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The Domain Specificity of Perfectionism in Varsity Athletes

by

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Abstract

This study examined the domain-specific nature of perfectionism in the contexts of sport and academe among a sample of 113 female and 142 male intercollegiate varsity student-athletes. Participants completed self-report measures of domain-specific perfectionism, perceived competence (PC), and perceived importance (PI) of success. A repeated-measures MANOVA revealed that, on average, student-athletes had significantly higher levels of perfectionism in sport than in school/academe (all *p*s < .0001). Separate single sample *t*-tests for PC and PI showed the participants had, on average, significantly higher levels of PC and PI in sport than in school (*p*s < .001). Bivariate correlation analyses revealed that, in general, as domain-specific PC and PI increased so too did domain-specific perfectionism. Results reinforce the value of measuring perfectionism as a domain-specific (rather than global) personality disposition, and that perceived competence and perceived importance (i.e., perceived task value) may be associated with the development of domain-specific perfectionism.

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Chapter 1

Introduction

The world of high-performance competitive sport is an ideal achievement domain in which to examine the personality trait of perfectionism because success in high-performance sport typically requires that athletes continually strive to improve performance and achieve the highest possible performance standards. Indeed, anecdotal evidence provided by a number of applied sport psychologists supports the notion that perfectionism may be a defining feature of world-class athletes (see Anshel, 1993; Hardy, Jones, & Gould, 1996; Henschen, 2000). While there is no consensus among theorists and researchers on a specific definition of perfectionism, researchers generally agree that perfectionism is a multidimensional construct (Enns & Cox, 2002), at the core of which lies an individual's tendency to set (and strive for) extremely high personal performance standards (Gilman & Ashby, 2006). Although regarded by some researchers as a strictly dysfunctional or unhealthy personality disposition (e.g., Flett & Hewitt, 2005; Greenspon, 2000; Pacht, 1984), there is a growing body of empirical evidence supporting the view that perfectionism also has positive or healthy benefits for individuals in certain performance settings (see Dunn, Causgrove Dunn, & Syrotuik, 2002; Gould, Dieffenbach, & Moffett, 2002; Stoeber & Otto, 2006).

With the increased attention that researchers have placed upon the study of perfectionism in sport over the last decade (see Stoeber, Uphill, & Hotham, 2009),

inevitable questions about the conceptualization and measurement of the construct have arisen. In particular, researchers have questioned whether perfectionism in sport should be conceptualized and measured as a global personality disposition or as a domain-specific construct. Although recent evidence supports the examination of perfectionism as a domain-specific construct (see Dunn, Gotwals, & Causgrove Dunn, 2005; McArdle, 2010; Shafran, Cooper, & Fairburn, 2002; Stoeber & Stoeber, 2009), relatively little is known about the underlying reason(s) why individuals often report different levels of perfectionism in different achievement environments (e.g., in school vs. sport, or in the home vs. work).

There are two overarching purposes of this thesis; the first main purpose was to further examine the domain-specific nature of perfectionism by comparing levels of perfectionism in the achievement domains of sport and academe among a sample of intercollegiate varsity athletes. The second main purpose of this thesis was to identify and examine constructs (i.e., variables) that may be linked to (or account for) differences in domain-specific perfectionism levels in sport and in school/academe (see Dunn et al., 2005). The specific variables that were investigated in this study were perceived competence and perceived importance.

Review of Literature

Perfectionism

The extant literature has shown that perfectionism has both healthy and unhealthy facets (Stoeber & Otto, 2006). Although it is beyond the scope of this study to examine the functional nature of perfectionism, it is important to provide

some background regarding the healthy vs. unhealthy nature of perfectionism in order to understand the importance of studying this psychological construct in the contexts of sport and academe. Hamachek (1978) was one of the first theorists to formally differentiate between unhealthy and healthy perfectionism, using the terms *neurotic* perfectionism and *normal* perfectionism respectively. According to Hamachek, neurotic perfectionism—or maladaptive/unhealthy perfectionism—is exhibited by individuals who set extremely high standards of personal performance, are highly self-critical, and are motivated by a strong need to avoid failure. In contrast, normal perfectionists—or adaptive/healthy perfectionists—also set very high personal performance standards but are able to accept falling short of these standards because they view mistakes as a natural part of the performance process (Hamachek).

Recently, Stoeber and Otto (2006) attempted to provide more formal definitions of unhealthy and healthy perfectionism. Following a review of 35 empirical studies that provided evidence relating to the healthy vs. unhealthy nature of perfectionism, Stoeber and Otto proposed that unhealthy perfectionists have a combination of high perfectionist strivings (i.e., strive to achieve extremely high performance standards) and high perfectionist concerns (i.e., high concerns about failing to reach high standards and the negative social evaluation that might occur following such failure), whereas healthy perfectionists have a combination of high perfectionist strivings with low perfectionist concerns.

Despite Hamachek's (1978) assertion that perfectionism can have both maladaptive and adaptive functions, the conceptualization of perfectionism as an

exclusively unhealthy or maladaptive personality trait dominated the literature in the 1980's. It is likely that this view of perfectionism as an unhealthy personality disposition was partly based upon the reliance of unidimensional measures of perfectionism that contained items from instruments designed to measure clinical pathologies (e.g., depression). Moreover, the majority of perfectionism research at that time was being conducted with clinical (as opposed to non-clinical) populations (Stoeber & Otto, 2006). Considering the psychopathological characteristics of the populations these instruments were initially designed to measure, it is easy to understand why the view of perfectionism as an unhealthy motivational orientation persisted. Views of perfectionism began to change, however, with the introduction of two measures of perfectionism that shared the same name—the *Multidimensional Perfectionism Scales* (MPS)—that were developed simultaneously (but independently) by Frost, Marten, Lahart and Rosenblate (1990) and Hewitt and Flett (1991).

Frost et al. (1990) and Hewitt and Flett (1991) proposed that perfectionism was comprised of both interpersonal aspects (i.e., judgements about one's own performance based on others' perceptions of the individual *or* judgements of other peoples' performance) and intrapersonal aspects (i.e., judgements about one's own performance based on self-referent standards and expectations). In Frost et al.'s (1990) measure (i.e., the *Frost-MPS*), perfectionism is conceptualized as having six dimensions: *personal standards* (PS), *concern over mistakes* (COM), *parental expectations* (PE), *parental criticism* (PC), *doubts about action* (DAA), and *organization* (O). Personal standards reflects an individual's tendency to set

extremely high personal performance standards and to place excessive value on achieving these high expectations for self-evaluation (Frost et al.). Concern over mistakes refers to an individual's tendency to equate making mistakes with failure, accompanied by a tendency to believe that such failure will result in the loss of respect from others (Frost et al.). The PE and PC dimensions reflect an individual's beliefs about the attitudes and behaviours of parents (Frost & Henderson, 1991). Specifically, parental expectations reflect the extent to which individuals perceive that their parents have elevated performance expectations, and parental criticism refers to the perception of the degree to which parents are overly critical of the individual's performance achievements (Frost & Henderson). Doubts about actions reflect the tendency of individuals to question or doubt the adequacy of their performance endeavours, and organization refers to the perceived importance of orderliness and neatness (Frost et al.). The PE and PC dimensions reflect interpersonal facets, while the PS and O dimensions reflect intrapersonal aspects of perfectionism. The COM and DAA dimensions have both inter- and intra-personal aspects within their items.

Hewitt and Flett's (1991) scale (i.e., the *Hewitt-MPS*) measures three dimensions of perfectionism that are labelled *self-oriented perfectionism* (SOP), *socially prescribed perfectionism* (SPP) and *other-oriented perfectionism* (OOP). Self-oriented perfectionism involves the setting of exceedingly high expectations along with a tendency to be overly critical of one's own performance endeavours. According to Hewitt and Flett, self-oriented perfectionism also involves an important motivational element, which is revealed mainly by an individual's

desire to be perfect along with the need to avoid failure. Socially prescribed perfectionism reflects the perceived need of individuals to meet other people's prescribed performance expectations, and includes their "belief or perception that significant others have unrealistic standards for them, evaluate them stringently, and exert pressure on them to be perfect" (Hewitt & Flett, p.457). Finally, other-oriented perfectionism reflects the high performance expectations (and demands) that individuals hold for (significant) others in the performance environment (Hewitt & Flett). The SPP and OOP dimensions reflect interpersonal aspects of perfectionism and the SOP dimension reflects the intrapersonal aspect of perfectionism.

Not surprisingly, studies that have examined relationships between the subscales of the Frost-MPS and Hewitt-MPS have revealed a fairly high degree of conceptual overlap between the subscales of the two instruments (see Enns & Cox, 2002). For example, in their analysis of Frost-MPS and Hewitt-MPS data provided by 553 undergraduate students, Frost, Heimberg, Holt, Mattia, and Neubauer (1993) found a strong significant positive correlation between the personal standards subscale of the Frost-MPS and the self-oriented perfectionism subscale of the Hewitt-MPS ($r = .62$, $p < .001$). This finding supports the intra-personal nature of both subscales. The parental expectations, parental criticism and concern-over-mistakes subscales of the Frost-MPS had strong significant positive correlations with the socially prescribed perfectionism subscale of the Hewitt-MPS (all rs = .49, all ps < .01). These findings support the inter-personal nature of these subscales. Similar patterns of correlations have been obtained in a

variety of studies (see Enns & Cox, 2002, for a detailed review).

In the nearly twenty years that have passed since the introduction of the Frost-MPS and Hewitt-MPS to the research community, multidimensional conceptualizations of perfectionism have become the dominant view of perfectionism among contemporary perfectionism researchers (Enns & Cox, 2002). More recently, however, debates among researchers have shifted away from the unidimensional vs. multidimensional nature of perfectionism and more towards the global vs. domain-specific nature of the construct (see Shafran et al., 2002). This debate has subsequently influenced the measurement of perfectionism in competitive sport (see Anshel & Eom, 2003; Dunn et al., 2002; 2005; Gotwals & Dunn, 2009; Stoeber, Otto, Pescheck, Becker, & Stoll, 2007) where the domain-specific conceptualization and assessment of perfectionism has gained popularity.

Domain Specificity of Perfectionism

The examination of perfectionism as a domain-specific construct first arose in the social-psychology literature with Mitchelson and Burns' (1998) study of 67 working mothers' self-reported levels of perfectionism at work and at home. Working mothers were defined as women who worked at least 25 hours per week, were married, and had at least one child between the ages of newborn and 8 years old. Mitchelson and Burns used two versions of the Hewitt-MPS, each one modified to contextualize participants' responses to the home setting or workplace setting. Results showed that mean levels of perfectionism at work were

significantly greater than mean levels of perfectionism at home across all three Hewitt-MPS subscales (all *p*s < .001): self-oriented perfectionism (*M* work = 73.1; *M* home = 58.2), socially prescribed perfectionism (*M* work = 52.6; *M* home = 44.8), and other-oriented perfectionism (*M* work = 61.0; *M* home = 51.6).

In a more recent follow-up study, Mitchelson (2009) examined differences in domain-specific levels of perfectionism among a sample of 288 adults (women and men) who had workplace and family responsibilities. Mitchelson used a domain-specific version of the Almost Perfect Scale (APS: Slaney, Rice, Mobley, Trippi, & Ashby, 2001) to measure perfectionist orientations at work and at home. Consistent with findings reported in Mitchelson and Burns' (1998) study, results supported a domain-specific view of perfectionism, although unlike the previous study with working mothers, participants reported significantly higher perfectionist standards at home (*M* = 5.33) than in the workplace (*M* = 5.18), as well as higher discrepancies between desired perfectionist standards and behaviours at home (*M* = 3.52) than at work (*M* = 3.19) (*p*s < .01). Mitchelson concluded that these results provided further support "for a domain specificity effect for perfectionism" (p. 356).

Dunn et al. (2005) also extended the original work of Mitchelson and Burns (1998) by examining the "cross-situational consistency of multidimensional perfectionism levels" (Dunn et al., p. 1444) in the contexts of sport and school/academe among a sample of 133 male and 108 female intercollegiate student athletes. Using similar methods to those adopted by Mitchelson and Burns, Dunn et al. employed an un-altered version of the original Hewitt-MPS (to

measure perfectionism as a global personality disposition) and two modified versions of the instrument to measure perfectionism levels in the contexts of sport and school. A repeated-measures MANOVA (conducted separately on male and female data) showed that athletes from both sexes scored significantly higher on all three dimensions of perfectionism (i.e., SOP, SPP, OOP) in sport than in school and general life settings. Dunn et al. concluded that the levels of perfectionism reported by the student-athletes were "influenced by the situational context within which perfectionist orientations are considered" (p.1444).

The domain-specific nature of perfectionism discussed by Mitchelson and Burns (1998) and Dunn et al. (2005) has been echoed in other perfectionism research. For example, Slaney and Ashby (1996) conducted a qualitative study to examine experiences of perfectionists from the general population (rather than those from clinical populations). The researchers interviewed 37 participants (21 women and 16 men; *M* age = 28.37 years) who considered themselves to be perfectionists or who were referred to the researchers (by people close to the participants) based on their perfectionist tendencies. When asked by the interviewer if they viewed themselves as being perfectionists, one third of the respondents qualified their answers by indicating that they were perfectionists, but only in certain areas of their lives. In a more recent study, Stoeber and Stoeber (2009) also found evidence supporting the domain-specific nature of perfectionism. Using modified versions of the self-oriented perfectionism and socially prescribed perfectionism subscales of the Hewitt-MPS, Stoeber and Stoeber asked samples of university undergraduates (*n* = 109) and individuals

from six internet websites (n = 289) to rate their perfectionism levels in a variety of life settings. Results from both samples showed that individuals tended to be more perfectionistic in work and academic settings in comparison to a host of other life settings including (but not limited to) physical appearance, social relationships, spelling, and bodily hygiene.

