern will therefore be perfectionistic in nature, as they constantly ruminate about attaining exceptionally high standards and avoiding the negative connotations of imperfection. Based on this analysis, a positive relationship between a coach-created performance climate and athletes' self-reported perfectionistic cognitions was hypothesised to emerge in the current study. This hypothesis is reinforced by returning to the case analysis of Susan, who reported that "Nothing was ever perfect. I mean, I always could be able to do something better" (p. 62; Krane et al., 1997).

Based upon the conceptual argument presented above, the current study had two main objectives. Building upon the findings of study four, this first objective was to provide an alternative test of the social expectations model of perfectionism development. This was achieved by examining the association between the parent-initiated motivational climate and athletes' perfectionistic cognitions. A second objective was to provide a first test of Flett et al's (2002) contention that perfectionistic tendencies develop within a wider social environment, and thus parents *and* alternative social actors should be examined simultaneously in the origins of perfectionism. In the current study, the degree to which the coach-created motivational climate predicted athletes' perfectionistic cognitions, above and beyond the parental-initiated motivational climate, was examined. The hypotheses for study five included:

H1: Athletes' perceptions of a parent-initiated worry-conducive motivational climate will positively predict athletes' self-reported perfectionistic cognitions.

H2: Athletes' perceptions of a coach-created performance motivational climate will positively predict athletes' self-reported perfectionistic cognitions.

H3: A coach-created performance motivational climate will predict additional variance in athletes' self-reported perfectionistic cognitions, above and beyond a parent-initiated worry-conducive climate.

8.4. Method

8.4.1. Participants

196 elite junior athletes participated in study five. The sample was derived from rugby union ($n = 29$), netball ($n = 9$), cricket ($n = 8$), rowing ($n = 7$),

badminton ($n = 11$), swimming ($n = 29$), ice hockey ($n = 4$), basketball ($n = 14$), rugby league ($n = 35$), tennis ($n = 14$), squash ($n = 13$), and judo ($n = 23$). The mean age for female athletes ($n = 71$) was 15.50 years ($SD = 1.55$), and for male athletes ($n = 118$) the mean age was 14.97 years ($SD = 1.43$). The average number of years athletes had been participating in their sport was 6.68 ($SD = 2.64$) and the average number of years associated with their current club was 4.54 ($SD = 2.91$).

8.4.2. Measures

All athletes provided demographic information relating to gender, age, sport played, number of years they had been participating in their sport, and number of years associated with their current club. Athletes also completed the following questionnaires (see Appendix G for questionnaire).

Parent-Initiated Motivational Climate Questionnaire-2 (White & Duda, 1993)

To assess athletes' perceptions of the situational goal structure initiated by parents, the PIMCQ-2 (White & Duda, 1993) was employed. Consisting of eighteen items, the PIMCQ-2 is repeated twice in order to capture athletes' perceptions of the motivational climate created first by their mother and next by their father. The questionnaire consists of three subscales measuring a learning and enjoyment climate (e.g., "I feel that my mother/father is most satisfied when I learn something new in sport"), a worry-conducive environment (e.g., "I feel that my mother/father makes me worried about losing in sport"), and a success-without-effort climate (e.g., "I feel that my mother/father is most satisfied when I succeed without effort in sport"). Responses are recorded on a 5-point Likert scale

anchored by *strongly disagree* (1) and *strongly agree* (5). White (2007) provides a summary of the psychometric properties associated with the PIMCQ-2.

Perceived Motivational Climate in Sport Questionnaire-2 (Newton, Duda, & Yin, 2000)

The coach-created motivational climate was assessed with the 29-item Perceived Motivational Climate in Sport Questionnaire-2 (PMCSQ-2; Newton, Duda, & Yin, 2000) (1 = *strongly disagree*, 5 = *strongly agree*). The PMCSQ-2 was designed to assess athletes' perceptions of the motivational climate evident in their team/club. Examples of statements reflecting a task-involved climate include "At this club, each player contributes in some important way" and "The coach always emphasises trying your best". In contrast, "The coach gets mad when a player makes a mistake" and "The coach makes it clear who s/he thinks are the best players" are examples of statements measuring an ego-involving climate. Responses were provided using the same Likert scale associated with the PIMCQ-2. Psychometric work on the PMCSQ-2 has found the measure to have adequate internal reliability and factorial validity (Newton et al., 2000).

Perfectionistic Cognitions Inventory (Flett, Hewitt, Blankstein & Gray, 1998)

Athletes also completed Flett et al's (1998) 25-item Perfectionistic Cognitions Inventory (PCI). According to Sturman, Flett, Hewitt, and Randolph (2009), the PCI is based on the premise that individuals who perceive a discrepancy between actual and ideal self, or their unrealistic expectations and actual goal attainment, will tend to experience automatic thoughts that reflect perfectionistic themes. In the current study, the PCI was adapted to focus athletes

on the variety of thoughts experienced during practice and competition. Specifically, the instructions from the original PCI were amended and read as follows: “Listed below are a variety of thoughts that may pop into your head during practice and competition. Please read each thought and indicate how frequently, if at all, the thoughts have occurred to you over the past week using the scale below”. The twenty-five items were not amended in the current study, and replicated the content of the original PCI (e.g., “During playing/practise I think why can’t I be perfect”, “During playing/practise I think I can’t stand to make mistakes”). Athletes’ responses were measured on a 5-point Likert scale (1 = *not at all*, 5 = *all the time*), and the twenty-five items were summed to provide a composite perfectionistic cognitions score. A higher composite subscale score is indicative of higher perfectionistic thoughts.

Flett and colleagues (Flett et al., 1998; 2007) have conducted principal component analyses of the twenty-five PCI items, and have supported the unidimensional structure of the scale across three studies. The PCI also explains unique variance in outcome measures after controlling for trait measures of perfectionism and other negative automatic thoughts (e.g., Flett et al., 1998; 2007), and has high internal reliability (e.g., Besser, Flett, Guez, & Hewitt, 2008; Flett, Greene, & Hewitt, 2004; Flett, Madorsky, Hewitt, & Heisel, 2002; Sturman et al., 2009).

8.4.3. Procedures

The reader is referred to study one for an overview of the procedures adopted in the current study.

8.5. Results

8.5.1. Data screening

Prior to analysis, the data were screened for missing data and normality following the recommendations of Tabachnick and Fidell (2007). No missing entries were identified, while six cases emerged as either univariate outliers ($n = 3$; $z = 3.29$, $p < .001$) or multivariate outliers ($n = 3$; Mahalanobis distance $> \chi^2_{(9)} = 27.877$). The remaining data ($n = 190$) was considered to be approximately univariate and multivariate normal (absolute skewness $M = .35$, $SD = .27$, absolute kurtosis $M = .35$, $SD = .22$, Mahalanobis distance $M = 8.95$, $SD = 6.13$).

8.5.2. Descriptive statistics, internal reliabilities, and zero-order correlations

Table 8.1 provides an overview of the descriptive statistics, internal reliabilities, and zero-order correlations for all measured variables. Examination of the Cronbach's alpha values suggests all subscales were internally reliable. Moderately high perceptions of a coach-created mastery climate and parent-initiated learning-enjoyment climate were reported by the current sample of athletes. In contrast, perceptions of a coach-created performance climate, parent-initiated success-without effort climate and worry-conducive environment were moderate to moderately low. Finally, athletes' perfectionistic cognitions were moderate.

As expected, the zero-order correlations with perfectionistic cognitions were limited. A positive and significant relationship emerged between athletes' perfectionistic thoughts and a coach-created performance climate. In contrast, the relationship between a coach-created mastery climate and athletes' perfectionistic cognitions was non-significant. With regards to parent-initiated climates, a worry-

Table 8.1.

Descriptive statistics, correlation coefficients, and reliability coefficients for athletes' perfectionistic cognitions, perceptions of the coach-created motivational climate, and parent-initiated motivational climate

	C_M	C_P	M_LE	F_LE	M_SE	F_SE	M_WC	F_WC	M	SD	α
PC	.11	.32***	-.07	.01	.01	-.06	.17*	.22**	2.84	.65	.91
C_M		-.30***	.35***	.29***	-.17*	-.20**	-.18**	-.20**	4.14	.49	.86
C_P			-.18**	.16*	.11	.10	.33***	.37***	2.44	.58	.81
M_LE				.71***	-.25***	-.22**	-.44***	-.42***	3.93	.51	.77
F_LE					-.19**	-.26***	-.38***	-.47***	3.89	.55	.76
M_SE						.83***	.28***	.21**	2.22	.63	.71
F_SE							.31***	.25**	2.25	.65	.65
M_WC								.68***	2.00	.75	.83
F_WC									2.26	.79	.81

Note. PC = athletes' perfectionistic cognitions; C_M = coach-created mastery climate; C_P = coach-created performance climate; M_LE = mother-initiated leaning/enjoyment climate; F_LE = father-initiated leaning/enjoyment climate; M_SE = mother-initiated success-without-effort climate; F_SE = father-initiated success-without-effort climate; M_WC = mother-initiated worry-conducive environment; F_WC = father-initiated worry-conducive environment

*** $p < .001$ ** $p < .01$ * $p < .05$

conducive environment (for both parents) was the only subscale to correlate with athletes' perfectionistic cognitions.

8.5.3. Regression Analyses

The regression analysis included two steps (see Table 8.2). In step one, athletes' perceptions of parent-initiated motivation climates were entered into the regression equation. In step two, athletes' perceptions of coach-created motivational climates were entered into the regression equation. Support for hypothesis three would be forthcoming if the coach-created climate emerged as a significant predictor and explained additional variance in athletes' perfectionistic cognitions at step two.

Inspection of the regression analysis revealed partial support for the hypotheses. At step one, a linear combination of athletes' perceptions of parent-initiated learning-enjoyment climate, success-without-effort climate, and worry-conducive climate (for both parents) predicted 8.3% of the variance in athletes' self-reported perfectionistic cognitions. Significant predictors were consistent with hypothesis one, including mother-initiated and father-initiated worry-conducive climates. The addition of the coach-created motivational climates at step two explained a further 10.6% of variance, bringing the total variance explained to 19%. At step two, however, significant predictors of athletes' perfectionistic cognitions were limited to athletes' perceptions of the coach-created mastery and performance climate (see Table 8.2). In other words, parent-initiated motivational climates were no longer significant predictors of athletes' perfectionistic cognitions at step two.

The emergence of a coach-created mastery climate as a significant

predictor of athletes' perfectionistic cognitions was unexpected, and contradicts the bivariate correlation between the two variables. A potential explanation for the contradictory findings is that at the regression level, the correlation may be suppressed by a performance climate (Friedman & Wall, 2005; MacKinnon, Krull, & Lockwood, 2000; Smith, Ager, & Williams, 1992). Suppression effects concern a variable which enhances the predictive validity of another variable when included within a regression equation (Tzelgov & Henik, 1991). The zero-order correlations presented in Table 8.1 indicate that in the absence of a performance climate, the relationship between a mastery climate and athletes' perfectionistic cognitions was non-significant. However, when both coach-created climates were included in the regression equation, the effects of a mastery environment were enhanced, and thus subsequently emerged as a positive and significant predictor of athletes' perfectionistic cognitions. Based on this analysis, it would seem that a performance climate meets the conditions of a suppressor variable in the coach-created mastery climate – perfectionistic cognitions relations. The combined influence of mastery and performance coach-created climates for athletes' perfectionistic cognitions will be discussed below.

8.6. Discussion

Expanding upon the initial findings presented in studies two – four, study five sought to examine the relationship between the parent-initiated motivational climate and athletes' perfectionistic cognitions. An examination of the hypothesised relationship is central to an understanding of perfectionism aetiology. This is because Flett et al. (2002) identified the family environment as transmitting parental expectations and messages of conditional acceptance to the

Table 8.2.

Regression Analyses: Athletes' perceptions of the parent-initiated and coach-created motivational climate predicting athletes' perfectionistic cognitions.

Criterion Variable	<i>F</i>	<i>R</i> ²	ΔR^2	Unstandardised Regression Coefficients							
				M_LE	F_LE	M_SE	F_SE	M_WC	F_WC	C_M	C_P
PC											
Step 1	2.75	.083									
Step 2	5.26	.189	.106***	-.13	.11	.14	-.20	.01	.13	.31**	.37***
(95% CI)				(-.39 .13)	(-.12 .35)	(-.11 .40)	(-.45 .05)	(-.16 .17)	(-.03 .29)	(.11 .51)	(.21 .54)

Note: PC = Athletes' perfectionistic cognitions; M_LE = Athletes' perceptions of a mother-initiated learning-enjoyment climate; F_LE = Athletes' perceptions of a father-initiated learning-enjoyment climate; M_SE = Athletes' perceptions of a mother-initiated success-without-effort climate; F_SE = Athletes' perceptions of a father-initiated success-without-effort climate; M_WC = Athletes' perceptions of a mother-initiated worry-conducive climate; F_WC = Athletes' perceptions of a father-initiated worry-conducive climate; C_M = Athletes' perceptions of a coach-created mastery climate; C_P = Athletes' perceptions of a coach-created performance climate. Parent-Initiated Climates entered at Step 1. Coach-Created Climates entered at Step 2.

*** $p < .001$ ** $p < .01$ * $p < .05$

child, who subsequently responds with perfectionistic tendencies. Consistent with the tenets of the social expectations model of perfectionism development (Flett et al., 2002), it was hypothesised that a parent-initiated worry-conducive environment would emerge as a significant predictor of athletes' perfectionistic cognitions. A second purpose of study five was to consider the environment pressures component of Flett et al's conceptual model of perfectionism development. According to this model, additional social actors within a child's environment also contribute to heightened perfectionistic tendencies, above and beyond the influence of parental factors. However, to date, a direct test of this contention has failed to emerge within the perfectionism literature. The current project therefore examined the predictive value of the coach-created motivational climate for athletes' perfectionistic cognitions. Specially, it was hypothesised that a coach-created performance climate would contribute to athletes' perfectionistic thoughts.