Further evidence supporting a domain-specific view of perfectionism can be found in the sport psychology literature where several independent groups of researchers have developed and employed sport-specific measures of perfectionism (e.g., Dunn et al., 2002; Stoeber et al., 2007). For example, Dunn et al. developed the Sport Multidimensional Perfectionism Scale (Sport-MPS) that measures four domain-specific dimensions of perfectionism in sport: *personal standards* (PS), *concern over mistakes* (COM), *perceived parental pressure* (PPP), and *perceived coach pressure* (PCP). Although the PS, COM, and PPP subscales are derived from subscales contained within the Frost-MPS (Frost et al., 1990), the PCP subscale was developed as a domain-specific component of Hewitt and Flett's (1991) socially prescribed perfectionism dimension (see Dunn, Causgrove Dunn, Gotwals, Vallance, Craft, & Syrotuik, 2006). Interestingly, in an independent study involving 384 university undergraduates who had participated in high school and/or intercollegiate varsity sport, Anshel and Eom (2003) also identified (on the basis of factor analytic results) a "coach criticism" dimension of perfectionism in sport.

The use of domain-specific vs. global measures of perfectionism in sport has also provided evidence supporting potential benefits of employing a domain-

specific approach when measuring perfectionism among athletes. For example, in a recent study of 181 male intercollegiate ice hockey players, Gotwals, Dunn, Causgrove Dunn, and Gamache (in press) found that an updated version of the Sport-MPS (i.e., the Sport-MPS-2: Gotwals & Dunn, 2009) was more effective than a global measure of perfectionism—the Frost-MPS (Frost et al., 1990)—in identifying links between healthy perfectionism and competitive trait anxiety. Gotwals et al. (in press) reported that both the Sport-MPS-2 and Frost-MPS were equally capable of identifying anticipated links between unhealthy perfectionism and heightened competitive trait anxiety, but only the Sport-MPS-2 shed light on theorized links between healthy perfectionism and lower competitive trait anxiety.

In another study that utilized both domain-specific and global measures of perfectionism (i.e., the Sport-MPS and Hewitt-MPS respectively), Dunn, Craft, Causgrove Dunn, and Gotwals (in press) found that the Sport-MPS was a more powerful predictor of attitudinal body image (than the Hewitt-MPS) among a sample of 123 competitive female figure skaters. Dunn et al. used hierarchical regression analyses to determine if the Sport-MPS subscales explained unique variance in attitudinal body image beyond that which was explained by the subscales of the Hewitt-MPS. Dunn et al. also reversed the entry order of the predictor variables to determine if the Hewitt-MPS subscales explained variance in attitudinal body image beyond that which was explained by the Sport-MPS. When Sport-MPS subscales were entered after the Hewitt-MPS subscales, significant amounts of additional variance were explained for four of the six attitudinal body image variables that were examined. In contrast, when the

Hewitt-MPS subscales were entered after the Sport-MPS subscales, no significant amounts of additional variance were accounted for in any of the six attitudinal body image variables. Dunn et al. concluded that their results highlighted a potential advantage of measuring perfectionism in sport with a domain-specific rather than a global measure of perfectionism.

Although the results of the aforementioned studies support the domain-specific measurement and conceptualization of perfectionism, reasons why perfectionism levels often differ across achievement domains (see Anshel & Eom, 2003; Dunn et al., 2002; Dunn et al., 2005) has received relatively little attention from researchers. Two variables that are believed to play a role in the development of domain-specific perfectionism levels are perceived competence and perceived importance (or perceived task value).

Dunn et al. (2005) speculated that the intercollegiate athletes in their study reported higher perfectionism levels in sport than in school because there may have been differences in levels of domain-specific perceived competence and in the extent to which participants valued success in sport and school. Dunn et al. proposed that the student-athletes in their study may have developed higher perfectionist tendencies in sport than in the classroom because they had higher levels of perceived competence in sport than in the classroom. This proposition conforms with the theoretical views of Flett, Hewitt, Oliver, and Macdonald (2002) who have argued that the "tendency to be a self-oriented perfectionist would be especially irrational if a person has had no realistic possibility of attaining [perfection in a given domain]" and that "perfectionists will be most

likely to strive for personal goals of perfectionism in areas that involve feelings of competence and foster the sense that perfectionism is possible" (p. 111).

Dunn et al. (2005) also speculated that the intercollegiate student-athletes in their study may have valued success in sport more than they valued success in the classroom, which again may have caused the student-athletes to develop stronger perfectionist tendencies in sport. This speculation conforms with the theoretical views proposed by Shafran et al. (2002) who argued that "People with perfectionism have high standards in domains of life that have personal significance but not in domains of little or no personal relevance" (p. 779). Unfortunately, Dunn et al. did not take measures of perceived competence and perceived task/domain value in their study, therefore validation of their speculative hypotheses was not possible. However, a very recent study by McArdle (2010) provides initial support for the theorized links between perceived competence, perceived importance, and domain-specific perfectionism proposed by Dunn et al.

McArdle (2010) conducted a study examining the relationship between domain-specific perfectionism, perceived competence, and perceived task value among a sample of 187 academically talented youth (*M* age = 14.68 years, *SD* = 1.08) who were attending residential academic summer-camps at an Irish university. McArdle followed similar protocols adopted by Mitchelson and Burns (1998), Dunn et al. (2005) and Mitchelson (2009), by providing two domain specific versions of a perfectionism measure (the Frost-MPS) that were contextually modified to measure perfectionism in either school or sport. In order

to measure domain-specific perceived competence and perceived task value, McArdle employed scales based on the work of Fredricks and Eccles (2002) and Eccles (1984) respectively, both of which were also contextually modified to measure perceived competence or perceived task value in school or sport. McArdle found that the academically talented youth reported significantly higher levels of perfectionism in the school domain as compared to the sport domain (*p*s < .001). Furthermore, McArdle reported significant positive correlations between domain-specific perfectionism, perceived competence, and perceived task value. As domain-specific levels of perceived competence increased, so too did levels of perfectionism in the corresponding domain (r_{school} = .17, p < .05; r_{sport} = .47, p < .01). Similarly, as domain-specific levels of perceived task value increased, so too did levels of perfectionism in the corresponding domain (r_{school} = .25, p < .01; r_{sport} = .60, p < .01). McArdle's results appear to corroborate the speculative hypothesis put forward by Dunn et al. (2005) that domain-specific levels of perfectionism in sport and school may be a function of (a) the levels of perceived competence that student-athletes have in sport and school, and (b) the degree to which student-athletes value success in the domains of sport and school.

Perceived Competence and Perceived Importance

Perceived competence (defined as an individual's beliefs in his or her ability to succeed in a specific domain [or area] of life [Ferrer-Caja & Weiss, 2000]) and/or perceived task value (defined as the value an individual assigns to a

task or outcome within a specific domain [or area] of life, or to the domain itself [Eccles, Wigfield, Harold, & Blumenfeld, 1993]) play central roles in a number of theories surrounding human motivation including Harter's (1978) *Competence Motivation Theory*, Eccles et al.'s (1983) *Expectancy Value model of achievement behaviour*, Deci and Ryan's (1985) *Self Determination Theory*, Harter's (1987) *Mediational Model of Global Self-Worth*, Nicholls' (1989) *Achievement Goal Theory*, and Bandura's (1986, 1997) *Self-Efficacy Theory*. Although each of these theories has unique characteristics that describe the process of human motivation via perceptions of competence/ability, these theories are founded upon the premise that human beings have an intrinsic desire (or need) to feel competent, to demonstrate competence, to avoid feelings of incompetence, and to avoid demonstrating low competence.

Each of these aforementioned theories either directly or indirectly propose that individuals' perceptions of competence in a particular achievement domain, and the degree to which people place importance on being successful in that domain, influences domain-specific cognition, affect, and motivation. Although none of these theories specifically identifies the potential role that perceived competence and perceived task value may play in the development of perfectionist orientations, it seems reasonable to suggest that perfectionism—which by definition is an achievement motivational construct (see Dunn et al., 2002)—may be influenced by these factors. Indeed, according to Blatt (1995), avoiding the demonstration of low competence is a central feature of unhealthy perfectionism because unhealthy perfectionists have a strong need "to avoid

possible public criticism and the appearance of defect" (p. 1005) and a strong "need to maintain a persona and public image of strength and perfection" (p. 1005).

Harter's (1978) competence motivation theory proposes that in an effort to develop competence in a valued achievement domain, an individual will engage in mastery attempts in that domain. If/when mastery is achieved, this leads to heightened self-perceptions of competence (and control), which in turn can foster motivation (i.e., the desire) for future engagement in activities in that domain. Continuing with this process, Harter's (1987) mediational model of global self-worth proposes that heightened feelings of competence in a valued domain can then lead to improvement of one's sense of global self-worth. Similarly, in Eccles et al.'s (1983) expectancy value model, success (which leads to heightened perceived competence) in a valued domain validates or reinforces an individual's desired self-schema or identity (e.g., "I am a competent/successful athlete." "I am a competent/successful student."). In other words, the greater the degree to which an individual attaches personal importance on being successful in a particular achievement domain, the greater the extent to which the individual has "aspects of one's self-identity" (Weiss & Williams, 2004, p. 241) confirmed when success is achieved. This performance-contingent reinforcement of one's identity is closely linked to perfectionism. Indeed, McArdle (2010) found strong significant positive correlations ($ps < .001$) between domain-specific contingent self-worth (e.g., "My self-worth is influenced by my academic/sport performance") and domain-specific perfectionism in both school ($r = .53$) and sport settings ($r = .75$) among

academically talented youth.

Greenspon (2008) posits that "perfectionism is in its essence an issue of self-esteem" (p. 269)—where self esteem is defined as the level of self regard a person has for him/herself as a person (Harter, 1993). Moreover, the extant literature has clearly demonstrated that people who have heightened perceived competence (or self-efficacy in a particular domain: Bandura [1986]) or who experience success in various activities have a tendency to have heightened self-esteem (in comparison to people who have lower perceived competence or who experience failure: see Hewitt, 2002). Therefore, if "self-esteem is determined by a combination of a person's perceptions of competence in a particular domain and the importance to the individual of competence in that domain" (Fry, 2001, p. 70), then it would seem reasonable to speculate that an individual's domain-specific perfectionist tendencies will also be influenced by the extent to which the individual expects and values success in that domain.

A key premise of Nicholls' (1989) achievement goal theory is that "individuals are motivated to demonstrate high ability and avoid demonstrating low ability" (Weiss & Williams, 2004, p. 246). According to achievement goal theory, individuals have two (independent) achievement goal orientations—namely, task orientation and ego orientation—that can have adaptive or maladaptive influences on individuals' achievement behaviours. Task orientation reflects the degree to which individuals judge success (and evaluate personal competence) on the basis of self-referenced performance/mastery of a task, whereas ego orientation reflects the degree to which individuals judge success and

competence on the basis of norm-referenced comparisons to others' performances in the same achievement domain (Nicholls). All things being equal, high task orientations are typically associated with adaptive functioning, and high ego orientations are more likely to be associated with maladaptive functioning (Reinboth & Duda, 2004).

Achievement goal theory predicts that levels of perceived ability/competence will influence a person's motivated behaviour via the individual's achievement goal orientations. Regardless of a person's goal orientation (i.e., task- or ego-orientation), achievement goal theory (Nicholls, 1989) predicts that individuals with high perceived competence will adopt adaptive achievement behaviours towards accomplishing a specific task (e.g., approach the task and give maximal effort) because success is anticipated; as such, both task- and ego-oriented individuals are unafraid of demonstrating low competence (irrespective of how competence is evaluated). In contrast, however, strongly ego-oriented individuals with low perceived competence are likely to engage in maladaptive achievement behaviours towards a task (e.g., avoid the task or publicly display low effort) because this protects them against having onlookers accurately assess their levels of (low) competence (Roberts, 1992).

Given that unhealthy perfectionist orientations have been linked to strong ego orientations in sport (see Dunn et al., 2002; Hall, Kerr, & Matthews, 1998), and that healthy perfectionist orientations have been linked to strong task orientations in sport (see Dunn et al., 2002), it is possible that perceived competence is linked to athletes' perfectionist orientations by way of its

relationship to athletes' achievement goal orientations. If Greenspon (2008) is correct in his assertion that "perfectionism reflects a desire for acceptance", and if being good at a valued activity is linked with heightened popularity (see Causgrove Dunn, Dunn, & Bayduza, 2007), then increased competence may be a vehicle for perfectionists to achieve their goal of acceptance, which in turn, may increase or reinforce their perfectionist tendencies in a specific achievement domain.

Deci and Ryan's (1985) cognitive evaluation theory—a subset of self determination theory—also provides a useful theoretical framework for explaining why/how perceived competence and perceived task value (i.e., perceived importance) may be associated with perfectionist tendencies. According to cognitive evaluation theory, competence—or more specifically, the need to feel competent—is a fundamental psychological need of human beings. Individuals who are amotivated in a particular achievement/behavioural setting—i.e., those who lack any intention to act (Ryan & Deci, 2000)—typically place little or no value on the activity in question (Ryan, 1995) and/or feel unable to demonstrate any degree of competence in that setting (Bandura, 1986). In contrast, individuals who are highly motivated to achieve in a particular achievement domain would be expected to place a high level of value on the activity (Ryan & Deci) and/or believe themselves capable of demonstrating high levels of competence that will lead to the attainment of the desired achievement goal (Hall & Kerr, 1998). Given that perfectionists set and strive for extremely high personal standards of performance (Gilman & Ashby, 2006) it would seem paradoxical (or counter-

productive) for individuals to set high performance standards in achievement domains that are not valued and/or where success is not anticipated. Consequently, it seems reasonable to suggest that perfectionism levels (especially intra-individual perfectionist orientations like personal standards or self-oriented perfectionism) will be strongest in achievement domains that are highly valued and/or where the individual has the greatest opportunity to demonstrate high ability (see Flett et al., 2002). Stated differently, perfectionists may be inclined to feel that they will have the best opportunity of receiving the desired (performance-contingent) social approval (which, in turn, provides a boost to his/her self-esteem) in achievement settings where success is both expected and valued.

Bandura's self-efficacy theory (1986, 1997) may also be helpful in explaining the potential role that heightened perceived competence plays in the development of domain-specific perfectionist orientations. Self-efficacy refers to a type of situationally-specific self-confidence, and is defined as "beliefs in one's capabilities to organize and execute the courses of action required to produce given attainments" (Bandura, 1997, p. 3). Accordingly, self-efficacy is a form of perceived competence that is highly susceptible to change from one situation/ domain (e.g., school) to another (e.g., sport: Whaley, 2004). Given that an individual's efficacy beliefs "relate to the level of performance expected and the strength or certainty of those attainment beliefs" (Standage & Duda, 2004, p.362), individuals with high efficacious beliefs in a particular domain may be inclined to pursue more challenging tasks within that domain, which in turn may influence

the perfectionist standards that individuals set for themselves within that achievement domain.

Purpose and Hypotheses

Clearly there are numerous motivational theories that can be used to help explain the potential influence that domain-specific competence and domain-specific task value may have upon the development of domain-specific perfectionism. Nonetheless, more empirical evidence supporting the theorized relationships between these constructs is required before any/all of the aforementioned theories can be used to explain the roles that perceived competence and perceived task value may play in the development of domain-specific perfectionism. With the notable exception of McArdle's (2010) study of academically talented youth, research in this area is scarce.

It is worth reinforcing that McArdle's (2010) study was conducted with adolescents (*M* age = 14.68 years), therefore the degree to which her results are generalizable to older (adult) individuals is unknown. Addressing this issue is especially important on two counts. First, there has been some speculation in the literature that the salience of certain interpersonal dimensions of perfectionism may change with age (see Dunn, Gotwals, Causgrove Dunn, & Syrotuik, 2006) as the influence of parents becomes less when adolescents mature into young adults. Second, Flett et al. (2002) have asserted that perfectionist orientations continue to evolve during adolescence, and that "the impact of socially prescribed pressures to be perfect are magnified substantially during adolescence, when social

evaluations become increasingly important" (p. 115). If certain perfectionist orientations do indeed change as function of age (as do perceptions of competence and task value: Eccles et al., 1993), then it is important to determine if the relationships between perceived competence, perceived importance, and domain-specific perfectionism (as identified by McArdle) hold up across different age groups. Moreover, the generalizability of McArdle's findings is somewhat undermined by the fact that a unidimensional conceptualization of perfectionism was adopted (i.e., perfectionism was represented by a single composite score on the Frost-MPS), yet the contemporary view of the construct is that perfectionism is multidimensional (Hewitt & Flett, 1991). As such, links between perceived competence, perceived importance and specific dimensions of perfectionism remain unknown.

The general purposes of this study were to (a) explore the domain-specific nature of perfectionism in sport vs. school among intercollegiate student-athletes, and (b) examine potential underlying factors that may be linked to domain-specific perfectionism levels. More specifically, the first purpose of this study was to replicate the work of Dunn et al. (2005) by determining if male and female intercollegiate varsity athletes have different perfectionism levels in sport vs. school/academe. Given the previous findings reported by Dunn et al., it was hypothesized that varsity athletes (on average) would report higher perfectionism levels in sport than in school. The second purpose of this study was to explore the relationships between perceived competence (PC), perceived importance (PI) and domain-specific levels of perfectionism in sport and school. It was hypothesized

that varsity athletes (on average) would report higher PC and PI in sport than in school (if they reported higher perfectionist tendencies in sport than in school). It was also hypothesized that as PC and PI levels in sport increased, so too would levels of sport perfectionism. Similarly, it was hypothesized that as PC and PI levels in school increased, so too would levels of school perfectionism.

Chapter 2

Method

Participants

Participants were 113 female and 142 male university varsity student-athletes (from 11 teams) who attended a Western Canadian university. To replicate the characteristics of the sample used by Dunn et al. (2005), athletes competing in the team sports of soccer (n = 47), basketball (n = 25), volleyball (n = 29), field hockey (n = 21), rugby (n = 31), ice hockey (n = 40), and Canadian football (n = 62) were sampled. Players ranged in age from 17.75 to 27.92 years (M = 20.97; SD = 2.18), and had competed at the varsity level for an average of 2.40 years (SD = 1.40). The ethnic/racial background of the sample consisted of 231 White, 9 Black, 3 Asian, 2 Hispanic, and 10 "other."

The expectation for intercollegiate sporting success at the university from which the participants were recruited was very high. All 11 teams that were sampled in this study advanced from their regular season schedules to compete in their respective conference play offs, with five of these teams advancing to compete at their respective national championships. Only three of the 11 teams were not ranked in the national top-10 at the time of data collection. Moreover, the university from which the teams were sampled was ranked in the top-3 for the most national championships won in Canadian Intercollegiate Sport (CIS) in the last 5 years and was therefore considered to have one of the premier CIS varsity athletic programs in the country. It should be noted, however, that the university was also ranked in

the top-3 for the most "Academic All Canadians" in Canadian Intercollegiate Sport over the last 5 years—where Academic All Canadian status is awarded to varsity athletes who achieve an average of 80% or better across all subjects during the academic year. As such, the university athletics program from which the current sample of athletes was selected was also known for its academic excellence in addition to its sporting excellence.

Measures

Participants completed four self-report instruments: (1) a demographic questionnaire, (2) a sport-version and a school-version of the *Hewitt-Multidimensional Perfectionism Scale* (Hewitt-MPS: Hewitt & Flett, 1991), and (3) a newly developed instrument that was named, the *Perceptions of School and Sport Questionnaire* (PSSQ).

Demographic questionnaire. The demographic questionnaire (see Appendix 1) requested information relating to the athletes' age, racial/ethnic background, student status (e.g., undergraduate, graduate, etc.), sport, and playing experiences (e.g., years experience, regular playing position, etc.).

Perfectionism. Following the same measurement procedures adopted by Dunn et al. (2005), two domain-specific versions of the Hewitt-MPS (Hewitt & Flett, 1991) were used in this study. One version of the instrument asked participants to rate their perfectionism levels in the context of sport (e.g., "In sport, one of my goals is to be perfect in everything I do.") and the other version asked participants to rate their perfectionism levels in the context of school/academe (e.g.,

"In school, one of my goals is to be perfect in everything I do."). Each version of the instrument contains 45-items that are equally distributed across three subscales: Self-Oriented Perfectionism (SOP: SOP.Sport/School), Socially Prescribed Perfectionism (SPP: SPP.Sport/School) and Other-Oriented Perfectionism (OOP: OOP.Sport/School).

On a 7-point scale (1 = *strongly disagree*; 7 = *strongly agree*) participants are asked to indicate the degree to which each item reflects their "personal characteristics and traits." A total of 18 items are reverse scored, whereupon composite subscale scores are computed, with higher scores reflecting higher levels of perfectionism. The Hewitt-MPS has been successfully used in a number of studies with athletes (e.g., Appleton, Hall, & Hill, 2009; Dunn et al., in press; Hill, Hall, Appleton, & Kozub, 2008) and has consistently demonstrated acceptable levels of internal consistency (i.e., α's > .70) across all three subscales. Indeed, Dunn et al. (2005) reported internal consistency levels (α) > .78 across all three subscales of the same sport- and school-versions of the Hewitt-MPS (that were to be used in this study) for male and female intercollegiate athletes. A comprehensive review of the validity and reliability characteristics of the original Hewitt-MPS is provided by Enns and Cox (2002).

Perceived competence and perceived importance. Perceived competence (PC) and perceived importance (PI) were measured by the newly constructed *Perceptions of School and Sport Questionnaire* (PSSQ: see Appendix 2). The instrument contains a total of 12 items: six measuring PC and six measuring PI. The format of each item requires respondents to make a comparative judgement (on

a 7-point scale: 1 = *strongly disagree*, 4 = *neither agree nor disagree*, 7 = *strongly agree*) about (a) their perceived competence in sport vs. school, or (b) the extent to which they view success in sport vs. school as being important. Five items are reverse scored whereupon mean item subscale scores > 4.0 reflect (a) higher PC in sport than school, or (b) higher PI in sport than school. In contrast, mean item subscale scores < 4.0 reflect higher PC in school than sport, or higher PI in school than sport. Based on examination of the extant literature, operational definitions for PC and PI were developed for the purpose of this study. Perceived competence was defined as *an individual's beliefs in his or her ability to succeed in a specific domain (or area) of life* (cf. Ferrer-Caja & Weiss, 2000) and PI was defined as *the value an individual assigns to a task or outcome within a specific domain (or area) of life, or to the domain itself* (cf. Eccles et al., 1993).

Procedure

Phase 1: PSSQ item development. Given that the PSSQ is a newly constructed instrument with no previously established psychometric characteristics, a panel of eight expert judges was asked to assess the content relevance of all the items prior to their inclusion in the inventory. Item content relevance refers to how well the content of an item represents the construct that the item is intended to measure (Dunn, Bouffard, & Rogers, 1999). "Content-relevance is an important source of validity information relating to content validity" (Dunn et al., 1999, p. 16) and its assessment is an important preliminary step in the scale construction process (Messick, 1989).

All of the judges who comprised the expert panel had a PhD, were full-time tenure-track professors at Canadian universities, and had published research in the peer-reviewed sport- or exercise-psychology literature. Judges received the content relevance questionnaire (see Appendix 3) by e-mail. The instrument was divided into three sections. Part 1 contained a brief demographic questionnaire (to assess basic characteristics of the judges, such as gender, level of education and social science expertise). Part 2 contained the construct definitions for perceived competence and perceived importance (as described on the previous page), and a list containing the 12 items. Part 3 asked the judges to rate the degree of fit (or match) between each of the 12 items and the two constructs that the instrument was designed to measure: namely, perceived competence and perceived value/importance. Ratings were made on a 5-point scale ranging from 1 (*poor fit*) to 5 (*excellent fit*), after which a space was provided for any written comments about the item.

Figure 1 provides an illustration of the rating format for one item. Judges were not informed as to the intended domain/construct that each item was designed to measure, thereby ensuring that the judges' ratings were not biased by the item-constructor's views regarding anticipated matches between items and the constructs they were intended to measure (see Dunn et al., 1999).

Phase 2: Athlete data collection. Once the item content-relevance of the PSSQ had been established (see Results section) and approval to conduct the main aspect of the research had been obtained from the Human Research Ethics Board of the research institution, head coaches of respective teams were contacted

I have more ability as an athlete than I do as a student in school.

Construct	Poor fit	Fair fit	Good fit	Very good fit	Excellent fit
Perceived Competence	1	2	3	4	5
Perceived Importance	1	2	3	4	5

Comments about item content or structure:

Figure 1. Example of the rating format for one item in the content-relevance questionnaire.

via an information letter (sent by e-mail: see Appendix 4) and then by follow-up phone calls seeking permission to conduct the study with their athletes. Upon receiving permission, data collection with athletes was scheduled to take place in classrooms, dressing rooms, or practice facilities at convenient times on non-competition days during the latter half of each team's respective regular season. Information letters (see Appendix 5) and consent forms (see Appendix 6) were given to athletes prior to data collection.

At the time of data collection an opportunity was provided for participants to ask questions or voice concerns prior to the distribution of questionnaire packages. Athletes were informed verbally that if they did not wish to participate, they could still complete the questionnaires but their data would be destroyed and not included in the study, and that they may leave the testing location at any time (without consequence). All athletes in attendance chose to complete the questionnaires.

The presentation order of the sport- and school-perfectionism measures was counterbalanced in order to minimize any possible presentation order effect; the

two perfectionism measures were always administered before the PSSQ. Coaches were not present during data collection. Athletes took approximately 25 minutes to complete the package of instruments.

Chapter 3

Results

Phase 1: Assessing Content Relevance of PSSQ Items

During the item construction phase of the PSSQ, assessment protocols described by Dunn et al. (1999) were used to determine the level of content-relevance for each of the newly constructed items. Content-relevance ratings for each item (on the intended/keyed domain) were assessed using Aiken's (1985) content validity coefficient (*V*). This coefficient statistically assesses the degree to which an item appears to be a "valid measure of whatever it is supposed to measure" (Aiken, p 132). A statistically significant *V* coefficient indicates that, on average, the panel of judges view the corresponding item's content as being highly relevant to the construct (i.e., domain) that it was intended to measure (and that the mean rating provided by the judges was higher than would be expected by chance).

Table 1 shows the Aiken's *V* value for each of the items (on the keyed domain) and corresponding levels of statistical significance. All of the items had statistically significant *V* coefficients (*p*s < .05), with the exception of items 3 and 11 which were not significant. Although items 3 and 11 were the only two items to have mean ratings < 4.0 (where 4 = "*very good fit*"), their mean ratings still suggested a "good fit" on their intended domains (Item 3, *M* = 3.63; Item 11, *M* = 3.25).

Table 1

Aiken's V, Means, Standard Deviations, Mean Differences, and Dependent t-tests for Judges' Content-Relevance Ratings of Perceived Importance and Perceived Competence Items

			Judges' ratings						
			Competence		Importance		Univariate statistics		
Item	*V*	*p*	*M*	*SD*	*M*	*SD*	M_{diff}	*t*	*p*
1.	0.875	<.01	**4.50**	0.53	1.00	0.00	3.50	18.52	<.001
2.	0.938	<.01	1.13	0.35	**4.75**	0.46	-3.60	-19.81	<.001
3.	0.656	*ns*	1.63	1.18	**3.63**	1.41	-2.00	-2.43	<.005
4.	0.781	<.05	**4.12**	0.83	1.00	0.00	3.13	10.59	<.001
5.	0.875	<.01	1.38	0.74	**4.50**	0.76	-3.13	-7.09	<.001
6.	0.797	<.05	**4.19**	0.75	1.00	0.00	3.19	11.97	<.001
7.	0.938	<.01	1.38	0.52	**4.75**	0.46	-3.38	-10.42	<.001
8.	0.969	<.01	**4.88**	0.35	1.00	0.00	3.88	31.00	<.001
9.	0.750	<.05	1.75	1.16	**4.00**	0.53	-2.25	-4.28	<.001
10.	0.906	<.01	**4.63**	0.74	1.25	0.71	3.38	6.78	<.001
11.	0.563	*ns*	2.00	1.07	**3.25**	1.58	-1.25	-1.72	=.129
12.	0.781	<.05	**4.13**	1.12	1.50	0.93	2.63	3.72	<.001

Note. The mean rating on the keyed domain for each item has been highlighted in bold.