The forwarded hypothesises of study five received partial support. As predicted, zero-order correlations revealed significant and positive correlations between the parent-initiated worry-conducive climate and athletes' perfectionistic cognitions. Likewise, the coach-created performance climate was associated with athletes' perfectionistic cognitions. When entering the different aspects of the motivational climate into the regression equation, the coach-created motivational climate explained the largest proportion of variance in athletes' perfectionistic cognitions. That is, at step one of the regression analysis, athletes' perceptions of mother- and father-initiated worry-conducive motivational climate emerged as significant predictors of perfectionistic cognitions, explaining 8.3% of behavioural

variance. With the addition of the coach-created motivational climates at step two, the predictive value of mother- and father-initiated worry-conducive environments became non-significant while both dimensions of the coach-created climate made a significant contribution to athletes' perfectionistic cognitions, bringing the total variance explained to 18.9%. The emergence of the coach-created mastery climate as a significant predictor was unexpected, but may be explained using the concept of suppression. The potential role of a coach-created mastery climate in athletes' perfectionistic cognitions will be examined below. However, the findings pertaining to the parent-initiated motivational climate will be considered first.

8.6.1. The contribution of the parent-initiate motivational climate

According to Flett et al (2002), caregivers assume a central role in children's perfectionism development and while a number of complex parental factors influence the acquisition of perfectionistic tendencies in the child, the combined effects of parental factors are thought to be transmitted via the family environment. The family environment was represented in the current study by the parent-initiated motivational climate, which captures key achievement-based structures relating to the athlete's experience whilst learning sport skills. Of the parent-initiated climates forwarded by White and her colleagues (1996, 1998; 2007; White et al., 1992; 1998), it was expected that a worry-conducive environment would predict athletes' perfectionistic thoughts. Complementing the contribution of a parent-initiated climate, and consistent with the theorising of Flett and colleagues regarding wider social pressures in the development of perfectionism, a coach-created performance climate was expected to have similar implications for athletes' perfectionistic cognitions. That is, both parent-initiated

worry-conducive *and* coach-created performance motivational climates were expected to emerge as significant predictors in the current study.

At the level of zero-order correlations, this assumption was confirmed. Although the correlations between the parent-initiated worry-conducive environment and athlete perfectionistic cognitions were small, they were significant. A coach-created performance climate was also associated with athletes' perfectionistic cognitions, demonstrating a comparatively stronger relationship compared to the worry-conducive environment. The zero-order correlations therefore provide indirect support for Flett et al's (2002) theoretical arguments, which placed emphasis upon parents *and* additional social actors (e.g., coaches) in the development of children's perfectionism.

However, the conclusions drawn from the regression analysis are slightly different. When the parent- and coach-created climates were examined in unison, the former emerged as non-significant predictors, while the latter accounted for the largest proportion of variance in athletes' perfectionistic cognitions. From this particular finding, it is speculated that once the child enters the sporting domain and progresses to an elite status, the coaching climate exerts a stronger influence over perfectionistic cognitions in comparison to the parent-initiated motivational climate. The current finding is consistent with empirical advances within the context of the wider motivational climate literature. In a recent study that examined the contribution of motivational climates created by mothers, coaches, and best friends in the explanation of athlete's achievement goals, Papaioannou, Ampatzoglou, Kalogiannis, and Sagovits (2008) reported that the perceived coach-created motivational climate was the strongest predictor of athletes'

mastery, performance avoidance, and social approval goals. Likewise, White et al's (1998) study examined the contribution of coach-created, P.E. teacher-created, and parent-initiated motivational climates to athletes' task and ego goal orientations. Except for a mother-initiated learning-enjoyment climate, coach-created mastery and performance climates emerged as the sole predictors of a task orientation, while an ego orientation was accounted for by coach-created and teacher-created performance climates; however, the parent-initiated climates failed to emerge as significant predictor of an ego orientation. Based on the current findings, it would seem the results from the wider motivational climate literature extend to investigations of perfectionistic cognitions.

It is worth noting that in the current study, perfectionistic tendencies were measured at the state level (i.e., perfectionistic cognitions). As outlined in the introduction section, perfectionistic cognitions provide an indication of the thoughts experienced by individuals on a weekly basis, and, in the current study, were focused specifically on the perfectionistic thoughts experienced during training and competition situations. Within the context of these sport-specific situations it is the coach who assumes responsibility for the structuring of practice sessions, as well as providing immediate performance-related feedback during competition. While parents may be in attendance, their involvement during training and competition may be restricted to a spectator-like role, and thus their opportunity to express their expectations and approval within a motivational climate is somewhat limited. As a result, when the parent-initiated and coach-created motivational climates are considered simultaneously, it is the latter that has a direct influence on the cognitive patterns of elite junior athletes on a week-

by-week basis during training and competition.

The suggestion that coaches determined athletes' state-level cognitions has important implications for understanding perfectionism development within elite junior sport. At the state level, coaches are primarily responsible for the development of perfectionistic thoughts in elite junior athletes via the creation of a motivational climate. Thus, while the coach-created motivational climate may promote cognitions of a perfectionistic nature, at the same time it may also serve to reduce an athlete's perfectionistic thoughts during practice and performance. This point is especially important if one considers that a proportion of child-athletes will be reared by perfectionistic parents, and/or within a controlling, harsh, punitive family environment that demands normative success. As demonstrated in studies two – four of the current research, being reared in this manner fuels the development of dispositional perfectionistic tendencies in the child, who subsequently enter the sporting domain with a self-oriented, socially prescribed, and/or other-oriented perfectionistic orientation. For these athletes, the perfectionistic thoughts that accompany their dispositional orientation may be further enhanced by the coach-created motivational climate. Likewise, the coach-created motivational climate may also serve to reduce perfectionistic cognitions, which may subsequently enhance the psychology well-being of perfectionistic athletes. Given the pathological nature of perfectionistic thoughts, future research is thus clearly warranted to address whether the coach-created climate can limit the perfectionistic cognitions of athletes.

8.6.2. The contribution of the coach-created mastery and performance climate

It was hypothesised in the current study that a coach-created performance

climate would emerge as a significant predictor of athletes' perfectionistic cognitions. This hypothesis was initially supported by the bivariate correlational analysis, and substantiates recent perfectionism research that has identified a pathway from aspects of the coaching environment to children's intra-personal perfectionistic tendencies (e.g., Anshel & Eom, 2003; Dunn et al., 2006; Gotwals & Dunn, 2009). For the large part, previous research in this area has forwarded coaching pressures as a key antecedent of athletes' intra-personal perfectionism, as the expectations and criticism of coaches facilitates an environment in which children begin to doubt the quality of their action, report heightened concerns over mistakes, and strive relentlessly towards perfection in a vain attempt to gain coach approval. The current project builds upon this body of research by providing an alternative insight into the coach-based pathway. Specifically, the results move beyond establishing relationships between subscales from the same perfectionism inventory, and suggest coach-created achievement structures that encourage a preoccupation with normative ability, the avoidance of performance mistakes, and inter-personal competition, influence an athlete's vulnerability to the development of perfectionistic cognitions.

In explaining the effects of a performance climate for athletes' perfectionistic cognitions, one is drawn to the similarities between the coach-created achievement-based structures residing within a performance climate and the parenting style underpinning perfectionism development (see study three and four). The results of study three, for example, revealed that intergenerational transmission of SPP is mediated by key parenting practices, including a lack of empathy and psychological control. Within this family environment, the

perfectionistic caregiver adopts an affectionless controlling parenting style in an attempt to manage the psychological development of their child. Central to affectionless control are parents' excessively high standards for their child, as well as withholding approval for those occasions when perfection is attained. For children enveloped within this destructive family environment, socially prescribed perfectionistic tendencies are heightened as achievement striving is oriented towards gaining mother's and/or father's approval by meeting parentally-determined standards.

In a similar manner, the achievement-structures of a performance climate indicate that coaches can also be described as affectionlessly controlling towards their athletes. Indicative of the high expectations associated with affectionless control, the athlete learns within a performance climate that coach-based approval is reserved for those occasions when superior comparative ability is consistently demonstrated. Moreover, when one's performance fails to meet coach-determined standards, the coach's affectionless controlling nature is further reinforced as the athlete is exposed to harsh criticism and the withdrawal of approval (Krane et al., 1997). Responding to the achievement-based structures within a performance motivational climate, the athlete equates success with perfection, because it is only through the achievement of high standards that superior comparative ability and coach recognition is a guaranteed outcome. The coach's preoccupation with normative ability also ensures the athlete's concern over performance errors is heightened, because even minor flaws in performance limit an opportunity for superior comparative ability. Overall then, the performance climate encourages a perfectionistic thought pattern within the athlete, because it is through

exceptionally high standards and the avoidance of imperfection that self-worth is reaffirmed by coach recognition.

While the effects of a coach-created performance climate were hypothesised, the emergence of the coach-created mastery climate as a positive predictor of athletes' perfectionistic cognitions was unexpected. As outlined above, one explanation for this finding relates to the suppressor effects of a coach-created performance climate. A comparison of the bivariate correlations and regression analysis suggests that the relationship between a mastery climate and athletes' perfectionistic cognitions differs depending on the presence of a performance climate. That is, when a mastery climate and performance climate are included together in a regression equation, the effects of the former environment on athletes' perfectionistic cognitions are enhanced by the latter climate. The findings from the regression analysis therefore suggest that a linear combination of mastery and performance climates contribute to variance in athletes' perfectionistic cognitions. This finding is somewhat consistent with the results of study four, in which mothers' task orientation *and* ego orientation significantly predicted athletes' self-reported SOP.

When enveloped by mastery- and performance-based achievement structures, the athlete's attempts at skill acquisition (i.e., mastery climate) and outperforming others (i.e., performance) leads to a focus upon high performance goals. However, as outlined in chapter two, focusing upon elevated standards is not expected to underpin a pattern of cognitions that are dysfunctional in nature, because in and of themselves, high standards are not overly debilitating for athletes (Hall, 2006). Rather, it is the interpretation of achievement-based

information associated with high standards that can lead to a maladaptive pattern of perfectionistic cognitions. This is because within an environment dominated by mastery- and performance-based structures, the athlete's focus upon high standards becomes intertwined with successfully demonstrating competence and gaining coach approval. Thus, rather than maintaining a focus upon their private development, the athlete experiences a heightened self-awareness of their public self (Kaplan & Maehr, 2002) as their attempts towards personal improvement and superior normative ability are underpinned by need for self-validation and the recognition of their instructors. In this instance, the athlete will likely ruminate about the importance of achieving perfection and avoiding imperfection, because it is only with the successful achievement of these unrealistic standards that self-worth will be validated by their coach.

8.6.3. Limitations of study five and future research directions

One the limitations associated with any study of multiple motivational climates concerns the measurement technology employed. In the current study, although coach and parent motivational climates were represented by a task- and ego-involving higher order structures, the lower order dimensions are conceptually different (Duda & Whitehead, 1998). Therefore, difficulties may be experienced when assessing the unique role of specific motivational climates in the prediction of perfectionistic cognition. To avoid such interpretational difficulties, Duda and Whitehead (1998) encouraged researchers to establish communality between measures of the motivational climate. However, while communality would clearly aid measurement technology of the motivational climate, it could be argued the non-significant contribution of the parent-initiated

climate minimises the application of Duda and Whitehead's argument to the current project. Furthermore, Vazou, Ntoumanis, and Duda (2006) proposed that each motivational climate taps specific lower-order structures unique to environment under consideration (e.g., family environment vs. coaching environment). A common set of items would therefore clearly limit an understanding of the different motivational structures operating within each environment (Vazou et al., 2006), and may impair an understanding of perfectionism development.

A related issue concerns the somewhat narrow approach to Flett et al's (2002) environment pressures component. The decision to limit environment factors to the coaching environment was primarily influenced by sport-specific definitions of perfectionism (e.g., Anshel & Eom, 2003; Dunn et al., 2006; Gotwals & Dunn, 2009) that include coach pressures as a defining characteristic. However, theoretical approaches within the sport psychology literature indicate that athletic children are influenced by a multitude of social actors, with the primary candidates including parents, coaches, *and* peers (for an example, see Wylleman & Lavallee, 2004).

The influence of parents, coaches, and peers for junior athletes has also emerged within the achievement goal literature. For example, based on a qualitative study with elite junior tennis player, Harwood and Swain (2001) encouraged researchers to measure the relative influence exerted by parents, coaches, and peers on young athletes' motivation-related cognition, affect, and behaviour. In response, Ntoumanis and Vazou (2005) developed a scale designed to capture peer-created task-involving and ego-involving motivational climates in

sport (i.e., the Peer Motivational Climate in Youth Sport Questionnaire). Future research on the development of perfectionistic tendencies would do well to include Ntoumanis and Vazou's scale, in addition to measures of parent-initiated and coach-created climates. This is because, according to the Flett et al's (2002) conceptual model of perfectionism development, the influence of adults over children's perfectionistic tendencies is eventually superseded by peers, who are hypothesised to have a substantial influence over children's personality, especially during adolescence. If the hypothesised relationship between a peer-created motivational climate and athletes' perfectionistic tendencies receives empirical support, sport-specific measures of perfectionism should be expanded to capture the variety of social influences exerting an influence over junior athletes.

Despite the limitations outlined above and the necessity for future research in this area, the current findings are encouraging and highlight the influence of a child's wider social environment in the development of perfectionistic tendencies. In particular, study five demonstrated that in the context of elite junior sport, athletes' acquire perfectionistic thoughts via the coach-created motivational climate. Given that the coach-created motivational climate can be structured to foster more adaptive cognitions (see Duda & Balaguer, 2007), the prevention (or at least management) of athletes' perfectionistic cognitions may be possible via effective coach education. The issue of coach education, in addition to parent-focused education, will be expanded upon in the final chapter, as the combined implications of studies two – five for an understanding of perfectionism development are analysed.

Chapter Nine: General Discussion

The current programme of research provided a systematic understanding of perfectionism, its measurement, and development within the context of elite junior sport. The first empirical study addressed the measurement of perfectionism, examining the factor structure of the MPS-HF (Hewitt & Flett, 1991). Specifically, study one determined whether the MPS-HF can be reliably used with elite junior athletes, and subsequently employed to examine the origins of perfectionism in sport. Having established a revised MPS-HF in study one, studies two – five provided an empirical test of Flett et al's (2002) conceptual model of perfectionism development in the context of elite junior sport. Studies two and three were guided by the social learning model of perfectionism development, in which children acquire perfectionism by modelling the perfectionistic tendencies of their parents. Study three also considered whether a number of key parenting styles mediated the intergenerational transmission of perfectionism between caregivers and their athletic child. Building upon the contribution of parental psychological control in the development of perfectionism, the relationship between parents' achievement goals and athletes' perfectionistic tendencies was examined in study four. Study four also considered the influence parents' achievement goals for the nature and form of perfectionistic striving. Specifically, study four examined a structural equation model in which parents' achievement goals were associated with athletes' SOP and SPP, and athletes' SOP and SPP were subsequently associated with forms of motivation. Finally, the role played

by coaches in the development of athletes' perfectionistic cognitions, above and beyond the influence of parents, received consideration in study five. By testing the relationship between the coach-created climate and athletes' perfectionistic cognitions, study five provided the first test of Flett et al's contention that other social actors fuel the development of perfectionism in children.

The purpose of this present chapter is to discuss the major findings of studies one – five with specific reference to the conceptualisation, measurement, and development of perfectionism in elite junior athletes. The findings will be considered within Flett et al's (2002) conceptual model of perfectionism development. The practical applications of the current results will also be addressed by forwarding a number of strategies for preventing the development of perfectionism in elite junior athletes. Lastly, recommendations for future research will be forwarded, and the unique contribution of the current thesis to the perfectionism field will be outlined.

9.1. The factor structure of the MPS-HF and its application to elite junior sport

Responding to historical descriptions of the construct (e.g., Burns, 1980; Ellis, 1958; Hollender, 1965; Horney, 1939, 1950; Missildine, 1963), perfectionism was defined in the current research as a multidimensional personality disposition characterised by *striving towards perfection and exceptionally high standards, accompanied by critical evaluative tendencies, a fear of failure, and a self-worth conditional upon the successful attainment of perfection*. Based on this definition, it was proposed that perfectionism encourages intense motivation via striving towards exceptionally high standards and perfection, and this persistent form of achievement behaviour may lead to

adaptive achievement-related cognition and affect (Hall, 2006). Research by Stoeber and colleagues (e.g., Stoeber, & Becker, 2008; Stoeber et al., 2007; 2008; 2009; in press; Stoll et al., 2008) supports this position in sport, as perfectionistic striving is consistently correlated with more adaptive outcomes. However, in Stoeber's work, the positive effects of perfectionistic striving are often considered in isolation from critical evaluative tendencies, a fear of failure, and a self-worth conditional upon the successful attainment of perfection. Conversely, when the defining features of perfectionism are considered not in isolation, but in unison, perfectionism emerges as a debilitating construct that will undermine the psychological well-being of elite junior athletes (Flett & Hewitt, 2005; Hall, 2006).

In light of the above argument, chapter two proposed Hewitt and Flett's (1991) conceptualisation and measurement of perfectionism as one approach that retains a multidimensional perspective, while at the same time highlighting the debilitating nature of each perfectionism dimension. Recently, a number of studies have emerged in sport and exercise psychology that have successfully employed the MPS-HF with a range of athletic samples (e.g., Appleton et al., in press; Dunn et al., 2005; Gaudreau & Antl, 2008; Hall et al., 2009; Hill et al., 2008; Martinent & Ferrand, 2006). Before sport psychologists continue to investigate Hewitt and Flett's perfectionism dimensions, however, it is first necessary for the factor structure of the MPS-HF to be established with athletic samples.

This issue was addressed in study one of the current thesis.

Study one revealed that the original MPS-HF structure failed to replicate in a sample of elite junior athletes. This finding is consistent with a study by Cox

et al. (2002), who subsequently demonstrated that a reduced, 15-item version of Hewitt and Flett's (1991) scale produced a significantly improved factor structure with a sample of students and clinical patients. Replicating the procedures adopted by Cox et al, an exploratory factor analysis of the MPS-HF was then performed in study one to determine the 15-items that best represented athletes' perfectionism dimensions (five items per subscale), and these items were then exposed to a second confirmatory factor analysis. Across two samples of elite junior athletes, the revised MPS-HF produced an improved factor structure. Furthermore, the revised 5-item subscales produced in study one demonstrated a strong correlation with Hewitt and Flett's original 15-item perfectionism measures, indicating that despite significantly reducing item content, the shortened subscales provided an accurate reflection of SOP, SPP, and OOP.

The internal consistency of the revised SOP and SPP subscales was also confirmed in study one. The Cronbach's alphas for SOP and SPP subscales were above the desired 0.60 value, and this finding was consistent across studies two – five. Study four also confirmed the predictive utility of the revised SOP and SPP subscales. As hypothesised, SOP was positively and significantly correlated with both self-determined and controlled forms of motivational regulation, while the relationship between SPP and motivation was limited to controlled regulation. The evidence across studies one – five is therefore supportive of the revised SOP and SPP subscales, and provides sport psychologists with an accurate measure of these perfectionism dimensions for employment with elite junior athletes.

In contrast, the reliability of the revised OOP subscale was less than desirable. Although a Cronbach's alpha of 0.63 was produced during revision of

the perfectionism subscales (study one, sample one), internal consistency scores were below 0.60 in study one (sample two) – three. This findings is slightly surprising considering the revised subscale comprised the five strongest indicators of OOP, and the loading of each item was significant in the confirmatory factor analyses. In study one it was argued the low Cronbach's alpha may be an artefact of the participants. The applicability of this explanation is limited, however, in light of the Cronbach's alpha produced in studies two and three. Overall then, more work is clearly required to produce a valid and reliable measure of elite junior athletes' OOP.

In reanalysing the OOP subscale, and/or further establishing the validity of the revised SOP and SPP subscales, sport and exercise psychologist should be guided by Hagger and Chatzisarantis' (in press) recent guidelines regarding the development of self-report psychological measures. Hagger and Chatzisarantis advocated that it is common practice for psychologists to adopt questionnaires without making a careful evaluation of whether previous tests of validation are appropriate and applicable to the sample under investigation. This would indicate that establishing the psychometric properties of revised SOP, SPP, and OOP subscales should be an ongoing process, because the findings reported in study one were derived specifically from elite junior athletes. In other words, it would be erroneous for researchers to assume that the revised MPS-HF employed in the current research applies to any sample other than elite junior athletes. What is now required are further tests of validity with alternative groups of sporting performers.

A related issue raised by Hagger and Chatzisarantis (in press) concerns the

trans-contextual translation of measures from one sample to another, or one domain to another. Hagger and Chatzisarantis give the examples of when scientists employ measures developed specifically for use with adults to research that involves child performers, or apply measures developed in the educational context to the sporting domain without considering the generalisability of item content. In most cases, this trans-contextual process actually occurs with little more than a subtle rewording of items or stems (Hagger & Chatzisarantis, in press). Such an approach may ultimately reduce a scale's validity. That is, it should not be assumed that such measures simply transfer into the sporting context without influencing the psychometric properties of a scale. This statement has specific implications for the measurement of perfectionism in sport using the MPS-HF.

In the current series of studies, the MPS-HF was adapted by merely changing the stem leading into the questions. Little attention was directed towards item content and its relevance to elite junior athletes. This is an important limitation for three reasons. First, the item content of the original MPS-HF makes reference to the individual's work (e.g., "I never aim for perfection in my work") rather than sporting performance per se. A second point is that, while the MPS-HF captures an individual's perceptions of parental expectations, the role of coaches (Anshel & Eom, 2003; Dunn et al., 2005; Gotwals & Dunn, 2009) and peers (see the conclusions of study five) may also be central to an athlete's perfectionistic tendencies. Presently, the MPS-HF does not make specific reference to the aforementioned social actors. Third, the MPS-HF was not developed for employment with elite junior athletes, or children and adolescents. These

limitations will, according to Hagger and Chatzisarantis' (in press) thinking, limit the long-term validity of the revised MPS-HF. To overcome this limitation, sport psychologists should move beyond merely revising the original MPS-HF by re-writing the stem, towards generating a unique pool of items that provide an explicit measure of SOP, SPP, and OOP in elite junior sport (Hagger & Chatzisarantis, in press).

The process of developing a pool of perfectionism items for the sporting context is especially important in light of Dunn et al's (2005) finding that student athletes reported higher levels of sport-specific SOP, SPP, and OOP, than global measures of the same constructs. Based on their findings, Dunn and associates encouraged the development of situationally-based measures of perfectionism, which may have greater power in predicting athletes' cognition, affect, and behaviour in comparison to global scales. Research is now required to address the points outlined above by Hagger and Chatzisarantis (in press), as well as Dunn et al., by developing a set of items that accurately reflect SOP, SPP, and OOP in the context of sport. In turn, a valid MPS-HF will emerge for employment with elite junior athletes, and provide the necessary measurement technology to examine the correlates and antecedents of these perfectionism dimensions.

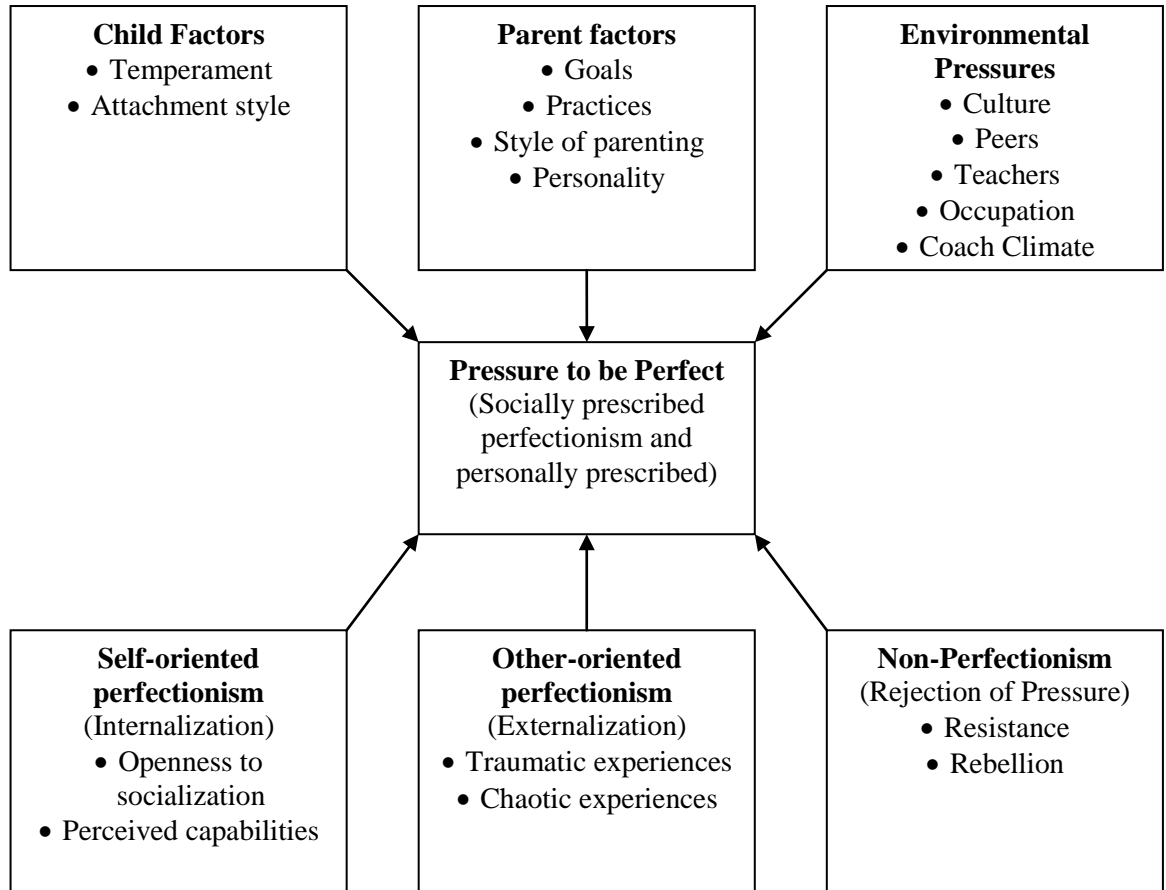
9.2. The origins of perfectionism in elite junior athletes: The role of social learning

Having examined the psychometric properties associated with the MPS-HF, the second major purpose of the current research was to identify pathways that lead to perfectionistic tendencies of elite junior athletes. Prior to the findings reported in studies two – five, the development of perfectionism had been under-

researched by sport psychologists, with the only available evidence provided by McArdle and Duda's (2004; 2008) studies with adolescent athletes. The paucity of research in this area is somewhat surprising considering the important implications of perfectionism for athletes' well-being, achievement motivation, and inter-personal relationships. Moreover, Flett et al. (2002) proposed that by examining the factors and processes that give rise to perfectionism, psychologists are able to gain a valuable insight into the nature of this construct. Studies two – five attempted to address this limitation in the sport-related perfectionism literature, and in doing so, identified a number of key psychological processes that may ultimately contribute to the debilitating nature of perfectionism for elite junior athletes.

Studies two – five were guided by Flett et al.'s (2002) conceptual model of perfectionism. This model was adapted in the current research (see Chapter Four) to include coach pressure. For the convenience of the reader, the adapted model is presented again below (see Figure 9.1). According to this model, a complex array of factors contributes to perfectionism in children and adolescents. The first pathway explains the offspring's developmental tendency to imitate the perfectionistic tendencies that presumably reside within their caretaker (Flett et al., 2002). In other words, the child acquires a perfectionistic personality by modelling similar tendencies within their mother and/or father. A second explanation stemming from the social learning model is that by placing their parents on a pedicel, the son or daughter's attempts to be like their seemingly "perfect" parent (Flett et al., 2002).

Figure 9.1. The conceptual model of the development of perfectionism (Flett et al., 2002) amended to include coach pressure



Although the social learning pathway provides a logical explanation of perfectionism development, a consideration of previous research revealed that intergenerational transmission of perfectionism is slightly more complex than children simply copying their perfectionistic parents. This is because while a number of studies from the general perfectionism literature supported a primary-caregiver hypothesis (Cook & Kearney, 2009; Frost et al., 1991; Soenens, Elliot et al., 2005; Soenens, Vansteenkiste, et al., 2005), other researchers have provided empirical evidence in favour of the same-sex parent-child explanation (Speirs Neumeister, 2004; Vieth & Trull, 1999). However, in applying the social learning model to sport, it was proposed that neither the primary-caregiver nor the same-sex hypothesis would explain the development of perfectionism in elite junior athletes. In contrast, it was hypothesised that regardless of the child's gender, the elite junior athlete would likely acquire perfectionism by modelling their paternal parent's perfectionistic tendencies. The forwarded hypothesis was based on the parental literature in sport (e.g., Fagot & Leinbach, 1995; Fredricks & Eccles, 2002; McHale, et al., 1999; Updegraff et al., 1996), in which fathers are more influential than mothers for both male *and* female athletes. It was also hypothesised that a child's perception of reality, rather than reality itself, is influential in the development of athletes' perfectionism. Thus, it was expected that athletes' perceptions of their fathers' perfectionism, and not fathers' self-reported perfectionism, would emerge as a significant predictor of athletes' self-reported perfectionism. Finally, with regards to the social learning model of perfectionism development, it was hypothesised that the intergenerational transmission of perfectionism between fathers and athletes would be limited to the

corresponding dimensions from the MPS-HF.