The mean PC and PI content relevance ratings for each item were also compared using dependent *t*-tests (with Bonferroni corrections) to ensure that each item had a higher rating (i.e., better fit) on its intended domain (i.e., PC or PI). As seen in Table 1, all items had significantly higher mean ratings on their intended/keyed domain (*p*s < .005) with the exception of Item 11. Given the

problems that appear to be associated with Item 11 (as rated by the expert judges), this item was removed from the PSSQ and was replaced with the following item: "*It is more important to me to be known as one of the best athletes on my team than one of the smartest students in my classes*." The content-relevance of this new item was not assessed prior to its inclusion in the PSSQ due to time constraints for the pending data collection periods that had been scheduled with the athletes.

Preliminary Data Analysis for Phase 2

Of the 765 instruments that were completed by student-athletes (i.e., 255 participants each completing the two versions of the Hewitt-MPS and the PSSQ), there were only 48 missing data points (from 42 participants) out of a possible 26,010 responses (i.e., 0.18% missing data). In order to deal with the missing data points, a mean item score computed from the remaining items of the corresponding subscale (to which the missing item belonged) for each individual was entered as the replacement value (see Gotwals et al., in press).

As noted previously, the PSSQ is a newly constructed instrument. Therefore, it was necessary to examine the latent structure of the instrument prior to creating composite subscale scores (that would be used in subsequent data analyses). For this purpose, PSSQ data were subjected to an exploratory factor analysis. Given that more reliable factor analytic results are obtained with larger sample sizes (i.e., the correlation matrix to be analysed becomes more stable as sample size increases), it was considered most desirable to conduct the factor analysis upon the combined PSSQ data set provided by both male and female

athletes. However, prior to combining the male and female responses, it was necessary to ensure that the covariance matrices of both PSSQ data sets were homogeneous. To this end, a Box's *M* test was conducted to determine if the covariance matrices for male and female responses on the 12 PSSQ items were indeed homogeneous.

Tabachnick and Fidell (1996) note that Box's *M* is a "notoriously sensitive test of homogeneity of covariance matrices" (p. 382) and recommend that a significance level of $p < .001$ be employed for significance-testing purposes. Using this criterion, the current test was deemed to be non-significant (Box's $M = 125.109$, F [78, 182362.4] = 1.523, $p = .002$). Therefore, the covariance matrices were deemed to be homogeneous and male and female PSSQ responses were subsequently combined into a single data set ($N = 255$) for factor analytic purposes.

The correlation matrix of the male and female PSSQ responses was examined using a Principal Axes exploratory factor analysis (EFA). Prior to conducting the EFA, items 2, 4, 5, 8, and 12 were reverse scored in order to ensure that all scores > 4 reflected greater PC or PI in sport, and all scores < 4 reflected greater PC or PI in school. In accordance with the recommendations of several groups of psychometricians (i.e., Fabrigar, Wegener, MacCallum, & Strahan, 1999; Preacher & MacCallum, 2003; Velicer, Eaton, & Fava, 2000), a combination of Cattell's (1978) scree-test criteria and Lautenschlager's (1989) parallel analysis was used to determine the number of factors. As seen in Figure 2, the scree plot clearly indicated the retention of two factors. Parallel analysis results (see Table 2) also indicated the retention of two factors (i.e., the eigenvalues associated with the first

two factors extracted by the EFA exceeded the corresponding parallel analysis eigenvalues generated with random data: see Lautenschlager, 1989, for a related discussion). The 2-factor solution was subsequently retained.

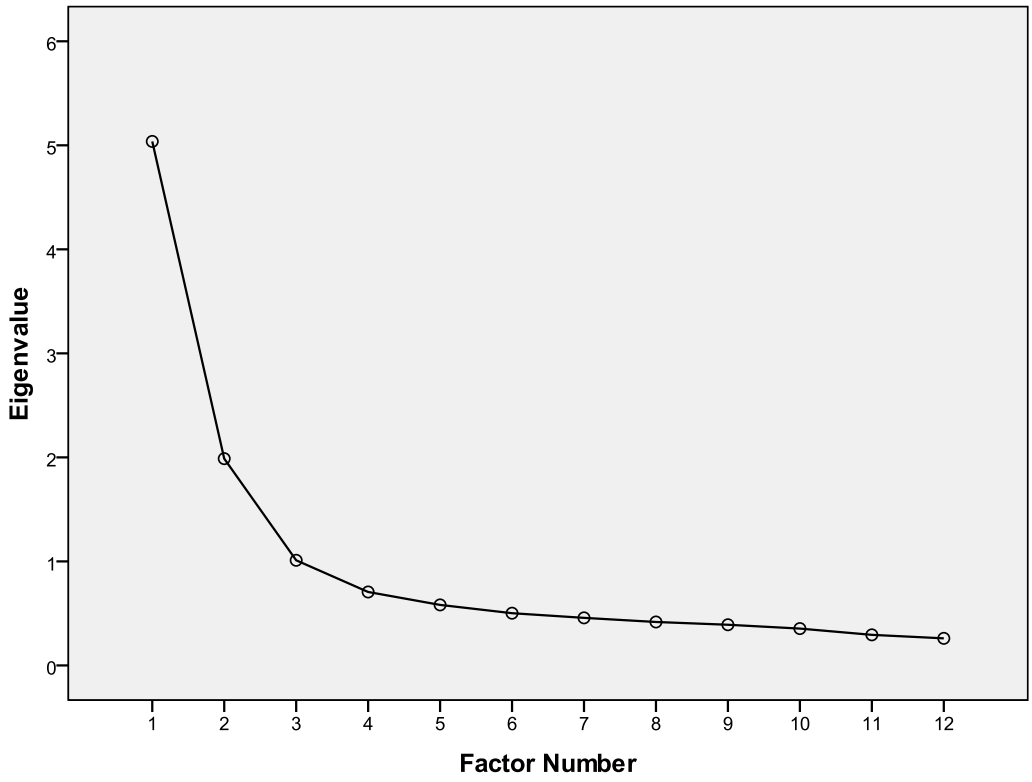

Figure 2. Scree plot of eigenvalues corresponding to factors following the Principal Axes analysis of PSSQ data.

The resulting factor matrix was submitted to both orthogonal (Varimax) and oblique (Direct Oblimin) rotations. The interpretability of the rotated 2-factor solution was evaluated using Thurstone's (1947) principle of simple structure (i.e., an item has a factor loading $\geq |.30|$ on only one factor). The oblique solution (see Table 3) was retained over the orthogonal solution because the oblique solution had

better simple structure across the set of items. The inter-factor correlation was .40. The two factors accounted for 58.54% of the total variance (prior to rotation).

Table 2

Eigenvalues from Exploratory Factor Analysis (EFA) of PSSQ Data and Corresponding Parallel Analysis

Factor	Eigenvalue from EFA	Eigenvalue from Parallel Analysis
1.	5.04	1.37
2.	1.99	1.27
3.	1.01	1.19
4.	0.71	1.13
5.	0.58	1.07
6.	0.50	1.01
7.	0.46	0.96
8.	0.42	0.91
9.	0.39	0.86
10.	0.35	0.80
11.	0.29	0.74
12.	0.26	0.68

As is clearly seen in Table 3, the two factors corresponded directly to the constructs that were proposed and assessed during the item content-relevance phase of the study. Specifically, Factor 1 contained all six items that were designed to

measure perceived importance (i.e., items 2, 3, 5, 7, 9, and 11), and Factor 2 contained all six items that were designed to measure perceived competence (i.e., items 1, 4, 6, 8, 10, and 12). It is also worth noting that Item 11 (which had not

Table 3

Pattern Coefficients from Principal Axes Factor Analysis of PSSQ Data

		Pattern coefficients	
Item	Full item description	F1	F2
2.	Becoming a better student is more important to me than becoming a better athlete.(R)	**.69**	-.01
3.	Doing well in my sport is more rewarding for me than doing well in the classroom.	**.75**	.00
5.	Being recognized as a "great student" in the classroom is more important to me than being recognized as a "great athlete."(R)	**.62**	-.02
7.	It is more important for me to win games with my team than to receive high grades in my classes.	**.70**	.07
9.	Being successful in sport gives me a greater sense of satisfaction than being successful in the classroom.	**.78**	-.02
11.	It is more important to me to be known as one of the best athletes on my team than one of the smartest students in my classes.	**.66**	.17
1.	I have more ability as an athlete than I do as a student in school.	.18	**.65**
4.	I am able to improve my university grades more easily than I am able to improve my sport skills.(R)	-.18	**.57**
6.	I have more confidence in myself as an athlete than I do as a student.	.14	**.73**
8.	I feel more competent in my "study skills" than I do in my sport skills.(R)	.05	**.64**
10.	Doing well in sport competition is easier for me than doing well in the classroom.	.09	**.75**
12.	I generally feel more prepared to succeed in academic exams than I do in sport competition.(R)	.09	**.63**

Note. Pattern coefficients ≥ .30 are in bold. (R) signifies reverse scored items.

undergone any content-relevance assessment) demonstrated excellent simple structure on its intended domain (i.e., perceived importance). Overall, the factor analytic results (combined with the results from the item content-relevance phase) indicate that the PSSQ functioned in accordance with theoretical expectations.

Subscale internal consistency. Having demonstrated that the PSSQ appeared to measure the two constructs it was intended to measure (i.e., perceived competence and perceived importance), internal consistency estimates (coefficient α) were calculated for all subscales contained within the three instruments. Estimates were computed on all subscales for male and female data separately, and also on the combined-gender data set. As seen in Table 4, all subscales had acceptable levels of internal consistency (i.e., $\alpha s \geq .70$).

Tests of gender differences. In their examination of differences between domain-specific perfectionism levels in sport, school, and life in general, Dunn et al. (2005) found significant gender differences between male and female intercollegiate student-athletes on self-oriented perfectionism and other-oriented perfectionism in the contexts of sport and school. To determine if gender differences existed at the subscale level in the present data, two separate one-way MANOVAs were conducted with gender entered as the independent variable in both analyses. In the first analysis, the six perfectionism subscales were entered as the dependent variables, and in the second analysis the two PSSQ subscales were entered as the dependent variables. Table 4 contains the means and standard deviations for males and females across the eight subscales.

Table 4

Descriptive Statistics and Internal Consistencies (α) for Perfectionism and PSSQ Subscales

	Males (n = 142)			Females (n = 113)			Combined (N = 255)		
Subscales	*M*	(*SD*)	α	*M*	(*SD*)	α	*M*	(*SD*)	α
SOP.School	4.65	1.03	.92	4.80	1.06	.93	4.71	1.04	.92
SOP.Sport	5.68	0.80	.87	5.51	0.78	.86	5.60	0.79	.87
OOP.School	3.92	0.77	.82	3.96	0.73	.79	3.94	0.75	.80
OOP.Sport	4.88	0.72	.76	4.85	0.67	.79	4.87	0.70	.77
SPP.School	3.73	0.65	.72	3.59	0.72	.80	3.67	0.68	.76
SPP.Sport	4.20	0.64	.70	3.92	0.74	.81	4.07	0.70	.76
PSSQ.Comp	4.60	1.04	.78	4.68	1.31	.89	4.64	1.17	.84
PSSQ.Imp	4.62	1.22	.88	4.40	1.15	.84	4.53	1.19	.86

A statistically significant multivariate test was obtained for the perfectionism variables: Wilks' $\Lambda = 0.93$, F (6, 248) = 3.065, $p < .01$, partial $\eta^2 = 0.069$. Follow-up univariate F-tests revealed that the only gender difference among the six perfectionism subscales was for SPP.Sport: F (1, 253) = 10.72, $p < .005$, partial $\eta^2 = .041$. Specifically, males had higher socially prescribed perfectionism levels in sport (M = 4.20, SD = .64) than females (M = 3.92, SD = .74). A non-significant multivariate test was obtained in the second MANOVA when the two PSSQ subscales were entered as the dependent variables (Wilks' $\Lambda = 0.99$, F [2,

252] = 1.95, p = .14, partial η^2 = .015) indicating that there were no gender differences for perceived competence and perceived importance. Given that only one gender difference emerged among the eight dependent variables and the corresponding effect size for this difference was small (i.e., SPP.Sport, partial η^2 = .041: see Stevens, 1992), it was deemed appropriate to combine all male and female data into a single data set (N = 255) for all remaining analyses.

Domain specificity of perfectionism. The first purpose of this study was to replicate Dunn et al.'s (2005) study by determining if male and female intercollegiate student-athletes had different levels of perfectionism in sport vs. school/academe. To accomplish this goal, a repeated-measures MANOVA was conducted (see Dunn et al., 2005) whereby the three dimensions of the Hewitt-MPS (i.e., SOP, SPP, and OOP) were entered as the dependent variables, and the two achievement domains (i.e., sport and school) were treated as the within-subjects (repeated-measures) factor. Results revealed a significant within-subjects multivariate test statistic: Wilks' Λ = .445, F (3, 252) = 104.67, p < .001, partial η^2 = .555. Follow-up univariate F-tests for dependent means (see Table 5) were significant (all ps < .0001) for the three mean comparisons. In each instance, the intercollegiate student-athletes reported higher levels of perfectionism in sport than in school. The corresponding effect sizes (partial η^2) for each mean comparison were large (where partial η^2 >.14 is considered large: Stevens, 1992) and ranged from .228 to .522 (see Table 5). These results replicate the findings of Dunn et al. (2005) who also found that, on average, student-athletes had higher perfectionism levels in sport than in school across all three subscales of the Hewitt-MPS.