Overall, the results of this research, and specifically studies two and three, provide initial support for the theoretical assumption that elite junior athletes acquire perfectionistic tendencies by modelling similar tendencies in their parents. In study two, a regression analysis demonstrated that between eighteen and twenty-six per cent of the variance in athletes' dispositional perfectionism scores was predicted by their perceptions of parents' corresponding perfectionism dimension. Furthermore, study three revealed that, although a number of important mediating processes were identified in the cross-generational continuity of perfectionism, the best model fit was achieved when a direct path was included between parents' and athletes' perfectionism SPP. With regards to the specific hypotheses, fathers' and mothers' perfectionism predicted athletes' self-reported perfectionism scores in study two, and athletes' gender failed to moderate the parent-child perfectionism relationship. In combination, this particular set of results suggest that athletic children model the perfectionism residing within their parents, regardless of the child's and parent's gender. A second important finding mirrored the postulated hypothesis that athletes' perceptions of their parents' perfectionism, rather than parents' self-reported perfectionism, would emerge as a significant predictor of the children's perfectionistic tendencies. While this finding suggests that an athlete's perception of reality forms a central component in the development of their dispositional perfectionism, it is worth reiterating that parents' self-reported perfectionism was significantly correlated with athletes' perceptions of parents' perfectionism. This would indicate that in the current research, athletes were able to accurately recall the perfectionistic nature of their

mother and/or father, and provides indirect support for the intergenerational transmission of perfectionism.

The findings pertaining to the social learning model were explained in chapter five, and therefore will not be repeated here. However, based on the aforementioned results, it seems important to consider the implications of intergenerational transmission of perfectionism between parents and their athletic children for the treatment of this construct. Recently, counselling psychologists have turned their attention to the management of perfectionism, reporting upon intervention programmes that have been specifically developed to reduce levels of perfectionism and its destructive impact (for recent examples, see Flett & Hewitt, 2008). Similarly, in their attempts to protect athletes from the perils of perfectionism (Flett & Hewitt, 2005), sport psychologists have begun to identify factors that may moderate the debilitating effects associated with dispositional perfectionism (e.g., Appleton et al., in press). The importance of such research should not be understated, as it is via intervention programmes and/or moderating factors that perfectionistic athletes may be able function within the pressured domain of elite junior sport. Yet based on the current findings associated with the social learning pathway, it is proffered that any attempt to manage athlete's perfectionism will be undermined if the child is continually exposed to a parent who demonstrates their own perfectionistic orientation.

For example, while intervention programmes may reduce athletes' perfectionism levels by manipulating cognitive processes (Flett & Hewitt, 2008), the work of psychologists may be undermined if the athlete is subsequently exposed to a parent who scores high on the MPS-HF subscales. It could be argued

that undermining the work of psychologists is especially likely when children and adolescents are the target of intervention programmes, because young individuals are highly impressionable to the actions, behaviours, and characteristics of their caretakers. Therefore, when cross-continuity of perfectionism is established between the parents and their child, psychologists would do well to include both parties in intervention programmes aimed at reducing levels of perfectionism. Ultimately, reducing the levels of parents' perfectionism may have a subsequent effect for the perfectionistic tendencies in elite junior performers. To the author's knowledge, no research studies exist that have considered this possibility, and thus future research is required to address this important contention in the perfectionism literature.

9.3. The origins of perfectionism in elite junior athletes: The role of parent's behavioural control

Returning to Flett et al's (2002) conceptual model, a number of alternative pathways towards perfectionism were tested in the current programme of research across studies two – five. One such pathway is captured by the social expectations model (Flett et al., 2002). The major premise of social expectations model is that children acquire perfectionistic tendencies in response to excessive parental expectations and conditional acceptance. In tying parental approval to the attainment of the caregiver's excessive demands, the child's efforts towards self-validation are focused upon perfection (or the avoidance of imperfection). Because the social expectations model places emphasis upon the demands and goals that parent's hold for their child's achievement striving, it was proposed in chapter seven that this particular model of perfectionism development focuses

explicitly on parental behavioural control. That is, by demanding elevated standards from their offspring, the parent is able to control the achievement-related behaviour of their son or daughter. In doing so, the parent is hoping to reaffirm their own self-worth by rearing the perfect child.

Mixed support emerged across studies two – five for the notion that parents' behavioural control is a precursor to elite junior athletes' dispositional perfectionism. In study two, the relationship between parents' OOP and athletes' SPP was examined. It was hypothesised that children respond to other-oriented perfectionistic parents with a perfectionistic orientation characteristic of SPP. According to historical descriptions of the perfectionistic construct, when exposed to their caregivers' OOP, the child's self-worth is fused to parental approval, which is only forthcoming when the unrealistic demands of their mother and/or father are fulfilled. Attempting to meet their parents' ambitious expectations, the child's achievement behaviour is subsequently directed towards the attainment of perfection (Flett et al., 2002). However, in contrast to historical descriptions, the findings from study two failed to support the hypothesised relationship between parents' OOP and athletes' SPP. This is because athletes' perceptions of parents' OOP failed to emerge as a significant predictor of athletes' self-reported SPP. The null findings regarding the parents' OOP – athletes' SPP relationship were explained in chapter five. It was suggested that Hewitt and Flett's (1991) OOP subscale does not provide a specific measure of parents' exacting standards for their children; rather, the OOP subscale is a generic measure of unrealistic standards for significant others. In light of this conclusion, researchers should withhold from concluding that parents' high expectations for their children do not

contribute to athletes' socially prescribed perfectionistic tendencies. Future research that provides a specific measure of parents' elevated goals for their children may clarify the role of this pathway.

In the current programme of research, the notion that parents' behavioural control underpins the development of athletes' perfectionistic tendencies also received attention in study four. Specifically, study four considered the relationship between parents' achievement goals for their athletic children and athletes' self-reported dispositional perfectionism (SOP and SPP), as well as the motivational processes associated with athletes' SOP and SPP. Parents' achievement goals concern the manner in which a mother and/or father defines athletic competence for their child. Thus, while parents' achievement goals do not provide a specific measure of performance demands per se, the mother and/or fathers' expectations for their athletic offspring are communicated via the criteria of success and failure that is adopted. Based on previous evidence regarding parents' achievement goals and gifted children's perfectionistic tendencies (Ablard & Parker, 1997; McArdle & Duda, 2004), and the contention that certain achievement goals characterise the nature and form of perfectionism in sport (Appleton et al., in press), it was hypothesised that parents' task orientation and ego orientation would be significantly correlated with athletes' SOP, while athletes' SPP would be predicted by parents' ego orientation only. Overall, the findings from study four supported the forwarded hypotheses. With regards to athletes' SOP, a direct path was observed from parents' ego orientation, as well as a path from mothers' task orientation. Conversely, the relationship between parents' achievement goals and athletes' SPP was limited to an ego orientation.

Study four also suggests that parents' achievement goals influence athletes' SOP and SPP, which subsequently underpin the processes regulating achievement motivation in sport. Using self-determination theory as a guiding theoretical framework (see Deci & Ryan, 2007), it was postulated that SOP and SPP would be correlated with controlled forms of motivational regulation. This is because both self-oriented and socially prescribed perfectionists experience a sense of obligation towards exacting performance standards, as well as a sense of fear and anxiety during attempts at self-validation. Because SOP is characterised by self-set standards for perfection, it was also predicted that this particular perfectionism dimension would emerge as a significant predictor of self-determined motivational regulation. A structural equation model analysis revealed support for the forwarded hypotheses.

Not limiting the approach to parents' personality dispositions, the current programme also demonstrated that parental behavioural control influences athletes' perfectionistic tendencies via the parent-initiated motivational climate. The notion that parental behaviour control exerts an influence over children via the family environment is a central premise of Flett et al's (2002) conceptual model of perfectionism development. That is, perfectionism will only develop on those occasions when a child is constantly exposed to certain parental expectations expressed within the family domain. Flett et al. theorised that one set of family-based expectations are informed by a parent's preoccupation with performance errors and the negative implications associated with imperfection for their child's well-being. White (2007) described this type of family environment as a worry-conducive climate. In study five it was hypothesised that a parent-

initiated worry-conducive motivational climate would emerge as a significant predictor of elite junior athletes' perfectionistic cognitions. Partial support was provided for this hypothesis via bivariate correlations, with a positive association emerging between the parent-initiated worry-conducive climate and athletes' perfectionistic cognitions. The finding was consistent when athletes' reported upon the mother-initiated climate and father-initiated climate.

Due to the cross-sectional design, it is not possible to conclude that behavioural control is responsible for the development of perfectionism in elite junior athletes from the current research. However, the available evidence from studies four and five provides initial support for a relationship between parents who are overly controlling of their child's achievement-related behaviour in sport and athletes' perfectionistic tendencies. Moreover, the findings reported in studies four and five suggest elite junior athletes may be particularly susceptible to the development of perfectionism when their parents' behavioural control is projected through achievement-based expectations for success and failure in sport. In the current research, these expectations were captured by achievement goals and/or the motivational climate. Inherent to these parent-related achievement constructs are explicit expectations regarding the child's competencies within the domain of elite junior sport. Specifically, for perfectionistic athletic children, their parents' expectations are intertwined with high standards, emphasising the avoidance of performance errors, demanding personal mastery, and/or expecting superior athletic ability from their child. It is suggested that by employing these achievement-structures, the parent is able to retain control over the child's behaviour in sport.

It is little surprised that, when exposed to these parental expectations, the child develops a preoccupation with attaining perfection or avoiding imperfection. This preoccupation will not only be reflected in their achievement striving, but as demonstrated in study five, resides in a pattern of perfectionistic cognitions. In and of itself, focusing upon perfection or demonstrating perfectionistic striving may be beneficial in the context of elite junior sport (Stoll et al., 2008). Yet the achievement structures promoted by parents of perfectionistic athletes do not simply encourage the child to value perfection in their athletic endeavours. Rather, the child responds to their parents' expectations by fusing self-worth to the successful avoidance of imperfection. Anything less than perfect is classified as a failure; an outcome which has devastating implications for the child in their quest to validate self-worth and leaves the child feeling worthless as an athlete, son or daughter, and quite possibly as a human being.

Overall then, the pathways described in studies four and five provide a unique insight into the development of SOP, SPP, and perfectionistic cognitions in elite junior athletes, suggesting parental behavioural control and expectations should be at the forefront of any conceptual model regarding the origins of perfectionism within sport psychology. Furthermore, when the development of perfectionism is conceptualised in this manner, there is little doubt that while this construct may have adaptive qualities, the overall perfectionism construct will be debilitating for elite junior athletes. That is, when parental achievement goals and/or the motivational climate lead the athletic child towards a self-worth contingent upon perfection, the effects of SOP and/or SPP will be far from adaptive, the nature and form of perfectionistic striving will be characterised by

controlled regulation, and the athlete will constantly ruminate about the implications associated with imperfection.

9.4. Preventing the development of perfectionism: The role of parents' achievement goals and motivational climate

Based on the analysis provided above, it is vitally important that parents are educated about the effects of their goal orientations and the family motivational climate for the perfectionistic tendencies of elite junior athletes. Ultimately, parents of athletic children must be aware that certain patterns of achievement goals and/or achievement structures within the home environment may encourage their son or daughter to fuse feelings of self-worth with perfection. Parental education should therefore include a number of practical strategies that can be implemented within the family home; strategies that encourage the elite junior athlete to associate feelings of self-worth with achievable, realistic goals, and/or ensuring the parent is accepting of their athletic child regardless of performance outcomes.

This approach to preventing perfectionism development is somewhat similar to Flett and Hewitt's (see Flett & Hewitt, 2002b) own treatment programme aimed at managing the debilitating nature of the construct. Rather than treating perfectionistic striving per se, Hewitt and Flett focus upon the individual's quest for self-validation via the attainment of perfection. Preliminary findings suggest this approach decreases perfectionistic behaviour and alleviates the attendant distress symptoms reported by the individual (Flett & Hewitt, 2002b). Speirs Neumeister and Finch (2006) also provided similar conclusions regarding strategies for overcoming perfectionism in gifted students. In response

to their study of perfectionism and insecure attachment styles, Speirs Neumeister and Finch argued that intervention programmes should focus upon “creating psychologically safe environments at home and school” (p. 248) where unconditional acceptance is demonstrated regardless of imperfection and parents reiterate to their child that self-worth is not contingent upon achievement (Greenspon, 2008). Finally, Greenspon (2008) outlined a number of strategies for psychologists that may help perfectionistic clients overcome the perils of perfectionism. A consistent theme across each strategy is the need for the perfectionist to experience unconditional acceptance, regardless of performance outcomes.

In their attempts to prevent the development of perfectionism, how can parents encourage a sense of unconditional acceptance within their athletic child? One potential strategy may be via the motivational climate. Returning to the findings presented in studies four and five of the current research, both dispositional (i.e., goal orientations) and situational aspects (i.e., motivational climate) of parent-related achievement goals were significantly correlated with athletes’ perfectionistic tendencies. However, according to the achievement goal literature (e.g., Ames, 1992b; Dweck, 1999), the motivational climate has the potential to override an individual’s goal orientation when situational cues are perceived as specifically emphasising either a performance or mastery climate. Therefore, it is proposed that by educating mothers and fathers about the differential achievement structures operating within a motivational climate, athletes’ perfectionistic tendencies may be prevented.

In focusing upon the motivational climate, strategies de-emphasising

performance/ego-based achievement structures may be especially important in preventing the development of perfectionism in elite junior athletes. While studies four and five demonstrated that parents' task/mastery *and* ego/performance achievement structures contribute to children's perfectionistic tendencies, it is suggested that a child's sense of conditional acceptance and preoccupation with unrealistically high performance standards is facilitated by the latter. This is because when promoting a performance climate, or demonstrating an ego orientation, the parent reserves their approval for occasions of superior comparative ability, and performance errors signify failure and a sense of worthlessness in the child.

Achievement goal theorists have proffered a number of strategies that influence the degree to which a child perceives their sporting environment as more or less ego- or task-involving (McArdle & Duda, 2002). These strategies focus on manipulating the various structural elements within the motivational climate. Much of this work has been guided by Epstein's (1988, 1989) *TARGET* acronym, which refers to Task, Authority, Reward, Grouping, Evaluation, and Timing structures of the situation. To date, sport psychologists have adopted the *TARGET* with coaches (see Duda & Balaguer, 2007; Duda & Treasure, 2006; McArdle & Duda, 2002). Although yet to be adapted to the relationship between parents and their athletic child, a number of the strategies emanating from *TARGET* may also be applied to the sport-related, parent-initiated motivational climate. In particular, the structures pertaining to Task, Recognition, and Evaluation may be especially important in preventing the development of perfectionistic tendencies in elite junior athletes. This is because Task,

Recognition, and Evaluation structures are focused specifically upon achievement-related performance standards and the criteria associated with sporting success and failure. With effective implementation within the family home, the structures may ensure a child's self-worth is not fused with perfect performance, but to realistic and achievable standards. Table 9.1 provides an overview of the strategies associated with Task, Recognition, and Evaluation structures, as well as specific examples that may prevent the development of perfectionistic tendencies in elite junior athletes.

9.5. The origins of SPP in elite junior athletes: The role of parent's psychological control

Not limited to parental behavioural control, it was hypothesised in the current research that parents' psychological control would also be associated with elite junior athletes' dispositional perfectionism. This hypothesis was tested as part of study three, in which the processes mediating intergenerational transmission of perfectionism were examined. Study three was guided by the conceptual ideas forwarded as part of Darling and Steinberg's (1993) model of parenting. According to this model, key parenting styles and practices transmit the influence of parents' personality dispositions over their children. A parenting style thought to mediate the parent-child perfectionism relationship is psychological control (Soenens et al., in press; Soenens, Elliot, et al., 2005; Soenens, Vansteenkiste, et al., 2006), and thus one purpose of study three was to empirically test this assumption in elite junior athletes. A second purpose of study three was to build upon the research findings reported by Soenens and colleagues, and determine why the perfectionistic tendencies in

Table 9.1. An overview of parent-initiated task, recognition, and evaluation structures and strategies, with a view of preventing perfectionistic tendencies in elite junior athletes

TARGET Structure	Strategies	Potential Implications for Athletes' Perfectionism
<p><i>Task.</i> Parental-related demands associated with their child's sport tasks</p>	<p>Parents' focus shifts from demanding exceptional performance to optimally challenging goals that are determined by their child's athletic ability.</p> <p>Parents involve athletic child in setting performance demands. Focus goal setting away from performance outcomes to the process of learning.</p>	<p>Child's attention directed away from unachievable goal of perfection, towards high, but attainable athletic standards. This "realistic" approach to task-related demands facilitates an adaptive pattern of achievement striving within the child, and ensures self-worth is tied to attainable outcomes (Hall, 2006).</p> <p>By including their offspring in goal-setting, the parent ensures the child retains control over their success/failure criteria. Such control may allow the child to adjust their goals in response to repeated failure.</p> <p>A sense of control is further enhanced by directing the child's attention away from performance outcomes to the process of learning. By learning about the processes involved with complex skills, the child will experience heightened confidence in their ability to reach their difficult, but realistic goals.</p>

<p>Recognition. Procedures and practices used by parents to reward child's athletic achievement (e.g., reasons for recognition).</p>	<p>Recognition is not reserved solely for perfect performance or the demonstration of superior comparative ability.</p> <p>Instead, parents recognise their child's personal improvement, exerted effort, and performance progress that occur due to learning from previous mistakes.</p>	<p>By shifting recognition away from perfection, the child no longer fears failure and the negative ramifications of performance errors for self-worth (Greenspon, 2002).</p> <p>Moreover, by recognising effort and personal improvement rather than comparative ability, the parent ensures the athlete feels acceptable even if performance outcomes are not perfect (Greenspon, 2002). A sense of self- or other-acceptance, in turn, means it is easier for the child to risk making a mistake. In the long-term, this positive approach to achievement striving will benefit the athletic progress of the child.</p>
<p>Evaluation. The nature of and criteria underlying parents' assessment of their child's athletic accomplishments</p>	<p>Parental evaluation of perfection and normative athletic ability should be de-emphasised, replaced by a criterion for success and failure that acknowledges effort application, improvement, persistence, and progress towards individual goals (Duda & Treasure, 2006).</p> <p>Rather than taking sole responsibility for performance evaluation, parents should involve their child in this process and encourage self-evaluation of personal improvement.</p> <p>Rather than relying solely on praise, parents should respond to their child's successes (and failures) with encouragement (Greenspon, 2002).</p>	<p>Overcoming the notion that one has to be perfect to be acceptable, the athlete-child is focused upon personal development and skill acquisition rather than self-validation, the avoidance of imperfection, and/or the acceptance of significant others.</p> <p>By involving them in the evaluation process, and focusing their child of self-improvement, the parent ensure their offspring retains control over perceptions of athletic competence, rather than striving towards perfection as they attempt to outperform other athletes.</p>

		<p>While important in the evaluative process, parental praise is primarily concerned with judgements about the child's performance (Greenspon, 2002). In contrast, encouragement captures a parent's confidence in their child (e.g., "I know you can do it"). According to Greenspon (2002), encouragement allows the child to feel accepted regardless of performance outcome.</p>
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The strategies proposed in Table 9.1, and application to the prevention of perfectionism in elite junior athletes, are based on Epstein (1988, 1989) Duda and Balaguer (2007), Duda and Treasure (2006), McArdle and Duda (2002).

caregivers are associated with psychologically controlling parenting towards children. Specifically, the role of parental empathy was examined.

The findings from study three provided mixed support for the proposed relationships. Using structural equation modelling, the intergenerational transmission between parents' and elite junior athletes' SPP was mediated by parents' empathy and psychological control. Furthermore, the relationship between parents' SPP and employment of psychological control was, as expected, mediated by parents' empathy towards their child. However, it was also evident from the final structural model that best fit was achieved when a direct path between parents' SPP and children's SPP was included. Despite hypothesising similar relationships for the intergenerational transmission of SOP, such findings did not emerge. That is, the association between parents' and elite junior athletes' SOP was not mediated by parental empathy and/or psychological control, and the pathway between parents' SOP and psychological control was not mediated by empathy. In a similar fashion to SPP, however, a direct path was included from parents' SOP towards athletes' SOP.

In response to the final structural equation model in study three, it was proposed that mothers and fathers who are perceived by their athletic child as demonstrating higher levels of SPP are deemed as un-empathetic, are excessively demanding and critical in their evaluations, and attempt to control the psychological development of their child via love-withdrawal and guilt-induction. This finding is vitally important in understanding the development of SPP in athletic children. The combined findings of studies two and three suggest that elite junior athletes may acquire socially prescribed perfectionism by modelling similar

tendencies in their parents; however, the acquisition of SPP is enhanced when elite junior athletes are exposed to an intrusive, insidious pattern of parenting. As a result of study three, support is therefore proffered for the “Parents’ Factors” component of Flett et al’s (2002) conceptual model of perfectionism development and its applicability to the domain of elite junior sport. Moreover, taking into consideration the role of parents’ psychological control in the development of athletes’ SPP, as well as the influence of parents’ behavioural control as reported in studies four and five, strategies aimed at preventing SPP development in elite junior athletes should focus upon counteracting the controlling nature of parents. This may be possible via an autonomy-supportive family environment.

9.6. Preventing the development of SPP: The role of an autonomy-supportive family environment

Across the studies reported in the current programme of research, parents’ control has emerged as a significant predictor of athletes’ SPP. This finding is consistent with previous research and theoretical accounts in the general perfectionism literature regarding differential aspects of parents’ control in the aetiology of children’s SPP. It is thought that by demanding high standards from their child (behavioural control), with-holding approval for exceptional performance, and restricting the psychological development of their offspring (psychological control), a family environment is created that contains the necessary stimuli for SPP development in children and adolescents. Studies four and five reveal that as a result behaviourally controlling parenting, the child develops a preoccupation with attaining perfectionistic standards, because it is by producing an error-free performance that parental standards will be met.

Furthermore, when perceiving their parents as psychologically controlling, children only feel worthy in the eyes of their mother/father on those occasions when perfection is attained, as highlighted in study three. The combined implications of parents' control in studies three – five for athletes' SPP reinforces the necessity for an autonomy-supportive environment within the family home. Such strategies are especially important given that SPP has emerged as a precursor to negative outcomes in elite junior athletes (Appleton et al., in press; Hill et al., 2008).

The importance of developing autonomy-supportive environments has a long tradition in self-determination theory (Deci & Ryan, 1987); however, to date, the relationship between autonomy-support and perfectionistic tendencies in athletes is under-researched. What is evident from the literature is that autonomy-supportive environments are negatively associated with psychological controlling parenting (Silk, Morris, Kanaya, & Steinberg, 2003; Soenens, Vansteenkiste, & Sierens, 2009), but facilitate more self-determined forms of motivation in athletes (see Sarrazin, Boiché, & Pelletier, 2007). A small body of research has also emerged regarding the effects of controlling parenting for children. The implications of this research for child rearing practices has been summarised by Grolnick (2003), who provides a number of practical strategies for parents in their attempts to create an autonomy supportive family environment for athletic children. Table 9.2 provides an explanation of these strategies and analyses their potential role in restricting socially prescribed perfectionistic tendencies in elite junior sport performers. The application of Grolnick's strategies to the prevention of athletes' SPP are guided by two main objectives: 1) to shift the child's

preoccupation with attaining parental standards towards internally-determined, achievable goals, and 2) to ensure parents are unconditionally accepting of their child, regardless of the latter's athletic accomplishments.

9.7. The origins of perfectionistic cognitions in elite junior athletes: The role of the coach-created motivational climate

It was argued that, in addition to parental factors, the coach-created motivational climate should be related to athletes' perfectionistic cognitions, as Flett et al's (2002) conceptual model emphasised the role of wider environmental pressures and alternative social actors in the development of children's perfectionism. The role of coaches in the development of athletes' perfectionistic cognitions is vital because it has important implications for the prevention strategies outlined in Tables 9.1 and 9.2. The strategies outlined above focus directly upon the parent-child relationship, with a view of creating an autonomy supportive family environment, as well as de-emphasising a performance climate. While the strategies may assist in preventing the development of athletes' perfectionistic tendencies in the family environment, for many elite junior athletes, their coach will be as influential, if not more so, on child's achievement-related cognitions, affect, and behaviour (Papaioannou et al., 2008; White et al., 1998). Should the coach-created motivational climate encourage perfectionistic tendencies in elite junior athletes, any strategies aimed at prevention within the family home would therefore be undermined by the child's wider social context.

Table 9.2. An overview of parent-initiated autonomy-supportive strategies, with a view of preventing SPP in elite junior athletes

Autonomy-Supportive	Strategies	Potential Implications for Athletes' SPP
<p>Monitor Reactions. Parent to reflect on their goals for their child's participation in sport.</p> <p>Parents to evaluate how they respond to child's athletic accomplishments.</p>	<p>Parents should ensure the performance-related goals assigned to their athletic child are difficult, yet realistic. To enhance this process further, the parent should include their offspring in the goal-setting process.</p> <p>Parents to avoid responding to their child's performance errors with rejection, criticism, or similar guilt-inducing tactics. Regardless of the performance outcome, the parent should be accepting of their child's efforts and demonstrate actions that signify unconditional love.</p>	<p>Athletes avoid becoming preoccupied with parentally-determined standards. They gain responsibility and a freedom of choice in setting performance-related goals. As a result, the child retains control over feelings of self-worth.</p> <p>Non-contingent parental approval ensures the child feels accepted and worthy by their parent, regardless of their performance standards and whether perfection is attained. Furthermore, the athlete's achievement striving will not be characterised by feelings a guilt, anxiety, and fear regarding the implications of failing one's parents (Grolnick, 2003); characteristics associated with SPP (see Study 4).</p>
<p>Prioritise and Analyse Goals. Parents to emphasise the intrinsic value of sport participation, rather than focus solely upon extrinsic goals.</p>	<p>As outlined in Table 9.1, parents should stress the importance of intrinsic goals, such as whether the child continues to derive enjoyment from their sport and demonstrates personal improvement. In contrast, controlling outcomes should be de-emphasised, including performance outcomes and winning/losing.</p>	<p>Perceiving their parent as valuing intrinsic, task oriented goals may encourage a similar definition of athletic competence within the child. This is important in restricting SPP, because the child is able to experience parental satisfaction regardless of whether superior normative ability is demonstrated and/or perfect standards are attained.</p>
<p>Decrease Pressure and</p>	<p>Decreasing pressures and controlling strategies may be</p>	<p>As with previous points, the premise behind</p>

<p>Controlling Strategies. Parents to reduce guilt-inducing statements, and actions that infer contingent approval.</p>	<p>the most difficult strategy for parents to implement. This is because children are attuned to both overt and subtle pressures from their parents (e.g., guilt-inducing statements, reactions on the side-lines, and use of rewards) (Grolnick, 2002).</p> <p>However, parents should make every effort to be non-conditionally approving of their child regardless of performance outcome. For example, the parent may focus their evaluations towards the application of effort and the child's acquisition of new skills, and empathise with the child when they experience performance difficulties.</p>	<p>decreasing pressures and controlling strategies is to allow the child to feel worthy in the eyes of their parents, independent of controlling performance evaluations.</p> <p>When parents are unconditionally accepting and empathic towards their offspring, the athlete's quest for perfection as a means to validate self-worth will be restricted. The sense of unconditional acceptance will be vital in preventing the development of SPP.</p>
<p>Increase Choice. Children included in the decision-making process regarding their involvement in elite junior sport.</p>	<p>Guided by their parents' knowledge of sport, athletic children should be given a choice regarding their performance-related goals.</p> <p>To facilitate this sense of choice, the parent should refrain from demanding standards from their offspring without consulting their child, or using guilt-inducing tactics to motivate the child towards parentally-determined goals.</p>	<p>When children are involved in the goal-setting process, they not only retain ownership over these goals, but also gain control over feelings of success and failure. In this scenario, the child has little reason to equate their athletic striving solely with parental expectations or doubt whether the quality of their performance is sufficient for parental approval.</p> <p>Moreover, by providing the child with choice and autonomy, the parent ensures their child adopts a flexible approach to goal-setting. This goal-flexibility may reduce the child's fear and anxiety when they encounter failure.</p>

The strategies proposed in Table 9.2, and application to the prevention of SPP in elite junior athletes, are based on Grolnick (2003).