Table 5

Within-Subject Mean Comparisons (Univariate F-tests) Between Perfectionism Levels in Sport vs. School

Mean subscale comparison	$M_1 - M_2$	F (1, 254)	p	partial η^2
SOP.Sport - SOP.School	0.893	196.882	< .0001	.437
SPP.Sport - SPP.School	0.406	74.960	< .0001	.228
OOP.Sport - OOP.School	0.929	277.807	< .0001	.522

Although these results provide clear support for differences in domain-specific levels of perfectionism, the data provided an opportunity to further examine the domain-specific nature of perfectionism by determining if there is a need to distinguish between domains of perfectionism on conceptual grounds (or to simply treat perfectionism as a global construct). In other words, while the previous results show absolute differences in perfectionism levels across domains, further evidence supporting (or refuting) the need to distinguish between a domain-specific view of perfectionism vs. a global view of perfectionism can be obtained by examining the latent dimensionality of the current perfectionism data. To this end an exploratory factor analysis was conducted on the perfectionism scores at the subscale level (cf. Frost et al., 1993; Suddarth & Slaney, 2001) to determine if resulting factors would support the differentiation of perfectionism across domains (i.e., as would be evidenced by a 2-factor solution whereby all three Hewitt-MPS subscales within a domain would load on the same factor) or

support a more global view of perfectionism (i.e., as would be evidenced by a 3-factor solution whereby each factor would be represented by parallel Hewitt-MPS subscales designed to measure the same construct across domains: SOP.Sport and SOP.School would load together on a single factor, OOP.Sport and OOP.School would load together on a single factor, and SPP.Sport and SPP.School would load together on a single factor). The correlation matrix that contained the bivariate correlations among all six Hewitt-MPS subscales (see Table 6) was subjected to a Principal Axes analysis, using the same procedures that were previously employed in the examination of the factor structure of the PSSQ data.

Table 6

Bivariate Correlations (r) Among Perfectionism Subscales

Subscale	SOP.School	OOP.School	SPP.School	SOP.Sport	OOP.Sport
OOP.School	.56***				
SPP.School	.43***	.47***			
SOP.Sport	.41***	.21**	.19**		
OOP.Sport	.23***	.25***	.17**	.58***	
SPP.Sport	.16*	.18**	.41***	.43***	.46***

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

As seen in Figure 3, the scree plot indicated the retention of two factors. Parallel analysis results (see Table 7) also indicated the retention of two factors

(i.e., the eigenvalues associated with the first two factors extracted by the EFA exceeded the corresponding parallel analysis eigenvalues generated with random data). The 2-factor solution was subsequently retained.

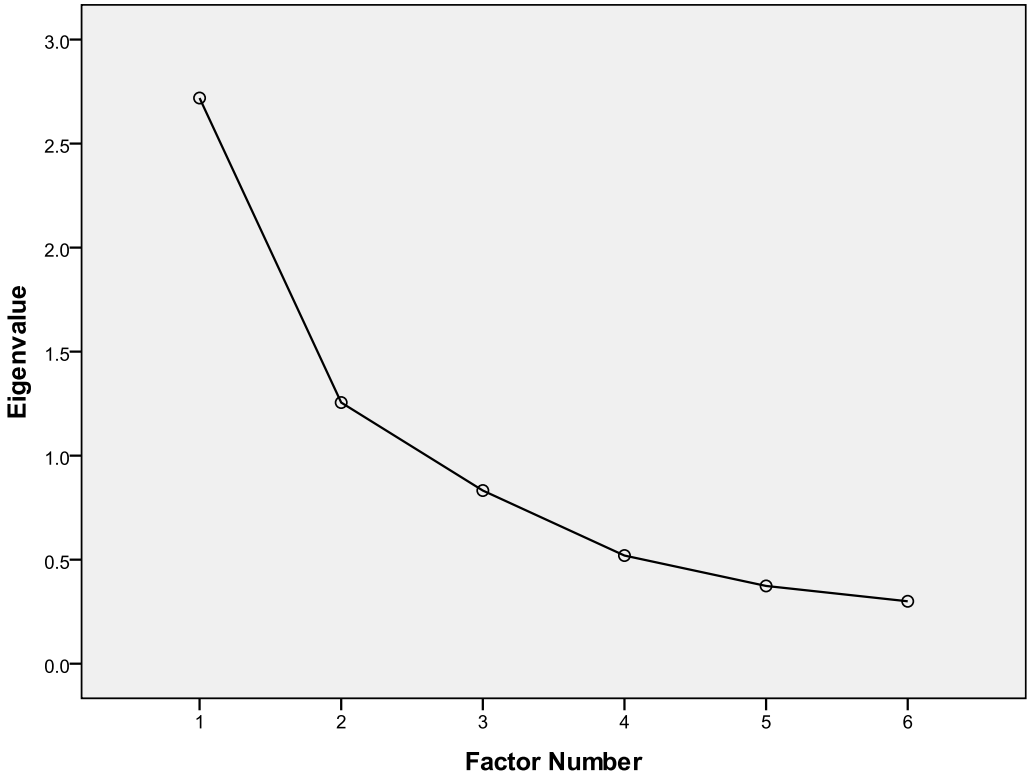

Figure 3. Scree plot of eigenvalues corresponding to factors following the Principal Axes analysis of Hewitt-MPS subscale correlations.

Table 7

Eigenvalues from Exploratory Factor Analysis (EFA) of Perfectionism Subscales and Corresponding Parallel Analysis

Factor	Eigenvalue from EFA	Eigenvalue from Parallel Analysis
1.	2.72	1.21
2.	1.26	1.11
3.	.832	1.03
4.	.520	0.96
5.	.374	0.89
6.	.300	0.80

The resulting factor matrix was submitted to both orthogonal (Varimax) and oblique (Direct Oblimin) rotations. The interpretability of the rotated 2-factor solutions was again evaluated using Thurstone's (1947) principle of simple structure. The oblique solution (see Table 8) was retained over the orthogonal solution because the oblique solution had better simple structure across the set of items. The inter-factor correlation was .48. The two factors accounted for 66.24% of the total variance (prior to rotation). As can be seen in Table 8, the three sport-perfectionism subscales loaded on a sport-perfectionism factor and the three school-perfectionism subscales loaded on a school-perfectionism factor, thereby providing support for a domain-specific view of perfectionism (cf. Martin, 2008).

Table 8

Pattern Coefficients from Principal Axes Factor Analysis of Correlations Among Hewitt-MPS Subscales

	Pattern coefficients	
Subscale	F1	F2
OOP.Sport	**.80**	-.07
SOP.Sport	**.74**	.03
SPP.Sport	**.56**	.07
OOP.School	-.08	**.81**
SOP.School	.05	**.69**
SPP.School	.06	**.59**

Domain-specific perceived competence and perceived importance. Given that the student-athletes in the current study had higher levels of perfectionism in sport than in school, theory predicts that the athletes would be more likely to report higher perceived competence in sport than in school, and place more importance on achieving success in sport than in school (cf. McArdle, 2010). Examining these hypotheses was a primary purpose of the current study.

To ascertain if there were indeed differences in domain-specific levels of perceived competence and perceived importance at the group level, separate (two-tailed) single sample *t*-tests for PC and PI were computed (see Gravetter & Wallnau, 2007, pp. 275-286). The mid-point value of the PSSQ rating scale (i.e., 4 = *neither agree nor disagree*) was entered as the theoretical population mean (i.e., this value represents no difference in PC/PI in sport vs. school and thus reflects the

Null hypothesis). Significant test statistics for PC (t [254] = 8.728, $p < .001$) and PI (t [254] = 7.075, $p < .001$) were obtained. On average, participants reported higher perceived competence in sport than in school (M = 4.64, SD = 1.17) and placed higher importance on success in sport than in school (M = 4.53, SD = 1.19). Effect size indices (using Cohen's [1977] d) that corresponded to each t-test were moderate in size (PC, d = .55; PI, d = .44). The correlation (r) between PC and PI was .44 ($p < .001$) indicating that perceived competence in a domain increases as perceived importance in that same domain increases.

Relationship between perfectionism, perceived competence, and perceived importance. In order to further examine potential links between perfectionism and perceived competence/importance, Pearson product moment correlations (r) between the six perfectionism subscales and PC and PI were computed (see Table 9). Significant negative relationships were revealed between the three school-perfectionism subscales and perceived importance. Given that lower PI scores on the PSSQ reflect greater importance upon success in school than sport, the negative correlations indicate that perfectionism levels in school increase as student-athletes place more importance on their success in school (over sport).

In contrast to the negative correlations that were evident between school-perfectionism scores and PI, a weak (but significant) positive correlation was obtained between OOP.Sport and PI (r = .12). The correlation between SOP.Sport and PI was also .12 (see Table 9); however, due to rounding factors (associated with the value of the correlation coefficient) the significance level of this correlation (p = .058) did not quite meet the statistical criterion ($p < .05$) to be

deemed significant. Nevertheless, the correlation between SOP.Sport and PI is still acknowledged because its direction and marginal level of statistical significance fit with theoretical expectations. Given that higher PI scores on the PSSQ reflect a student-athlete's tendency to place greater importance on success in sport (over school), the positive correlations between OOP.Sport and PI, and between SOP.Sport and PI, indicate that student-athletes' other-oriented and self-oriented perfectionism levels in sport tend to increase as more importance is placed upon success in sport (over school).

Table 9

Bivariate Correlations (r) Between Perfectionism and PSSQ Subscales

PSSQ	SOP.School	OOP.School	SPP.School	SOP.Sport	OOP.Sport	SPP.Sport
PC	-.29***	-.04	.11	.05	.09	.02
PI	-.38***	-.24***	-.17**	.12	.12*	.02

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

The only perfectionism dimension that showed a significant relationship with perceived competence was SOP.School (r = -.29). This negative correlation indicates that as self-oriented perfectionism in school increases, student-athletes' levels of perceived competence in school (over sport) increase (as indicated by lower PSSQ scores).

Chapter 4

Discussion

The general purposes of this study were to (a) explore the domain-specific nature of perfectionism in sport vs. school among intercollegiate student-athletes, and (b) examine potential underlying factors that may be linked to domain-specific perfectionism levels. More specifically, the intent of this study was to replicate part of the study conducted by Dunn et al. (2005) that examined differences in intercollegiate student-athletes' levels of perfectionism in sport and school/academe. The second purpose was to explore potential links between perceived competence (PC), perceived importance (PI) and domain-specific levels of perfectionism in sport and school. Given these purposes, four a priori hypotheses were generated: (a) varsity athletes, on average, would report higher perfectionism levels in sport than in school, (b) varsity athletes, on average, would report higher PC and PI in sport than in school, (c) as PC and PI levels in sport increased, so too would levels of sport perfectionism and, (d) as PC and PI levels in school increased so too would levels of school perfectionism. To varying degrees, evidence supporting all four hypotheses was obtained.

With respect to the first purpose, within-subjects mean comparisons of perfectionism levels in sport vs. school (see Table 5) revealed that the current sample of student-athletes did indeed have higher levels of perfectionism in sport (as compared to school) across all three dimensions of perfectionism that were measured (i.e., self-oriented perfectionism, socially prescribed perfectionism, and

other-oriented perfectionism). These findings are similar to those reported by Dunn et al. (2005) who also found that male and female intercollegiate student-athletes had significantly higher levels of perfectionism in sport than in school across all three subscales of the Hewitt-MPS. Given that the effect sizes associated with the mean differences obtained in this study were large, the current results clearly support the view that perfectionism levels differ across achievement contexts. As such, these results provide strong support for the need to assess perfectionism as a domain-specific construct (see Dunn et al., 2005; McArdle, 2010; Mitchelson, 2009; Mitchelson & Burns, 1998; Saboonchi & Lundh, 1999; Slaney & Ashby, 1996; Stoeber & Stoeber, 2009).

The results of this and Dunn et al.'s (2005) study clearly demonstrate that, on average, intercollegiate student-athletes have a tendency to report higher perfectionism levels in sport than in school/academe. However, it must be recognized that the direction and magnitude of these differences may be influenced by the characteristics of the samples from both studies (i.e., intercollegiate varsity athletes who competed for one of the top Canadian Intercollegiate Sport athletic programs in the country). As noted in the Method section, only three of the teams sampled in this study were not ranked in the national top-10 when data were collected, and none of the 11 teams failed to reach their respective post-season conference play offs (with five of these teams going on to compete at their respective national championships). Similar competitive achievements characterized the sample in Dunn et al.'s (2005) study. As such, the expectations (and requirements) for athletic success at the intercollegiate level were extremely

high at the post-secondary institution where athletes in this study and Dunn et al.'s study were sampled. Whether the size and direction of these differences in domain-specific perfectionism levels would occur in samples of varsity athletes from different post-secondary institutions (where the expectations and demands for competitive success may be lower, or the expectations and demands for success in the classroom may be higher) is unknown. To this end, future research with more heterogeneous samples of intercollegiate athletes from different post-secondary institutions would be valuable in determining the potential role that the sporting and academic cultures of post-secondary institutions might have upon domain-specific perfectionism levels.

Examination of the environmental/situational conditions that are linked to perfectionism levels in different achievement domains may shed some light on why the current sample reported higher perfectionism levels within the sport domain as compared to the school domain. A number of models that examine psychological development (and which focus on the role that environmental conditions play in this development), emphasize the importance of other people (in addition to parents), as well as cultural and societal factors that may contribute to the manifestation of different personality dispositions (such as perfectionism: Belsky, 1984, Bronfenbrenner, 1979; Sameroff, 1975). Indeed, a developmental model that focuses solely upon factors that may contribute to the development of perfectionism—the social expectations model—identifies environmental pressures (including culture and peers) as contributing factors in this process (see Flett et al., 2002). Certainly it would seem logical to speculate that the collective beliefs of

teammates and coaches within a successful athletics program may foster a view that student-athletes should set, strive for, and achieve extremely high performance standards in their athletic endeavours, which would encourage the development of self-oriented perfectionism, socially prescribed perfectionism and/or other oriented perfectionism in sport.

It is also possible that similar environmental/social processes may exist in terms of developing heightened perfectionist orientations in the academic domain for student-athletes. However, it seems less likely that teammates and coaches would set or expect the same commitment to high performance standards in the classroom for the student-athletes because success in the classroom has considerably less direct influence upon the success of the athletics team (relative to the student-athlete's performance standards in sport). Stated differently, the primary beneficiary of academic success is the student him/herself, therefore, there would likely be much less incentive for the student-athlete's classroom peers (or teammates) to push or encourage the individual to strive for and achieve high performance standards in the classroom (other than to maintain sufficient academic standing [i.e., grade-point average] that would allow the individual to continue with his/her participation on the varsity sport team).