Study five revealed a number of interesting findings in relation to Flett et al's (2002) conceptual model of perfectionism development. First, the findings confirmed the role of wider social influences in aetiology of perfectionism. With specific reference to the domain of elite junior sport, study five revealed the coach-created motivational climate as a significant predictor of athletes' perfectionistic cognitions. In fact, when both the parent-initiated motivational climate and the coach-created motivational climate were entered into the regression equation simultaneously, it was the latter that emerged as the significant predictor. This specific outcome suggests at the situational level, athletes' perfectionism is influenced to a greater extent by coaches than by parents. The argument proffered in study five for this specific outcome related to the measurement of perfectionism. In study five, athletes' perfectionism was measured from a "state-like" perspective, focusing specifically upon patterns of cognitions experienced over the past week during training and competition. Because the coach is involved with the athlete during training and competition to a greater extent than parents, whose influence maybe reserved for the family home, car journeys, or "after the event", the emergence of the coach-created motivational climate as a significant predictor of athletes' perfectionistic cognitions is unsurprising. What is now required is to determine whether the findings reported in study five extend to athletes' dispositional perfectionism. It is predicted that at the dispositional level, both the coach-created and parent-initiated climate would contribute to athletes' SOP and SPP.

Study five also revealed that approximately nineteen per cent of variance in athletes' perfectionistic cognitions was explained by a linear combination of a

coach-created mastery climate and performance climate. The emergence of a mastery and performance climate was not hypothesised in study five; however, the results are consistent with study four, in which parents' task and ego orientations were significantly correlated with athletes' SOP. In response to the finding, it was explained that a combination of mastery and performance-based achievement structures operating within an athletes' environment encourages the child to become overconcern with demonstrating competence and superior ability as they strive towards coach approval. This overconcern fuels a cognitive pattern that is focused upon perfection and the avoidance of imperfection; outcomes that will ultimately reaffirm feelings of self-worth.

The results from study five are also interesting because, while the regression analysis suggested a mastery climate was a significant predictor of athletes' perfectionistic cognitions, at the bivariate correlation level, this relationship was non-significant. In an attempt to explain these contrasting findings, it was suggested in study five that the regression analysis was influenced by suppression effects. That is, the relationship between a mastery climate and perfectionistic cognitions was inflated in the presence of a performance climate. From this explanation it is suggested that, in a similar fashion to the strategies outlined in Table 9.1, prevention of athletes' perfectionistic cognitions may be possible when a performance climate is de-emphasised. In doing so, the coach may continue to emphasise the importance of high standards (via a mastery climate), but his/her approach to goal-setting is less rigid and negative reactions to mistakes will be reduced. For the athlete, the de-emphasis of a coach-created performance climate will reduce an awareness of their "public self" (Kaplan &

Maehr, 2002) and an overbearing need to validate self-worth via the attainment of coach's approval (Duda & Hall, 2001). With this in mind, it is suggested an athlete's rumination about perfect standards, or the avoidance of imperfection, will be minimal. This is because such outcomes are not directly tied to coach recognition and feelings of self-esteem. Table 9.3 provides a number of strategies for de-emphasising a coach-created performance climate, and consistent with Tables 9.1 and 9.2, explains the implications of each strategy for the prevention of athletes' perfectionistic cognitions. The strategies provided in Table 9.3 also emanate from Epstein's (1988; 1989) TARGET acronym.

9.8. Unique contributions of the current research, limitations, and future research directions

The current research made several unique contributions to the perfectionism literature. First, the applicability of Hewitt and Flett's (1991) MPS to elite junior athletes was established, as sport psychologists have previously failed to address this important issue. Overall, valid and reliable measures of SOP and SPP emerged across four studies. The intergenerational transmission of SOP, SPP, and OOP from parents' to athletic children was then established, showing that athletes' perceptions of parents' perfectionism are related to athletes' self-reported perfectionism. Furthermore, this relationship was not moderated by athletes' gender, suggesting that both parents play a significant role in the development of their athletic child's perfectionistic tendencies. The psychological processes mediating the cross-generational continuity of SPP were also highlighted, including parents' empathy and psychological control. The current research was also the first to establish the relationships between parents'

Table 9.3. An overview of the TARGET structures and strategies required to de-emphasise a coach-created performance climate, with a view of preventing perfectionistic tendencies in elite junior athletes

TARGET Structure	Strategies	Potential Implications for Athletes' Perfectionism
Task. The tasks and activities created by the coach for the athlete/s. Also encompasses the coach-related demands regarding performance on the task/activity.	Avoid training programmes or competition related tasks associated with unrealistic performance-goals. Likewise, coach-related demands focused less on perfecting the tasks and more towards the personal progress of each child.	Child's concern for perfection or avoiding imperfection is limited because the coach's demands are both realistic and achievable during training and competition.
Authority. The extent to which the coach includes athlete/s in key decisions regarding athletic endeavours.	Coach to relinquishing sole responsibility for developing training programmes, requesting athlete input. Ensure athletes' input is focused on the process of learning rather than performance outcome.	Including athletes in the development of training programmes ensures both the coach and child avoid setting unrealistic performance-related goals. This may ensure that a pattern of cognitions focused upon attainment of perfection is restricted in the athlete.
Recognition. The coach's procedures and practices for rewarding athletes (e.g., reasons for recognition).	Coach recognition should not be reserved solely for athletes who produced a perfect performance, or given based on the demonstration of superior comparative ability. Instead, the coach should recognise the athlete's task mastery, expenditure of effort, and the integration of performance errors into the learning process.	When their coach recognises (and rewards) non-perfect performances, the child no longer fears the negative implications of imperfection for their self-worth. This may subsequently be reflected in the athlete's cognitive pattern. In addition, because their coach recognises effort and personal improvement, rather than

		sporting output, the athlete's cognitive pattern may be focused upon attaining difficult, but achievable goals (Greenspon, 2002).
Grouping. The manner in which athletes are grouped together by their coach.	Coach to avoid grouping athletes based on ability. Rather, athletes of varying abilities should be provided with an opportunity to work together, and learn from one another.	Grouping athletes based on ability may encourage athletes with lesser ability to ruminate about the importance of attaining perfection and avoiding imperfection and they strive to gain coach approval. In contrast, the opportunity to work with higher ability athletes may enhance skill acquisition and confidence during goal-striving.
Evaluation. The nature of and criteria associated with a coach's assessment of athletes' performance.	Avoiding direct reference to perfection and normative athletic ability when evaluating their athletes, coaches should adopt a criterion of success and failure that emphasises effort application, improvement, persistence, and learning from previous mistakes (Duda & Treasure, 2006).	If the athlete perceives coach evaluation is based on achievable outcomes, such as personal development, and recognises the importance of performance errors to the learning process, a preoccupation with avoiding imperfection will not characterise the cognitive pattern of the athlete.
Timing. The range of time provided for learning and achievement of performance outcomes.	Coaches should avoid rushing their athletes during the learning process, and when striving towards performance outcomes.	If athletes are hurried during their attempts at skill acquisition, they may become anxious about performance errors. Conversely, if provided with sufficient time, the athlete may incorporate mistakes into the

		learning process. Ultimately, this may prevent the athlete from ruminating about the implications of imperfection for feelings of self-worth.
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The strategies proposed in Table 9.3, and application to the prevention of perfectionistic tendencies in elite junior athletes, are based on Epstein (1988, 1989) Duda and Balaguer (2007), Duda and Treasure (2006), McArdle and Duda (2002).

achievement goals and athletes' SOP and SPP, as well as pathways from athletes' SOP and SPP to forms of motivational regulation. Finally, the relationship between the coach-created motivational climate and athletes' perfectionistic cognitions was established, providing initial support for Flett et al's (2002) "environmental pressures" pathway towards perfectionism.

Each study had a number of limitations, and thus the reported findings must be interpreted in light of these shortcomings. It is worth reiterating a number of these limitations because they have important implications for future investigations of perfectionism development in sport. The first major limitation concerns the cross-sectional nature of the reported correlations. In studies two – five, the reported findings established a relationship between parental/coach factors and athletes' perfectionism. For example, study two suggested that parents' perfectionism was significantly correlated with athletes' perfectionism, and in study four parents' achievement goals were associated with athletes' SOP and SPP. While the reported correlations provide insight into the origins of perfectionism in sport, they do not infer causality. Thus, it cannot be concluded that parental/coach factors *cause* athletes' perfectionistic tendencies. While this is an important limitation, the findings are consistent with previous investigations of perfectionism development that have been dominated by cross-sectional designs (e.g., Vieth & Trull, 1999). Furthermore, establishing the correlation between parental/coach factors and athletes' perfectionistic tendencies is necessary prior to conducting experimental research, in which it may be possible to infer causality. Having established a number of significant correlations in the current programme of research, experimental work is thus justified in future research projects.

A second major limitation concerns the over-reliance on athlete self-report. As was explained in study three, one disadvantage of relying solely upon athletes' perceptions of parental/coach factors is an overestimation of the relationship between the reported "antecedents" and "outcomes". According to Soenens, Elliot, and colleagues (2005), the issues of overestimation between variables is particularly relevant to investigations of perfectionism development, because the child's own perfectionistic tendencies may lead to an over-inflated report of parenting characteristics, styles, and practices. Future research may overcome this limitation by obtaining multiple-reports of parental/coach factors, including self-report, athlete-report, and independent observer-reports.

A final major limitation is the homogenous nature of the samples employed within the current programme of research. Although the ethnicity and social class of athletes were not recorded, the author suggests the majority of performers were White children, from middle-class homes. The homogenous nature of the athletes is an important limitation because recently, a number of perfectionism theorists have proposed certain parenting styles that are instrumental in facilitating perfectionistic tendencies in "White" children may be perceived as adaptive by African, Asian, and/or Chinese children (Speirs Neumeister, 2004). In turn, these seemingly positive parenting characteristics may underpin adaptive patterns of achievement striving in ethnic children, rather than a debilitating perfectionistic orientation. Future research should therefore replicate the studies reported in the current programme of research, and determine whether the measured parenting variables also underpin perfectionistic tendencies in African, Asian, or Chinese athletes. Should research with ethnic families

contradict the outcomes reported in studies two – five, the prevention strategies outlined in Table 9.1, 9.2, and 9.3 will require modification to address the issue of cultural diversity in the development of perfectionism.

Future research should also continue testing the conceptual model of perfectionism development (Flett et al., 2002) and its' relevance to elite junior sport. The development of children's perfectionism is a complex phenomenon, determined by a number of interacting pathways. The current research focused upon a select number of these avenues, and thus future studies are clearly justified in this area to examine alternative pathways. With regards to the role of parenting, a number of specific areas for investigation were provided in studies two – five. One area that may prove especially fruitful when investigating the origins of perfectionism is a further test of Darling and Steinberg's (1993) conceptual model of parenting. As explained in study three, parenting styles and practices were identified by Darling and Steinberg as mediating the relationship between parents' goals and children's personality characteristics. Study three provided a partial test of this model with regards to perfectionism development, focusing specifically upon parenting styles (i.e., parental empathy, psychological control). Future research is now required to examine the role of parenting styles *and* practices in the intergenerational transmission of perfectionism. For example, in addition to measuring general parenting styles such as empathy, sport psychologists should adapt Soenens et al's (in press) domain-specific scale of psychological control as a measure of parenting practices employed with athletic children.

The role of coaches in the development of athletes' perfectionism should also receive the attention of future research. For example, one avenue is to expand

upon the social learning model tested in study two, and determine whether athletes acquire SOP, SPP, or OOP by modelling similar tendencies of their instructor/coach. This particular avenue may be especially applicable to athletes who receive daily exposure to their coach (e.g., apprentices at football clubs). An alternative pathway may be to replicate Flett et al's (1995) study of the relationship between Baumrind's (1971) parenting styles and children's perfectionism within the coach-athlete relationship. Such research should be guided by Chelladuari's (1993) multidimensional model of leadership; a model that proposes five types of leadership/coach behaviours that demonstrate conceptual overlap with Baumrind's approach to parenting. It would be interesting to determine whether athletes are particularly vulnerable to the development of perfectionism when their coach's behaviour is autocratic and highly controlling.

Based on the prevention strategies outlined in Tables 9.1, 9.2, and 9.3, experimental research is also required to determine whether elite junior athletes' can be protected from the development of perfectionistic tendencies. Such research poses a number of important challenges. By the time an athlete has been identified as "gifted", for example, they will have received constant exposure to certain demands and pressures within their family and coaching environment. As a result, it may be too late to prevent the development of perfectionistic tendencies in some elite junior athletes. However, the outlined strategies may also help reduce perfectionistic cognitions and/or the controlled motivational regulation that was associated with SOP and SPP in study four, and thus, to some extent, protect elite junior athletes from the perils of perfectionism.

9.9. Conclusions

There are a number of key discoveries from this programme of research which make an important contribution to the perfectionism literature. Each discovery can be classified into two overall outcomes; one, a valid and reliable measure of SOP and SPP for employment with elite junior athletes, and; two, identification of the key antecedents in the development of athletes' perfectionistic tendencies. First, the research aimed to establish the psychometric properties associated with Hewitt and Flett's (1991) MPS when completed by elite junior athletes. The inclusion of this study (one) was necessary given two important factors. Given the different conceptualisations and measurement technology of perfectionism provided in chapter two, it was argued that Hewitt and Flett's approach is consistent with historical definitions of the construct which provides a clear distinction between adaptive achievement striving and perfectionism. The inclusion of study one was also necessary given that Hewitt and Flett developed their measure with a sample of clinical patients and students. Thus, the degree to which the factor structure of the MPS-HF replicated with elite junior athletes was unknown. The major finding from study one was that, in contrast to the original MPS-HF, which demonstrated a relatively poor fit to the athletes' data, a revised 15-item scale was associated with acceptable psychometric properties. Although the OOP subscale should be re-examined in future research, the results suggest future employment of the original MPS-HF in sport psychology should proceed with caution. Prior to reporting upon the antecedents and/or correlates of SOP and SPP in elite junior athletes, researchers should conduct a CFA (and if necessary, an EFA) with their own data sets.