Mitchelson and Burns (1998) speculated that differences in domain-specific perfectionism levels may be contingent upon differences in the perceived seriousness of the repercussions that failure may pose for an individual within a particular achievement domain. It is conceivable that the student-athletes in the current sample viewed failure in varsity sport (e.g., failing to win or poor perceived

performance) as having more serious repercussions (for self-esteem, self-worth, or ego-driven goals) than failure in the classroom (e.g., lower grades). Future research may wish to examine "team norms" regarding (a) how collective team attitudes towards success/failure in sport vs. the classroom may influence domain-specific perfectionist tendencies, and (b) how the rewarding or reinforcement of success and failure in these environments might influence domain-specific perfectionism levels.

Research with other psychological constructs has demonstrated how team norms and/or the collective attitudes of teams can influence individuals' beliefs, attitudes, or behaviours. For example, research into moral reasoning has shown strong links between the degree of rule-violating behaviour in sport that athletes are willing to endorse and these athletes' perceptions of their team's normative attitudes towards these behaviours (Long, Pantaleon, Bruant, & d'Arripe-Longueville, 2006). Athletes are more willing to endorse rule-violating behaviours if they feel that those behaviours are endorsed by their teammates. It is possible that similar processes exist with respect to endorsing and rewarding success in sport vs. the classroom, and how these collective team attitudes influence corresponding levels of domain-specific perfectionism for intercollegiate student-athletes. In other words, if the collective attitude of a team is to view failure in sport as having more serious repercussions (e.g., to self-esteem, self-concept, or to the team's chances of competitive success) than failure in the classroom, it would seem reasonable to speculate that student-athletes would develop stronger perfectionist tendencies in sport than in the classroom. This hypothesis would also fit within the social expectations model for the development of perfectionist orientations (Flett et al.,

2002) which suggests that perfectionist tendencies develop in contexts where performance-contingent reinforcement is provided to performers from significant-others in the environment when success is achieved.

Individuals are likely to set and strive for higher standards (e.g., develop higher self-oriented perfectionism) in efforts to receive the performance-contingent reinforcement they desire from others. If this reinforcement comes in the form of praise, recognition, or social validation from members of the sport team when success is obtained in sport (as opposed to when success is obtained in the classroom), perfectionist tendencies are more likely to be strengthened in the sport domain than in the academic domain. To date, no research has directly examined potential links between the collective reinforcement that is provided by members in a specific achievement domain (when individual/team success is achieved) and the development of perfectionist tendencies in that domain.

It is important to contrast the current findings with those reported by McArdle (2010), because McArdle found the opposite pattern of results regarding levels of perfectionism in sport vs. school. Specifically, in her sample of academically talented adolescents who attended residential summer study programs at an Irish university, McArdle reported that participants had significantly higher levels of perfectionism in school than in sport (as measured by a composite score on the Frost-MPS [Frost et al., 1990]). McArdle's findings, when taken in conjunction with the current results, indicate that it is neither sport nor academe that is responsible for creating differences in domain-specific perfectionism levels per se, but rather, there are person-factors and/or environmental-factors that are

influencing domain-specific levels of perfectionism in each of these environments. For example, participants in McArdle's study were surrounded by a relatively homogenous cohort of academic high achievers who were attending scholastic camps, whereas participants in the current study were surrounded by a relatively homogeneous cohort of high performance varsity athletes. As such, the achievement domain in which participants in both studies presumably excelled (and placed a high collective value upon success) was associated with the highest domain-specific perfectionist tendencies (cf. Martin, 2008). Irrespective of why these differences in domain-specific perfectionism levels occurred, it is clear that there is value in measuring perfectionist orientations in the context of the achievement domain in which the perfectionist orientations operate.

Further support for a domain-specific view of perfectionism can be gleaned from the pattern of bivariate correlations among the six perfectionism subscales that were employed in this study (see Table 6) as well as from the factor analytic results surrounding the latent dimensionality of these subscales (see Table 8). Close examination of the magnitude and patterns of the within-domain correlations for perfectionism (i.e., correlations among the three sport-perfectionism subscales, and correlations among the three school-perfectionism subscales) compared with the magnitude of the between-domain correlations for parallel perfectionism constructs (i.e., correlations between the two SOP subscales, the two SPP subscales, and the two OOP subscales) provides valuable insight into the domain-specific nature of perfectionism in the current study. Specifically, the magnitude of the within-domain correlations among the three sport-perfectionism subscales (i.e., SOP.Sport,

SPP.Sport, and OOP.Sport: all *r*s $\geq$ .43) and the magnitude of the within-domain correlations among the three school-perfectionism subscales (i.e., SOP.School, SPP.School, and OOP.School: all *r*s $\geq$ .43) were consistently greater than the magnitude of the between-domain correlations for parallel perfectionism constructs (i.e., $r_{\text{SOP.Sport•SOP.School}} = .41$; $r_{\text{SPP.Sport•SPP.School}} = .41$; $r_{\text{OOP.Sport•OOP.School}} = .25$). In other words, the strength of association among the perfectionism subscales within each achievement domain was stronger than the associations between parallel perfectionism dimensions across domains. This can be taken as evidence supporting a domain-specific (as opposed to global) view of perfectionism.

Very similar findings were reported by Martin (2008) who examined patterns of within- and between-domain correlations on four motivational constructs (i.e., adaptive cognitions, adaptive behaviours, maladaptive cognitions, and maladaptive behaviours) in the contexts of sport, music, and academe among samples of Australian youth who either attended specialized sport or music high schools. Martin found similar patterns of "higher within-domain correlations than parallel between-domain correlations" (p. 801) across the achievement domains for the motivational constructs that were examined and concluded that the results supported the need for domain-specific measurement of motivational constructs in sport, music, and academic settings.

Probably the clearest example of why perfectionism should be measured as a domain-specific construct comes from an examination of the correlation between the two other-oriented perfectionism subscales ($r_{\text{OOP.Sport•OOP.School}} = .25$). Although this correlation was statistically significant, it is much smaller than any of the

within-domain correlations in either sport or academic settings (all *r*s $\geq$ .43). It seems likely that levels of other-oriented perfectionism are influenced by the degree of inter-dependence (or lack thereof) that is required for success in sport vs. academic settings. Given that all of the student-athletes who participated in this study came from team sports, it is likely that these athletes have developed a reliance upon, and expectation for, their teammates to perform at high levels in order for their respective teams to achieve competitive success (e.g., winning games, conference titles, or national titles). In contrast, other than occasional group projects, there is likely a much smaller reliance upon classroom peers when it comes to the student-athlete achieving individual academic success (e.g., in the form of high grades or scholarships). As such, it seems reasonable to speculate that the team-sport environment would be more likely to foster the growth of other-oriented perfectionist tendencies than the academic environment.

It would seem worthwhile to conduct this study with student-athletes who compete in individual sports (e.g., track and field, swimming, wrestling, etc.) where individual competitive success is not tied as strongly to the performance of one's teammates. It is possible that levels of OOP.Sport may be lower for athletes competing in individual sports than athletes competing in team sports because the reliance upon team mates to achieve competitive success is presumably lower in individual-sport settings than team-sport settings. Then again, if student-athletes who compete in individual sports value national titles that are awarded at the team level as well as at the individual level (which is the case in Canadian Intercollegiate Sport) then other-oriented perfectionism levels in individual sport may again be

high. Similarly, future research in academic settings may wish to compare levels of other-oriented perfectionism in school settings that differ according to the degree to which grades are assigned on the basis of individual vs. group performance. A higher reliance on group-based assignments for grading may lead to heightened OOP.School scores in comparison to academic settings that rely primarily upon individual achievement for assessment purposes. Research into other constructs in competitive sport, including achievement goal orientations and attributional styles (Hanrahan & Cerin, 2009), social physique anxiety (Haase, 2009), and competitive anxiety and self-confidence (Kjormo & Halvari, 2002; Zeng, 2003) has found differences between individual-and team-sport athletes. However, no studies to date have examined potential differences in perfectionist orientations between team- and individual-sport athletes.

Further evidence supporting the need to assess (and conceptualize) perfectionism in sport and academe as domain-specific constructs was revealed by the results of the exploratory factor analysis that was conducted upon the matrix of correlations among the six Hewitt-MPS subscales. As seen in Table 8, the three sport-perfectionism subscales loaded on a sport-perfectionism factor and the three school-perfectionism subscales loaded on a school-perfectionism factor. In other words, factors were apparently formed on the basis of within-domain correlations as opposed to between-domain correlations of parallel constructs (which would have been reflected in a 3-factor solution). These factor analytic results indicate that student-athletes' perfectionist tendencies (across the three subscales of the Hewitt-MPS) are more consistent (or similar) within a domain than across domains,

although it should be acknowledged that the size and direction of the correlation between the sport- and school-perfectionism factors (r = .48) indicates that as student-athletes' levels of perfectionism in sport go up, so too do their levels of perfectionism in academe.

Given the amount of evidence obtained in this and other studies (see Dunn et al., 2005; Dunn et al., in press; McArdle, 2010; Mitchelson & Burns, 1998; Stoeber & Stoeber, 2009) that support a domain-specific approach (as opposed to a global approach) to measuring perfectionism, it is important that researchers, carefully consider which approach best meets their research objectives in future studies. If researchers (or practitioners) are working with people to better understand the role of perfectionism in a specific achievement domain, then a domain-specific approach would seem most appropriate. In a recent study conducted with 119 competitive female figure skaters (M age = 14.56, SD = 3.42), Dunn et al. (in press) reported that a domain-specific measure of perfectionism (the Sport-MPS: Dunn et al., 2002) had greater explanatory power than a global measure of perfectionism (the Hewitt-MPS) in accounting for variance in the figure skaters' attitudinal body image. In contrast, if researchers (or practitioners) are more interested in understanding how an individual's perfectionist tendencies are linked to constructs that pervade across a variety of achievement domains, then a global approach would most likely be recommended. In clinical psychology, for example, various perfectionism dimensions have been strongly linked to depression (see Clara, Cox & Enns, 2007; Hewitt & Flett, 2002), and depression, by nature, is not a domain-specific phenomenon but rather, is a clinical affective disorder that

permeates across all areas of an individual's life.

It should also be acknowledged that the instruments researchers use to measure perfectionism may be more or less suited to the domain-specific or global assessment of the construct. For example, *perceived coach pressure* has been identified as an important aspect of socially prescribed perfectionism in the context of sport (see Anshel & Eom, 2003; Dunn et al., 2002) but is only measured by the Sport-MPS (which is the most commonly used domain-specific measure of perfectionism in sport: Stoeber et al., 2009) and Sport-MPS-2. However, as Dunn et al. (in press) point out, many of the items contained within the Sport-MPS are only relevant to the domain of sport and are therefore not appropriate for assessing global perfectionism levels. In contrast, instruments like the Hewitt-MPS are capable of measuring both global and domain-specific perfectionist tendencies with only minor alterations to the wording of the stems of items (see Dunn et al., in press) and may therefore be more versatile for use in different contexts. Irrespective of which instruments researchers ultimately choose to measure people's perfectionist tendencies, researchers should be aware of the potential benefits (and limitations) of adopting a domain-specific approach.

Gender Differences

Although not a primary focus of this study, gender differences in domain-specific levels of perfectionism were examined. Only one significant gender difference was obtained, with males reporting higher SPP.Sport than females. However, the magnitude of the effect size that corresponded with this mean

difference was small (partial η^2 = .041). Given these findings, it appears that gender had relatively little influence upon perfectionism levels in the current sample. This finding is slightly different than results obtained by Dunn et al. (2005) from their sample of intercollegiate athletes where males were found to have significantly higher levels of SOP.Sport and OOP.Sport than females (although it should be noted that no gender differences in any of the school-perfectionism dimensions were obtained in either this study or Dunn et al.'s study).

Anshel, Kim, and Henry (2009) conducted a study to specifically examine perfectionism levels in sport according to athlete gender. Anshel et al.'s sample consisted of 322 college students (142 males and 180 females) from two different universities in the Southwestern U.S., and who ranged in age from 18-31 years (*M* = 22.5 yrs, *SD* = 6.32). The majority of the participants were involved in intramural sports on their respective campuses and were registered as physical education majors. Of the four perfectionism dimensions that were measured, Anshel et al. found that females reported significantly higher levels of parental expectations/criticism in sport than males (effect size [Cohen's 1978 *d*] = .40), whereas males reported significantly higher levels of neatness/organization in sport than females (*d* = .37). In contrast, McArdle (2010) found no gender differences in either sport- or academic-perfectionism levels among academically talented youth when perfectionism was represented by a composite score on the Frost-MPS. Other studies examining gender differences in perfectionism levels have produced mixed results, ranging from no gender differences (e.g., Anshel & Seipel, 2007; Stoeber & Stoeber, 2009) to small or moderate differences (e.g., O'Conner, Dixon &

Rasmussen, 2009; Slaney & Ashby, 1996). Given the equivocal nature of results surrounding the influence or link between gender and perfectionism, more research into the role that gender may play in the development of perfectionist tendencies is required across a variety of achievement domains.

Perceived Competence and Perceived Importance

Having established the domain-specific nature of perfectionism, and more particularly, that sport-perfectionism levels were greater than school-perfectionism levels in the current sample of intercollegiate student-athletes, the second major purpose of this study was to examine potential links between perceived competence, perceived importance and domain-specific perfectionism. Dunn et al. (2005) speculated that perceptions of competence within a given domain, and the extent to which individuals value success in a given domain, might influence the degree to which perfectionist tendencies are developed within that domain. More specifically, Dunn et al. proposed that student-athletes who saw themselves as being more competent in sport (than in school), and/or placed greater importance on success in sport (than in school), would be more likely to develop heightened perfectionist tendencies in sport than in school. However, Dunn et al. did not measure perceived competence or perceived importance and were therefore unable to corroborate their speculative hypothesis.