In terms of the aetiology of perfectionism, the current research highlights an array of pathways leading to the development of this potentially debilitating construct in elite junior athletes. With this in mind, it can be concluded that the current research provides support for components of the model proffered in Figure 9.1. First, studies two and three revealed that athletic children have a tendency to model the perfectionistic characteristics of their parents. However, in addition to intergenerational transmission, perfectionistic parents are characterised by a number of maladaptive child rearing styles, which increase the offspring's predisposition towards SPP. From these findings, it can be concluded that any attempt to understand the role of athletes' social learning in the development of their perfectionistic tendencies must not be limited in scope. In other words, while the social learning model provides a useful explanation of perfectionism development in elite junior athletes, Flett et al's description of this model requires further expansion. This is because key parenting factors have emerged that mediate the intergenerational transmission of perfectionism in student (Soenens, Elliot, et al., 2005) and athletic samples.

In studies two and three, the role of general parental characteristics and parenting styles in the development of athletes' perfectionism were discovered. Complementing this finding, it is also apparent from the current research that context-specific, parental demands underpin athletes' perfectionism. Specifically, parents' definition of sporting success and failure was found to be significantly correlated with athletes' dispositional perfectionism in study four, and in study five it was discovered that a family environment that stresses the avoidance of performance errors in sport was positively associated with athletes' perfectionistic

cognitions. The reported relationships in studies four and five provide additional support for Figure 9.1. Moreover, the associations confirm Flett et al's (2002) suggestion that parents' achievement goals may be important antecedents of children's perfectionism, and that the combined influence of parental factors for the development of perfectionism is transmitted via the family environment. The discoveries are also important because they may have a significant bearing upon prevention strategies aimed at restricting the development of perfectionism in elite junior athletes. That is, in addition to strategies that focus upon generic parenting styles (i.e., increase empathy, restrict psychological control), it is imperative that sport psychologists bring about changes to parents' achievement goals and the sport-related motivational climate that dominant the family home of elite junior athletes.

Finally, it was argued throughout that environmental pressures and additional social actors contribute to children's perfectionistic tendencies (Flett et al., 2002). One of the main discoveries from study five was that within elite junior sport, one source of environmental pressure is the coach, and this external pressure may facilitate perfectionistic cognitions in young performers. Again, this finding complements Figure 9.1 and is the first study to support Flett et al's suggestions on this issue. It was also discovered that at the state level, a greater proportion of variance in athletes' perfectionistic cognitions was predicted by the coach-created motivational climate (in comparison to the parent-initiate motivational climate). This is a very important finding, as it highlights a particular challenge in developing successful strategies for the prevention of perfectionism. Clearly, attention should be directed towards educating parents and coaches

simultaneously about their unique roles in the development of athlete's perfectionistic tendencies. This is because strategies that have been successfully implemented within the family may be undermined, for example, if the coaching climate continues to facilitate perfectionistic tendencies within elite junior athletes. Although this poses a significant challenge for sport psychologists, the long-term benefits for elite junior athletes, their well-being, and sporting performance may be enhanced if both parents and coaches have received education regarding their individual roles in the development of perfectionism

In sum, the current research programme has contributed to an understanding of perfectionism in elite junior sport. Reported findings enhance existing knowledge in the area of perfectionism measurement, as well as adding to the knowledge base regarding the origins of this construct. The latter issue is highly complex and involves a multitude of interwoven pathways. However, the current research did reveal a number of significant avenues towards perfectionism in elite sporting performers, highlighting the central role of parents and coaches. Having demonstrated the specific roles played by parents and coaches in the genesis of perfectionism, it may now be possible to protect our elite junior athletes from the perils of perfectionism.

Appendix A


The Multidimensional Perfectionism Scale (Hewitt & Flett, 1991)

Your Name:

Athlete Questionnaire

Dear Athlete:

Thank you for agreeing to take part in this project. This questionnaire will take you approximately 15 minutes to complete and concerns the thoughts and feelings you may experience in your sport. Please read the instructions before each section as they provide information regarding completing the questions. Remember, it is important you **answer all the questions**. Before completing the questionnaire, **don't forget to put your name in the top-right hand corner**.

1) Gender:  2) Age:



3) Number of years you have been playing your sport:









































































4) Number of years at your current club:

5) What is the highest level you have played at:

Section A: Listed below are a number of statements concerning personality characteristics in sport. Using the scale below, indicate the extent to which you agree or disagree with each statement by shading the appropriate number.

Strongly Disagree	Disagree	Slightly Disagree	Neutral	Slightly Agree	Agree	Strongly Agree
1	2	3	4	5	6	7

When playing/practising my sport...

1. When I am working on something I cannot relax until it is perfect.      
2. I am not likely to criticise someone for giving up too easily.      
3. It is not important that the people I am close to are successful.      
4. I hardly ever criticise my friends for accepting second best.      
5. I find it difficult to meet others' expectations of me.      
6. One of my goals is to be perfect in everything I do.      
7. Everything that others do must be of top-notch quality.      
8. I never aim for perfection in my work      
9. Those around me readily accept that I can make mistakes too.      
10. It doesn't matter when someone close to me does not do their absolute best.      
11. The better I do, the better I am expected to do.      
12. I hardly ever feel the need to be perfect.      

Appendix B

Consent Forms



Paul Appleton
School of P.E. and Sport Sciences
University of Bedfordshire
Polhill Avenue
Bedford

Dear Parents/Guardians:

My name is Paul Appleton and I am a PhD student in the School of P.E and Sport Sciences at the University of Bedfordshire. I am writing to request your assistance in a research project that I have planned as part of my studies. Briefly, my research considers how your child's psychological development as an athlete is influenced by the messages within their family home. Such research is important because certain personality characteristics lead to behaviours that are highly valued within professional sport.

To help me with my research, I would like to request that your child completes two short questionnaires. I would also like to request that both you **and** your child's other parent/guardian complete a short questionnaire.

Participation in my project is completely voluntary, but I would be most grateful if you could help me. **All responses will remain anonymous** and when writing up the results, only group data will be reported. Consequently, no one individual will be identified when analysing the responses and participation in this study will have no effect on your child's relationship with either their coach or club. If you and your family are willing to take part in this research project please sign the bottom of this form and complete the questionnaires

Please be assured that my project has received the full support of the University of Bedfordshire and you child's club. Upon completion, I plan to provide feedback to you regarding the practical implications of my findings.

Finally, should you have any queries about the questionnaires or require further information about the research, please do not hesitate to contact me (07812 074 118; paul.appleton@beds.ac.uk).

I greatly appreciate your assistance with this project and wish to thank you at this point for taking the time to help.

Paul Appleton (BSc)

I understand the above information and give voluntary consent to allow my child to participate in this project.

Your Signature:

Date:

Your Child's Name:



Paul Appleton
School of P.E. and Sport Sciences
University of Bedfordshire
Polhill Avenue
Bedford

Dear Athlete:

My name is Paul Appleton and I am a PhD student in the School of P.E and Sport Sciences at the University of Bedfordshire. I am writing to request your assistance in a research project that I have planned as part of my studies. Briefly, my research considers how your psychological development as an athlete is influenced by the messages within your family home. Such research is important because certain personality characteristics lead to behaviours that are highly valued within professional sport.

To help me with my research, I would like to request that you and your parents complete a short questionnaire.

Participation in my project is completely voluntary, but I would be most grateful if you could help me. **All responses will remain anonymous** and when writing up the results, only group data will be reported. Consequently, no one individual will be identified when analysing the responses and participation in this study will have no effect on your relationship with either your coach or club. If you are willing to take part in this research project please sign the bottom of this form and complete the questionnaires

Please be assured that my project has received the full support of the University of Bedfordshire and you child's club. Upon completion, I plan to provide feedback to you regarding the practical implications of my findings.

Finally, should you have any queries about the questionnaires or require further information about the research, please do not hesitate to contact me (07812 074 118; paul.appleton@beds.ac.uk).

I greatly appreciate your assistance with this project and wish to thank you at this point for taking the time to help.

Paul Appleton (BSc)

I understand the above information and give voluntary assent and participate in this project.

Signature: Date:

Your Name:

Appendix C

Parallel analysis calculations for reconstruction analysis of the MPS-HF (Study One)

SOP Interpolated Criterion Eigenvalues

$$\frac{200 - 300}{(1.491 - 1.399)} = \frac{(200 - 300)}{x}$$

$$\begin{aligned} 2 \times .092 / 100 &= 0.00184 \\ 1.491 - 0.00184 &= 1.48916 \\ 1.48916 &< 4.944 \end{aligned}$$

$$\frac{200 - 300}{(1.378 - 1.310)} = \frac{(200 - 300)}{x}$$

$$\begin{aligned} 2 \times .068 / 100 &= 0.00136 \\ 1.378 - 0.00136 &= 1.37664 \\ 1.37664 &< 1.407 \end{aligned}$$

$$\frac{200 - 300}{(1.296 - 1.235)} = \frac{(200 - 300)}{x}$$

$$\begin{aligned} 2 \times .061 / 100 &= 0.00122 \\ 1.296 - 0.00122 &= 1.29478 \\ 1.29478 &> 1.201 \end{aligned}$$

SPP Interpolated Criterion Eigenvalues

$$\frac{200 - 300}{(1.391 - 1.315)} = \frac{(200 - 300)}{x}$$

$$\begin{aligned} 2 \times .076 / 100 &= 0.00152 \\ 1.391 - 0.00152 &= 1.38946 \\ 1.38946 &< 3.35 \end{aligned}$$

$$\frac{200 - 300}{(1.275 - 1.226)} = \frac{(200 - 300)}{x}$$

$$\begin{aligned} 2 \times .049 / 100 &= 0.00098 \\ 1.275 - 0.00098 &= 1.27402 \\ 1.27402 &< 1.40 \end{aligned}$$

$$\frac{200 - 300}{(1.188 - 1.1558)} = \frac{(200 - 300)}{x}$$

$$\begin{aligned} 2 \times .061 / 100 &= 0.00064 \\ 1.188 - 0.00064 &= 1.18736 \\ 1.18736 &> 1.06 \end{aligned}$$

OOP Interpolated Criterion Eigenvalues

$$\frac{200 - 300}{(1.416 - 1.336)} = \frac{(200 - 300)}{x}$$

$$\begin{aligned} 2 \times .08 / 100 &= 0.0016 \\ 1.416 - 0.0016 &= 1.4144 \\ 1.4144 &< 2.51 \end{aligned}$$

$$\frac{200 - 300}{(1.2916 - 1.247)} = \frac{(200 - 300)}{x}$$

$$\begin{aligned} 2 \times .0446 / 100 &= 0.00089 \\ 1.2916 - 0.00089 &= 1.29071 \\ 1.29071 &< 1.48 \end{aligned}$$

$$\frac{200 - 300}{(1.215 - 1.1736)} = \frac{(200 - 300)}{x}$$

$$\begin{aligned} 2 \times .0414 / 100 &= 0.000828 \\ 1.215 - 0.000828 &= 1.214172 \\ 1.214172 &= 1.21 \end{aligned}$$

Appendix D

Parallel analysis calculations for 38-item MPS-HF (Study One)

$$\frac{200 - 300}{(1.9568 - 1.7428)} = \frac{(200 - 300)}{x}$$

$$2 \times .214 / 100 = 0.00428$$
$$1.9568 - 0.00428 = 1.95252$$
$$1.95252 < 6.456$$

$$\frac{200 - 300}{(1.826 - 1.6522)} = \frac{(200 - 300)}{x}$$

$$2 \times .1738 / 100 = 0.003476$$
$$1.826 - 0.003476 = 1.822524$$
$$1.822524 < 3.871$$

$$\frac{200 - 300}{(1.7348 - 1.586)} = \frac{(200 - 300)}{x}$$

$$2 \times .1488 / 100 = 0.002976$$
$$1.7348 - 0.002976 = 1.731824$$
$$1.731824 < 2.304$$

$$\frac{200 - 300}{(1.7018 - 1.5262)} = \frac{(200 - 300)}{x}$$

$$2 \times .1756 / 100 = 0.003512$$
$$1.7018 - 0.003512 = 1.696288$$
$$1.696288 > 1.623$$

Appendix E

Study Three Questionnaire

Section B: Listed are a number of statements concerning personality characteristics and traits that your parent/guardian may display. On the left-hand scale please mark the number that best describes how much each statement is, in your opinion, like your mother/guardian. On the right-hand scale mark the number that best describes how much each statement is, in your opinion, like your father/guardian.

Strongly Disagree	Disagree	Slightly Disagree	Neutral	Slightly Agree	Agree	Strongly Agree
1	2	3	4	5	6	7

In my opinion
(my mother)...

In my opinion
(my father)...

<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	◀ ▶ ▲ ▼ ◀◀	1. For my parent, it is not important that the people they are close to are successful.	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	◀ ▶ ▲ ▼ ◀◀
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	◀ ▶ ▲ ▼ ◀◀	2. My parent hardly ever criticises their friends for accepting second best.	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	◀ ▶ ▲ ▼ ◀◀
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	◀ ▶ ▲ ▼ ◀◀	3. It doesn't matter to my parent when someone close to them does not do their absolute best.	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	◀ ▶ ▲ ▼ ◀◀
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	◀ ▶ ▲ ▼ ◀◀	4. My parent hardly ever feels the need to be perfect.	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	◀ ▶ ▲ ▼ ◀◀
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	◀ ▶ ▲ ▼ ◀◀	5. My parent thinks that anything they do that is less than excellent will be seen as poor by those around him/her.	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	◀ ▶ ▲ ▼ ◀◀
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	◀ ▶ ▲ ▼ ◀◀	6. It is very important to my parent that they are perfect in everything they attempt.	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	◀ ▶ ▲ ▼ ◀◀
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	◀ ▶ ▲ ▼ ◀◀	7. My parent feels that they are expected to succeed at everything they do by the people around them.	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	◀ ▶ ▲ ▼ ◀◀
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	◀ ▶ ▲ ▼ ◀◀	8. My parent demands nothing less than perfection of him/herself.	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	◀ ▶ ▲ ▼ ◀◀
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	◀ ▶ ▲ ▼ ◀◀	9. My parent cannot stand to see people close to them make mistakes	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	◀ ▶ ▲ ▼ ◀◀
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	◀ ▶ ▲ ▼ ◀◀	10. My parent is perfectionistic in setting goals.	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	◀ ▶ ▲ ▼ ◀◀
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	◀ ▶ ▲ ▼ ◀◀	11. My parent feels that, although they don't show it, other people get upset when they slip up.	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	◀ ▶ ▲ ▼ ◀◀
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	◀ ▶ ▲ ▼ ◀◀	12. My parent thinks their family expects them to be perfect.	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	◀ ▶ ▲ ▼ ◀◀

Strongly Disagree	Disagree	Slightly Disagree	Neutral	Slightly Agree	Agree	Strongly Agree
1	2	3	4	5	6	7

In my opinion
(my mother)...