In accordance with the aforementioned hypotheses, results from single sample *t*-tests revealed that student-athletes in the current sample had, on average, significantly higher perceptions of competence in sport than in school, and placed

significantly greater value on the importance of achieving success in sport than in school. These results provide support for Dunn et al.'s (2005) contention that differences in levels of domain-specific perceived competence and perceived task value (i.e., perceived importance) are linked to (or may influence) domain-specific perfectionism levels. These results also corroborate recent findings reported by McArdle (2010) who demonstrated that academically talented youth (who had higher perfectionism levels in school than in sport) had significantly higher perceptions of competence in school than sport, and placed significantly more value upon success in school than in sport. Although participants in McArdle's study were much younger (*M* age = 14.68 years) than the student-athletes in the current study (*M* age = 20.97 years), findings appear to be robust across age and achievement contexts: namely, perfectionism levels are stronger in achievement domains in which individuals have higher perceived competence and have higher task value.

Eccles et al.'s (1983) Expectancy-Value (E.V.) model of achievement behaviour provides a useful heuristic for explaining the potential role that both perceived competence and perceived importance may play in the development of domain-specific perfectionism levels. The E.V. model predicts that achievement-related choices are influenced by (a) the degree to which individuals believe that they are likely to be successful in a particular task, and (b) the degree to which individuals value success in the same task. More specifically, the model predicts that individuals will select and pursue more challenging tasks, and direct more effort towards accomplishing these tasks when (a) they believe that they have the

competence/ability to successfully complete the task, and (b) they place more value upon accomplishing the task. Under these conditions, it would seem logical that individuals would develop stronger perfectionist orientations in achievement domains where they feel they can reap the greatest "return" on their efforts (in terms of gains to their self-worth and/or self-concept).

Given that the current results indicate that the student-athletes in this study believed, on average, that they were more likely to succeed in sport (than in school) and valued success in sport more than success in school, it seems reasonable to conclude that their heightened levels of self-oriented perfectionism, other-oriented perfectionism, and socially-prescribed perfectionism in sport may have been a function of these factors. Higher SOP in sport is likely to have developed within the current sample because achieving more demanding standards in the domain where it is more likely that these standards will be met (i.e., sport) provides the greatest likelihood of enhancing one's self-worth or self-concept when standards are achieved. Setting and striving for higher performance standards in a domain where the individual feels that there is less chance of success (i.e., school) would decrease the likelihood of achieving the desired performance-contingent feedback (via one's self-assessment or through the reinforcement of others) that would enhance feelings of self-worth (Flett et al., 2002). Failure to achieve success in any achievement context can potentially lead to a decrease in self-worth (Hewitt, 2002), so individuals are more likely to avoid setting high performance standards in achievement contexts where success is not expected or failure is anticipated.

Higher other-oriented perfectionism levels in sport (than in school) may

have developed within the current sample of student-athletes because they placed more value on success in sport (than in school). It seems reasonable to speculate that the student-athletes would demand or expect higher performance standards from their teammates in sport (than their peers in the classroom) in order to achieve the competitive goals of the team which, in turn, would provide the greatest opportunity to experience gains in self-esteem or self-concept that so often comes with athletic success (see Bardel, Fontayne, Colombel, & Schiphot, 2010). As noted by McArdle (2010), for the perfectionist athlete who places a high degree of value upon achievement in the domain of sport, success in sport "is critical for [obtaining] feelings of self-worth and self-definition as a person" (p. 504). It is also possible that elevated perceptions of competence in sport (over school) may have led to increased levels of OOP in sport if individuals' levels of perceived competence are tied to perceptions of their teams' ability to achieve success. Research in the area of self efficacy (Bandura, 1977) and collective efficacy—defined as "a group's shared belief in its conjoint capabilities to organize and execute the courses of action required to produce given levels of attainment" (Bandura, 1997, p. 477)—has found strong positive correlations between individuals' beliefs in their own ability to competently perform in sport and beliefs in their team's abilities to competently perform in sport (see Magyar, Feltz & Simpson, 2004). If the student-athletes had higher perceptions of their teams' abilities to succeed in competition, it is possible that they developed higher levels of OOP in sport by expecting higher performance standards from their teammates. More research is obviously needed to corroborate this speculative hypothesis.

Lastly, higher levels of socially prescribed perfectionism in sport (than school) may have developed in the current sample because it is possible that the student-athletes perceived themselves as being more competent in sport and, therefore, believed that significant others in the competitive sport environment (i.e., teammates, coaches, parents, etc.) would expect higher performance standards from them in this performance domain. It would seem reasonable to propose that coaches, teammates, and even parents might expect higher performance standards from student-athletes in the domain of sport if these athletes have already demonstrated a high degree of competence in that domain. Solomon (2002) noted that "in college settings, athletes rated as high expectancy [for success in sport] are offered more feedback and better quality feedback [from coaches] than their low expectancy teammates" (p. 280). As such, this heightened expectation that coaches may have for their highly competent athletes may lead to the development of heightened domain-specific SPP in sport (as opposed to school where presumably coaches have less direct input or influence on student-athletes' academic accomplishments and where the students' academic competence and performances are less susceptible to public scrutiny or public evaluation).

If student-athletes value success in sport more than in school (as the current results suggest), then they may be more aware of, or sensitive to, the social expectations for success that are placed upon them by significant others in the sport environment, which again may be a catalyst for developing heightened levels of SPP in sport (relative to school). If success in school is not valued to the same extent as success in sport then it would seem likely that student-athletes would pay

less attention to (or simply care less about) performance expectations that are communicated by significant others in the academic domain. Under these latter conditions, it would seem less likely that student-athletes would develop heightened SPP in the academic environment. Clearly more research is required to examine the influence of significant others' interactions with student-athletes on the development of domain-specific SPP in sport and school.

In an effort to gain further insight into the links between PC, PI, and domain-specific perfectionism, bivariate correlations between these variables were computed (see Table 9). Of the six domain-specific perfectionism dimensions that were examined, only one dimension (i.e., SOP.School) was significantly correlated with PC (r = -.29): the magnitude and direction of this correlation indicates that as self-oriented perfectionism in school increased, student-athletes' perceptions of competence in school (over sport) also increased (as indicated by lower PSSQ scores). This finding is consistent with results reported by McArdle (2010) in her examination of the relationship between domain-specific perfectionism and domain-specific perceived competence among academically talented youth. McArdle found that increases in perceived competence in school were linked with increases in school perfectionism (r = .17, p < .05), and increases in perceived competence in sport were linked with increases in sport perfectionism (r = .47, p < .001). Interestingly, McArdle also reported non-significant (zero) correlations between PC in school and sport perfectionism (r = .00) and between PC in sport and school perfectionism (r = -.10), providing further evidence that domain-specific levels of PC are linked to domain-specific perfectionism levels, but only when the

domains are congruent.

Although the current study only obtained one significant correlation between a domain-specific perfectionism subscale and PC, it is worth noting that the SOP subscale is an *intra*personal dimension of perfectionism whereas OOP and SPP are *inter*personal dimensions perfectionism (Hewitt & Flett, 1991). Given that PC in this study refers to perceptions of competence in *oneself*, it is not surprising that it would be most strongly associated with the only intrapersonal dimension of perfectionism that was measured. Why SOP.Sport and perceived competence were not more strongly correlated (in comparison to SOP.School and PC) was somewhat surprising. However, examination of the distribution of scores on SOP.Sport and SPP.School may shed some light on this issue.

As seen in Appendix 7 and 8, when PC and SOP scores (for sport and school respectively) were plotted together in scatter plots, it becomes evident that there are large differences in the range/variability of scores provided by respondents for SOP.Sport and SOP.School, and it is possible that a restriction in range (for SOP.Sport) attenuated the size of the correlation between SOP.Sport and PC. As seen in Appendix 7, only eight participants (3.1%) had SOP.Sport scores < 4.0 (i.e., the midpoint of the Hewitt-MPS rating scale), and only one participant had an SOP.Sport score < 3.0. In contrast, 64 participants (25.1%) had SOP.School scores < 4.0, with ten of these participants having an SOP.School score < 3.0 (see Appendix 8). In other words, the homogenous nature of the sample (in terms of their involvement in high performance sport) may have created a restriction in range in SOP.Sport scores (via a ceiling effect) in comparison to SOP.School

scores, and this restriction in range may have reduced the size of any correlation between SOP.Sport and PC. As noted by Glass and Hopkins (1996), the greater the restriction in range on one or both variables, the more the correlation coefficient understates the magnitude of any linear relationship between those variables. Further evidence supporting the potential validity of this inference may be obtained through an examination of results reported by McArdle (2010) in her study of academically talented youth.

McArdle (2010) reported a small (but statistically significant) correlation between school perfectionism and perceived competence in school (r = .17) in her study of academically talented youth, yet a much larger correlation between sport perfectionism and perceived competence in sport (r = .47). Although McArdle did not make any mention of the distributional characteristics of the data (variables) associated with any bivariate correlations in her study, it seems plausible that the homogeneous nature of the participants in McArdle's sample (in terms of their high academic abilities) may have restricted the range of perfectionism and/or perceived competence scores in the context of *school* (thereby decreasing the correlation between school perfectionism and school competence), but may have had less impact upon the range/variability of scores on perfectionism and/or PC scores in sport. Examining the link between SOP.Sport and PC levels in sport among a more heterogeneous sample of student-athletes (e.g., a sample that included a much wider range of athletic abilities or competitive levels) may shed more light on potential links between SOP.Sport and PC in sport.

Although the pattern of bivariate correlations between domain-specific

perfectionism levels and perceived competence in the current study was generally weak, the pattern and magnitude of the bivariate correlations between domain-specific perfectionism levels and perceived importance was generally stronger (although it is likely that restriction in range issues again influenced the degree of association between sport-perfectionism dimensions and PI). As seen in Table 9, all three school perfectionism subscales had significant negative correlations with PI. Given that lower PI scores on the PSSQ are indicative of higher PI in school (than in sport), it is clear that perfectionist tendencies in the academic domain increase as the degree to which student-athletes place importance on succeeding in academe (over sport) increase.

These findings are again consistent with those obtained by McArdle (2010) who also reported a significant correlation between school perfectionism and the task-value that academically-talented youth placed on success in academe (r = .25). In the context of McArdle's study, the positive correlation indicated that increases to the value placed upon success in school were associated with increases to students' school perfectionism levels. Collectively, the results of the current study and McArdle's study support the hypothesis proposed by Dunn et al. (2005) that higher perfectionist tendencies are more likely to develop in achievement domains where success is more highly valued. The current bivariate correlations between school perfectionism dimensions and PI (in school) support this view: as the degree of importance placed upon success in school (over sport) increased, so too did the student-athletes' tendency to have heightened levels of SOP, OOP, and SPP in school.

A similar trend in the correlations between sport perfectionism subscales and PI in sport was also observed (see Table 9). However, only OOP.Sport was significantly correlated with PI in sport (r = .12): as the degree of importance that was placed upon achieving success in sport increased, so too did student-athletes levels of OOP in sport. It should again be recognized that the correlations between the sport perfectionism dimensions and PI in sport were possibly attenuated by the restriction in range of the participants' scores on the sport-perfectionism subscales (relative to the school perfectionism subscales). As seen in Appendix 9 and 10, only 29 participants (11.4%) had OOP.Sport scores < 4.0 whereas 130 participants (51%) had OOP.School scores < 4.0. Similarly, as seen in Appendix 11 and 12, 13 participants (5.1%) had SPP.Sport scores < 4.0 in comparison to 45 participants (17.6%) who had SPP.School scores < 4.0. Again, comparing the current correlational finding to those reported by McArdle (2010) may help validate these conclusions, because a case can be built to support the position that the homogeneous nature of participants in this study and McArdle's study may have affected the magnitude of the correlations between domain-specific perfectionism levels and domain-specific task value (i.e., perceived importance).

McArdle (2010) reported a very strong positive correlation between perceived task value in sport and sport perfectionism (r = .60, p < .001) among academically-talented youth, but a much smaller correlation between perceived task value in school and school perfectionism (r = .25, p < .01). It is possible that the correlation between task value and perfectionism in school in McArdle's study was attenuated by a restriction in the range in task value and/or school perfectionism

scores (in comparison to the range of scores corresponding to task value and sport perfectionism scores). Irrespective of the potential reasons for differences in the magnitude of the correlations between domain-specific PI (or task value) and domain-specific perfectionism in the current study, it is clear that student-athletes' perfectionism levels in a specific domain increased as the degree of importance placed upon success in that domain increased. Given that there is a strong link between perceived importance (or task value) and contingent self-worth (see McArdle)—and contingent self worth is believed to be a central component of perfectionism (see Flett et al., 2002)—it seems reasonable to suggest that student-athletes will experience the greatest gains in contingent self-worth when they achieve success in more highly valued domains.

In closing, it is useful to return to Eccles et al.'s (1983) and Eccles, Wigfield, and Schiefele's (1998) expectancy-value model of achievement behaviours to further explain the apparent link between perceived importance (i.e., task value) in a specific domain and domain-specific perfectionism levels. According to Eccles et al.'s theory, task value (or the degree to which an individual values success in a specific achievement context) is influenced, in part, by "self-schemas or [self] identities" (Weiss & Williams, 2004, p. 240) that are adopted (or pursued) by an individual. In other words, the more an individual identifies him/herself with a specific domain (e.g., "I am an athlete" vs. "I am a scholar") the more the individual will likely strive for success in that domain because success will validate or confirm the individual's desired sense of self (Weiss & Williams). Thus, if a student-athlete sees or defines him/herself primarily as an athlete (and to

a lesser extent as a student/scholar), achieving the highest performance standards in the more valued domain (i.e., sport) provides the greatest opportunity for the endorsement of one's identity (or self-concept). As such, setting higher performance standards for one's self (i.e., self-oriented perfectionism) or creating higher expectations for others in the same performance environment (i.e., other oriented perfectionism) where chances for personal success are high will likely provide the greatest boost to one's self-identity if/when success is actually achieved. Future research examining potential links between perfectionism and constructs such as athletic identity—defined as the degree to which "an individual identifies with the athlete role" (Brewer, Van Raalte, & Linder, 1993; p. 237)—may be useful in shedding further light upon factors that may influence the development of domain-specific perfectionism in different achievement domains (cf. McArdle, 2010). As noted by Elliot and Dweck (2005, p. 109), "tasks will be seen as important when individuals view engaging in the task as central to their own sense of themselves (i.e., their core social and personal identities), because such tasks provide the opportunity for the individual to express or confirm important aspects of the self."