In my opinion
(my father)...

 ◀ ▶ ▲ ▼ ⏪

13. My parent feels that people expect nothing less than perfection from them.

 ◀ ▶ ▲ ▼ ⏪

 ◀ ▶ ▲ ▼ ⏪

14. My parent sets very high standards for him/herself.

 ◀ ▶ ▲ ▼ ⏪

 ◀ ▶ ▲ ▼ ⏪

15. It does not matter to my parent when a close friend does not try their hardest.

 ◀ ▶ ▲ ▼ ⏪

Section C: Here are some more statements relating to parenting characteristics. On the left-hand scale please mark the number that best describes how much each statement is like your mother. On the right-hand scale mark the number that best describes how much each statement is like your father.

Not Like Him/Her	Sometimes Like Him/Her	A Lot Like Him/Her
1	2	3

My mother is
a person who

My father is
a person who

 ◀

1. Changes the subject whenever I have something to say.

 ◀

 ◀

2. Finishes my sentences whenever I talk.

 ◀

 ◀

3. Often interrupts me.

 ◀

 ◀

4. Acts like she knows what I am thinking or feeling.

 ◀

 ◀

5. Would like to be able to tell me how to feel/think about things all the time.

 ◀

 ◀

6. Always tries to change how I feel or think about things.

 ◀

 ◀

7. Blames me for other family members' problems.

 ◀

Section C: Here is a list of statements that may or may not be true of your parents. After reading each statement carefully, please think of how true each one is for your mother and father. On the left-hand scale please mark the number that best describes how much each statement is like your mother. On the right-hand scale mark the number that best describes how much each statement is like your father.

Not True		Sometimes True	Usually True	Always True
1		2	3	4
Mother				Father
☐	☒	◀ ▶	1. My parent can guess what I would like for a present.	☐ ☒ ▶
☐	☒	◀ ▶	2. My parent has difficulty in understanding how I feel.	☐ ☒ ▶
☐	☒	◀ ▶	3. I can be upset for several days before my parent realises something is wrong.	☐ ☒ ▶
☐	☒	◀ ▶	4. My parent has trouble figuring out what I want.	☐ ☒ ▶
☐	☒	◀ ▶	5. My parent is quick to pick up on my likes and dislikes.	☐ ☒ ▶
☐	☒	◀ ▶	6. My parent feels it is important to know how I feel.	☐ ☒ ▶
☐	☒	◀ ▶	7. When I misbehave, my parent doesn't listen to excuses.	☐ ☒ ▶
☐	☒	◀ ▶	8. My parent thinks that I should be seen and not heard.	☐ ☒ ▶
☐	☒	◀ ▶	9. It hurts my parent when they see a child being punished.	☐ ☒ ▶
☐	☒	◀ ▶	10. My parent is sensitive to slight changes in my mood.	☐ ☒ ▶
☐	☒	◀ ▶	11. When I get upset, my parent finds it difficult to tell if I am sad or just tensed up.	☐ ☒ ▶
☐	☒	◀ ▶	12. My parent does not like to hug and kiss me in public.	☐ ☒ ▶
☐	☒	◀ ▶	13. It hurts my parent when I get a shot/injection from the doctor.	☐ ☒ ▶
☐	☒	◀ ▶	14. My parent likes me to keep my feelings to myself.	☐ ☒ ▶
☐	☒	◀ ▶	15. My parent finds it hard to be in a good mood when I am sad.	☐ ☒ ▶
☐	☒	◀ ▶	16. My parent pays little attention to how I feel.	☐ ☒ ▶
☐	☒	◀ ▶	17. When I am disappointed, my parent feels some of my	☐ ☒ ▶

disappointment.

Thankyou very much for your time!

Appendix F

Study Four Questionnaire

Athlete Questionnaire

Dear Athlete:

Thank you for agreeing to take part in this project. This questionnaire will take you approximately 15 minutes to complete. It concerns your experiences in your sport and your relationship with your parents. The instructions before each section provide information regarding completing the questions, so please read them carefully. Remember, it is important you **answer all the questions**.

1) Gender:  2) Age:

.....


3) Number of years you have been playing your sport:





















































































4) Number of years at your current club:

5) What is the highest level you have played at:

Section A: Listed below are a number of statements concerning personality characteristics in sport. Using the scale below, indicate the extent to which you agree or disagree with each statement by shading the appropriate number.

Strongly Disagree	Disagree	Slightly Disagree	Neutral	Slightly Agree	Agree	Strongly Agree
1	2	3	4	5	6	7

When playing/practising my sport...

- | | | | | | | | |
|--|--------------------------|---|---|---|---|---|---|
| 1. It is not important that the people I am close to are successful. | <input type="checkbox"/> |  |  |  |  |  |  |
| 2. I hardly ever criticise my friends for accepting second best. | <input type="checkbox"/> |  |  |  |  |  |  |
| 3. It doesn't matter when someone close to me does not do their absolute best. | <input type="checkbox"/> |  |  |  |  |  |  |
| 4. I hardly ever feel the need to be perfect. | <input type="checkbox"/> |  |  |  |  |  |  |
| 5. Anything I do that is less than excellent will be seen as poor by those around me | <input type="checkbox"/> |  |  |  |  |  |  |
| 6. It is very important that I am perfect in everything I attempt. | <input type="checkbox"/> |  |  |  |  |  |  |
| 7. The people around me expect me to succeed at everything I do. | <input type="checkbox"/> |  |  |  |  |  |  |
| 8. I demand nothing less than perfection of myself. | <input type="checkbox"/> |  |  |  |  |  |  |
| 9. I cannot stand to see people close to me make mistakes. | <input type="checkbox"/> |  |  |  |  |  |  |
| 10. I am perfectionistic in setting my goals. | <input type="checkbox"/> |  |  |  |  |  |  |
| 11. Although they don't show it, other people get upset with me when I slip up. | <input type="checkbox"/> |  |  |  |  |  |  |
| 12. My family expects me to be perfect. | <input type="checkbox"/> |  |  |  |  |  |  |
| 13. People expect nothing less than perfection from me. | <input type="checkbox"/> |  |  |  |  |  |  |
| 14. I set very high standards for myself. | <input type="checkbox"/> |  |  |  |  |  |  |

15. It does not matter to me when a close friend does not try their hardest.



Section B: Why do you participate in sport? Using the scale below, indicate how much you agree with each reason for participating in your sport by shading the appropriate number.

Does Not Correspond At All		Corresponds Moderately			Corresponds Exactly	
1	2	3	4	5	6	7

I participate in sport . . .

- | | | | | | | | |
|--|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|
| 1. For the pleasure I feel in living exciting experiences. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 2. For the pleasure it gives me to know more about my sport | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 3. For the pleasure of discovering new training techniques. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 4. Because it allows me to be well regarded by people I know. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 5. Because, in my opinion, it is one of the best ways to meet people. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 6. Because I feel a lot of personal satisfaction while mastering certain difficult training techniques. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 7. Because it is absolutely necessary if one wants to be in shape. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 8. For the prestige/honour of being an athlete. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 9. Because it is one of the best ways to develop other aspects of myself. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 10. For the pleasure I feel while improving some of my weak points. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 11. For the excitement I feel when I am really involved in the activity. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 12. Because I must do sport to feel good about myself. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 13. For the satisfaction I experience while I am perfecting my abilities. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 14. Because people around me think it is important to be in shape. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 15. Because it is a good way to learn lots of things which could be useful to me in other areas of my life. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 16. For the intense emotions that I feel while I am doing a sport that I like. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 17. For the pleasure I feel while executing certain difficult movements. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 18. Because I would feel bad if I was not taking time to do it. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 19. To show others how good I am. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 20. For the pleasure that I feel while learning training techniques that I have never tried before. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 21. Because it is one of the best ways to maintain good relationships with my friends. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 22. Because I like the feeling of being totally immersed in the activity. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 23. Because I must do my sport regularly. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 24. For the pleasure of discovering new performance strategies. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |

Appendix G

Study Five Questionnaire

Athlete Questionnaire

Dear Athlete:

This questionnaire will take you approximately 15 minutes to complete. It concerns your experiences in your sport and your relationship with your parents and coach. The instructions before each section provide information regarding completing the questions, so please read them carefully. Remember, it is important you **answer all the questions**.

Section A: Listed below are a variety of thoughts that may pop into your head during practice and competition. Please read each thought and indicate how frequently, if at all, the thoughts have occurred to you over the past week using the scale below.

Not at all	Sometimes	Moderately often	Often	All the time
1	2	3	4	5

During playing/practise I think...

1. Why can't I be perfect?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2. I need to do better.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3. I should be perfect.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4. I should never make the same mistake twice.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5. I've got to keep working on my goals.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
6. I have to be the best.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
7. I should be doing more.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
8. I can't stand to make mistakes.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
9. I have to work hard all the time.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
10. No matter how much I do, it's never enough.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
11. People expect me to be perfect.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
12. I must be efficient at all times.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
13. My goals are very high.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
14. I can always do better, even if things are almost perfect.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
15. I expect to be perfect.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
16. Why can't things be perfect?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
17. My performance has to be superior.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
18. It would be great if everything were perfect.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
19. My performance should be free of errors.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
20. Things are never ideal.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
21. How well am I doing?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

22. I can't do this perfectly. ◀ ▶ ▲
- 23. I certainly have high standards.** ◀ ▶ ▲
24. Maybe I should lower my goals. ◀ ▶ ▲
- 25. I'm too much of a perfectionist.** ◀ ▶ ▲

Section B: What it is like to play on your team? Using the scale below, indicate how much you personally agree or disagree with each statement by marking the appropriate number.

Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
1	2	3	4	5

On this team/At this club...

- 1. The coach gets mad when a player makes a mistake.** ◀ ▶ ▲
2. The coach gives most attention to the best athletes. ◀ ▶ ▲
- 3. Each player contributes in some important way.** ◀ ▶ ▲
4. The coach believes that all of us are crucial to the success of the team/club. ◀ ▶ ▲
- 5. The coach praises players only when they do better than their teammates** ◀ ▶ ▲
6. Players feel good when they have tried their best. ◀ ▶ ▲
- 7. Players are substituted or dropped from the team/club for making mistakes.** ◀ ▶ ▲
8. Players of all skill levels have an important role. ◀ ▶ ▲
- 9. Players help each other to learn.** ◀ ▶ ▲
10. Players are encouraged to outperform their teammates. ◀ ▶ ▲
- 11. The coach has his/her favourites (players/athletes).** ◀ ▶ ▲
12. The coach makes sure that players improve on skills they are not good at. ◀ ▶ ▲
- 13. The coach yells at players for messing up.** ◀ ▶ ▲
14. Players feel successful when they improve. ◀ ▶ ▲
- 15. Only the best players receive praise.** ◀ ▶ ▲
16. Players are punished when they make a mistake. ◀ ▶ ▲
- 17. Each player has an important role.** ◀ ▶ ▲
18. Trying hard is rewarded. ◀ ▶ ▲
- 19. The coach encourages players to help each other to learn.** ◀ ▶ ▲
20. The coach makes it clear who he/she thinks are the best players. ◀ ▶ ▲
- 21. Players really enjoy it when they outperform their teammates.** ◀ ▶ ▲
22. The coach always emphasises trying your best. ◀ ▶ ▲
- 23. Only the top players get noticed by the coach.** ◀ ▶ ▲
24. Players are afraid to make mistakes. ◀ ▶ ▲
- 25. Players are encouraged to work on their weaknesses.** ◀ ▶ ▲
26. The coach favours some players more than others. ◀ ▶ ▲
- 27. The focus is to improve with each game/practice.** ◀ ▶ ▲

28. The players really work together as a team/club.

29. The players help each other to improve.

Section C: The final section requires you to think about your parents' feelings towards your experiences in sport. On the left-hand scale please mark the number that best describes how much each statement is, in your opinion, like your mother/guardian. On the right-hand scale mark the number that best describes how much each statement is, in your opinion, like your father/guardian.

Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
1	2	3	4	5
I feel that my mother			I feel that my father	
<input type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>	1. Is most satisfied when I learn something new in sport	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>	2. Makes me worried about failing in sport.	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>	3. Looks satisfied when I win without effort in sport	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>	4. Makes me worried about failing in sport because it will appear negative in their eyes.	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>	5. Pays special attention to whether I am improving my skills in sport.	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>	6. Says it is important for me to win without trying hard.	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>	7. Encourages me to learn one thing in sport before moving onto the next.	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>	8. Thinks I should achieve a lot in sport without much effort.	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>	9. Believes enjoyment is important in developing new sport skills.	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>	10. Makes me feel bad when I can't do as well as other athletes.	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>	11. Looks completely satisfied when I achieve something without trying hard in sport.	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>	12. Makes me afraid of making mistakes in sport.	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>	13. Tells me I should be satisfied when I achieve in sport without	<input type="checkbox"/>	<input type="checkbox"/>

◀ ▶ ▲

trying hard.

14. Approves of me enjoying myself when trying to learn new skills in sport.

◀ ▶ ▲

◀ ▶ ▲

15. Supports my feelings of enjoyment when developing new sport skills.

◀ ▶ ▲

Strongly Disagree

Disagree

Neutral

Agree

Strongly Agree

1

2

3

4

5

I feel that my mother

◀ ▶ ▲

16. Makes me worried about performing skills I'm not good at.

◀ ▶ ▲

◀ ▶ ▲

17. Encourages me to enjoy learning new sport skills.

◀ ▶ ▲

◀ ▶ ▲

18. Tells me that making mistakes are part of learning in sport.

◀ ▶ ▲

I feel that my father

Thankyou very much for your time!

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