Chapter 5

Implications, Limitations, and Future Directions

Although the results of the current study shed important light on (a) the domain-specific nature of perfectionism, and (b) factors that are potentially linked to domain-specific perfectionism levels, the study is not without limitations. One important (and controversial) aspect of perfectionism that was not addressed in this study was the adaptive/healthy vs. maladaptive/unhealthy nature of perfectionism (see Dunn et al., 2002; Flett & Hewitt, 2005; Hall, 2006), and how perceived competence and perceived importance may be associated with these constructs. Although some theorists argue that perfectionism is a primarily unhealthy or maladaptive construct (Flett & Hewitt, 2005; Pacht, 1984), others have argued (and empirically demonstrated) that specific patterns of scores on different perfectionism dimensions can be linked with healthy or adaptive functioning in different achievement settings (e.g., Parker, 2002; Stoeber & Otto, 2006; Stoeber et al., 2007).

Unhealthy/maladaptive perfectionists are defined by Stoeber and Otto (2006) as those individuals who have high perfectionist strivings (i.e., combination of high personal standards and a self-oriented striving for excellence: Stoeber, Stoll, Salmi, & Tiikkaja, 2009; Stoeber et al., 2007) combined with high perfectionist concerns (i.e., concerns over mistakes, negative reactions to imperfection, and fears about failing to meet others' high expectations: Stoeber et al., 2009). This profile of perfectionism has been linked with negative attitudinal body image (Dunn et al., in press), heightened anger (Vallance, Dunn, & Causgrove Dunn, 2006) and

heightened state anxiety (Hall et al., 1998) in sport, and poor test performance (Flett, Blankstein, & Hewitt, 2009), procrastination (Saddler & Sacks, 1993), and burnout (Zhang, Gan, & Cham, 2007) in school. In contrast, healthy/adaptive perfectionists are defined by Stoeber and Otto as those individuals who have high perfectionist strivings combined with low perfectionist concerns. This healthy profile of perfectionism has been linked with positive attitudinal body image (Dunn et al., in press), Olympic excellence (Gould et al., 2002), and healthy achievement goals (Dunn et al., 2002) in sport, and academic engagement (Zhang et al.), performance (measured via estimated grade point average: Blankstein, Dunkley, & Wilson, 2008), and motivation (Stoeber & Rambow, 2007) in school. The common feature among all of the aforementioned studies is that scores across all perfectionism dimensions were examined simultaneously to identify the healthy vs. unhealthy nature of perfectionism.

Patterns of scores across all Hewitt-MPS dimensions were not examined in this study, so it is not possible to determine if changes in perceived competence and perceived importance are potentially linked to domain-specific levels of healthy or unhealthy perfectionism. This question may be especially important when examining the functional (i.e., healthy vs. unhealthy) nature of self-oriented perfectionism in different achievement domains because heightened self-oriented perfectionism has been linked with both healthy and unhealthy functioning. Heightened self-oriented perfectionism is deemed to be healthy or adaptive but only when corresponding levels of socially prescribed perfectionism—an unhealthy dimension of perfectionism—are low (see Blatt, 1995; Klibert, Langhinrichsen-

Rohling, & Saito, 2005). It is possible, for example, that increased perceived competence in a particular achievement domain may somehow buffer or moderate the unhealthy effects of heightened domain-specific socially prescribed perfectionism if the individual becomes so confident that he/she does not worry about the potential criticism or performance expectations that others' hold for him/her in the performance domain (because he/she is so confident that failure will not occur).

Another limitation of the current thesis relates to the non-experimental design of the study. Specifically, the reliance upon within-subject differences on perceived competence and perceived importance, and correlations between PC/PI and domain-specific perfectionist tendencies precludes the opportunity for causal inferences. In other words, the current research design does not allow the researcher to infer that increases in perceived competence and perceived importance caused increases in perfectionism levels in each achievement domain. Although unlikely, it is possible that increases in domain-specific perfectionism levels caused changes in domain-specific perceived competence and perceived importance. This latter conclusion is not congruent with theory, but can only be ruled out with an experimental research design.

Another important limitation of the current research design relates to the fact that few, if any, inferences can be made about student-athletes who had similar levels of perceived competence in both sport and academe, or who placed a similar degree of importance upon success in both sport and academe. In other words, the instrument that was designed to measure PC and PI (i.e., the PSSQ) utilized an item

format that required participants to make direct comparisons of competence or importance in each domain within each item. As such, student-athletes who had the same levels of perceived competence in sport and school would have provided a value of 4 (neither agree nor disagree) on the PSSQ rating scale. Under these conditions, it is not possible to determine if two individuals who provided a mean score of 4.0 on the PC subscale had similarly high, moderate, or low levels of PC in the two domains. The same argument can be put forward for two individuals who may have provided a mean score of 4.0 on the perceived importance scale. To overcome this limitation, methods similar to those adopted by McArdle (2010) are necessary whereby items are constructed such that a rating on every item reflects the level of perceived competence or perceived importance in only one domain (i.e., sport or academe). Nevertheless, the current format of the PSSQ was useful in forcing athletes to consider (and directly compare) their levels of PC and PI in the two achievement domains simultaneously which facilitated the extent to which inferences could be made about comparative levels of PC and PI in sport vs. school for the group as a whole.

The current study may have been strengthened if measures of starting status or the academic achievement of the student-athletes had been taken. For example, it is possible that athletes who had starting positions in their respective teams may have had higher perceived competence than non-starters (because starters may have their perceived competence boosted or validated by the coaches' decision to start them), and this in turn may influence/heighten levels of domain-specific perfectionism in sport relative to non-starters (whose perceived competence may

have suffered as a result of not getting the desired validation of their playing ability from the coach: cf. Corbillon, Crossman, & Jamieson, 2008). Alternatively, had an objective measure of academic competence been obtained (e.g., grade point average), or had a list of Academic All Canadians been developed, then comparisons of school-perfectionism levels between high vs. low academic achievers may have shed more light on potential links between domain-specific competence and domain-specific perfectionism. Researchers may wish to consider these variables in future studies that examine factors associated with differences in domain-specific perfectionism levels.

Future research may also wish to determine (a) the extent to which coaches (or other sport practitioners) are capable of influencing the degree to which sport-perfectionism tendencies develop within athletes, and (b) the extent to which teachers (or professors) are capable of influencing the degree to which school-perfectionism tendencies develop within students. For example, if perceived competence influences domain-specific perfectionism levels (Flett et al., 2002), and if coaches are capable of influencing athletes' perceptions of self-competence in sport (Gould et al., 2002), then it may be possible for coaches to indirectly influence athletes' perfectionism levels in sport by way of systematic communication (and reinforcement) that improves athletes' perceived competence in the sport domain (cf. Solomon, 2002). Similarly, in the academic setting, teachers' ability to affect their students' perceived competence in school (see Nicaise, Bois, Fairclough, Amorose, & Cogerino, 2007; Schunk, 1989) may allow teachers to indirectly influence students' perfectionism levels in the classroom. To

date, no research has been conducted that examines the extent to which interventions aimed at building perceived competence in an achievement domain may potentially influence individuals' perfectionist tendencies in those achievement domains.

Despite the aforementioned limitations that exist in the context of the current study, the results of this research provide clear support for the notion that perfectionism can (and at times should) be measured as a domain-specific construct. Moreover, given the similarities that exist between the findings of this study and those reported by McArdle (2010) in her examination of perceived competence, perceived task value, and domain-specific perfectionist tendencies among academically talented youth, it is clear that heightened levels of domain-specific perceived competence and domain-specific task value are associated with heightened domain-specific perfectionism. Although the generalizability of the current findings is limited to the participants of this study, the fact that similar theoretical conclusions were drawn from McArdle's study suggests that the findings may be robust across age, culture, and achievement settings. Ultimately, a better understanding of the potential roles that perceived competence and perceived task value play in the development of domain-specific perfectionist tendencies may only be determined through the use of longitudinal research, whereby perceived competence, perceived importance, and domain-specific perfectionism levels are tracked throughout childhood and adolescence as individuals become exposed to (and develop competence in) different achievement domains.

Chapter 6

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Appendices

APPENDIX 1

Demographic Questionnaire

Please provide the following background information.

1. Age: _____ years, _____ months.

2. Gender: Male / Female (circle appropriate response)

3. Sport: _____

4. Name of team that you currently play on? _____

5. What is your most regular playing position on this team? _____

6. How many years have you competed at the "inter-collegiate/university" varsity level? __

7. Identify (circle) your ethnic/racial background.

Asian
Black
First Nations
Hispanic
White
Other (Please specify) _____

8. Identify (circle) your current student status.

Undergraduate Student
Graduate Student
Post-Doctoral Student

APPENDIX 2

Perceptions of School and Sport Questionnaire (PSSQ)

INSTRUCTIONS The purpose of this questionnaire is to identify how varsity athletes view themselves and their experiences in sport and school. Please help us to understand more fully how university/college varsity athletes view themselves in sport and in school by indicating the extent to which you **agree or disagree** with each of the following statements. (Circle one response option to the right of each statement). **There are no right or wrong answers** so please do not spend too much time on any one statement; simply choose the answer that best describes how you view each statement.

To what extent do you agree or disagree with the following statements?		Strongly Disagree			Neither Agree Nor Disagree			Strongly Agree
1.	I have more ability as an athlete than I do as a student in school.	1	2	3	4	5	6	7
2.	Becoming a better student is more important to me than becoming a better athlete.	1	2	3	4	5	6	7
3.	Doing well in my sport is more rewarding for me than doing well in the classroom.	1	2	3	4	5	6	7
4.	I am able to improve my university grades more easily than I am able to improve my sport skills.	1	2	3	4	5	6	7
5.	Being recognized as a "great student" in the classroom is more important to me than being recognized as a "great athlete."	1	2	3	4	5	6	7
6.	I have more confidence in myself as an athlete than I do as a student.	1	2	3	4	5	6	7
7.	It is more important for me to win games with my team than to receive high grades in my classes.	1	2	3	4	5	6	7
8.	I feel more competent in my "study skills" than I do in my sport skills.	1	2	3	4	5	6	7
9.	Being successful in sport gives me a greater sense of satisfaction than being successful in the classroom.	1	2	3	4	5	6	7
10.	Doing well in sport competition is easier for me than doing well in the classroom.	1	2	3	4	5	6	7
11.	It is more important to me to be known as one of the best athletes on my team than one of the smartest students in my classes.	1	2	3	4	5	6	7
12.	I generally feel more prepared to succeed in academic exams than I do in sport competition.	1	2	3	4	5	6	7

APPENDIX 3

Content Relevance Questionnaire

Thank you for agreeing to participate in this study! The questionnaire contained in this packet will take approximately 15 minutes to complete. Due to your level of expertise and knowledge in the social sciences and/or instrument-validation process, your responses to this questionnaire are very important. Please carefully follow both the general instructions presented below and the instructions presented at the start of each section of the packet.

General Instructions:

1. Complete the demographic questionnaire on page 2.
2. On page 3, please read over the two "construct definitions" in Part A and the 12 items contained in Part B.
3. Complete the ratings on pages 4-7 by indicating how well the content of each item fits the definitions of the two constructs provided. IF YOU PLAN TO RETURN THE COMPLETED INVENTORY BY E-MAIL, PLEASE USE THE **"UNDERLINE"** FUNCTION OF YOUR WORD PROCESSOR TO IDENTIFY YOUR NUMERICAL RATINGS FOR EACH ITEM.
4. After you have rated all of the items, please return the completed questionnaire to me (Keith McDonald) at your earliest convenience by e-mail (keith1@ualberta.ca) or by mail to **"Dr. John Dunn, E-488 Van Vliet Centre, Faculty of Physical Education & Recreation, University of Alberta, Edmonton, AB, T6G 2H9"**

If you have any questions regarding any aspect of this questionnaire packet or this study, please do not hesitate to contact Keith McDonald or Dr. John Dunn through e-mail at keith1@ualberta.ca or john.dunn@ualberta.ca respectively.

Demographic Questionnaire

1. Gender: Male / Female (Please circle appropriate response)

2. What is the highest academic degree that you have attained (e.g., B.Sc., M.A., Ph.D.)? _____

3. What is the name of your faculty/department?
   _____

4. What is your academic rank (e.g., graduate student, lecturer, assistant professor, associate professor, full professor)?
   _____

5. Approximately how many social science papers have you had published in refereed journals over the past five years? _____

6. Would you like a copy of the overall results of the expert-judges' ratings upon completion of the project? Yes / No

PART A

INSTRUCTIONS: Listed below are the "construct definitions" that the items contained in this instrument are intended to measure. Please take a moment to **read over** and familiarize yourself with these definitions before proceeding to the next part.

Perceived competence: The item reflects an individual's beliefs in his or her ability to succeed in a specific domain (or area) of life.

Perceived importance: The item reflects the value an individual assigns to a task or outcome within a specific domain (or area) of life, or to the domain itself.

PART B

INSTRUCTIONS: Listed below are 12 items that were developed to either assess ***Perceived Competence*** or ***Perceived Importance*** (as defined above) in school vs. sport settings. Please take a moment to read over and familiarize yourself with these items.

1) I have more ability as an athlete than I do as a student in school.

2) Becoming a better student is more important to me than becoming a better athlete.

3) Doing well in my sport is more rewarding for me than doing well in the classroom.

4) I am able to improve my university grades more easily than I am able to improve my sport skills.

5) Being recognised as a "great student" in the classroom is more important to me than being recognised as a "great athlete".

6) I have more confidence in myself as an athlete than I do as a student.

7) It is more important for me to win games with my team than to receive high grades in my classes.

8) I feel more competent in my "study skills" than I do in my sport skills.

9) Being successful in sport gives me a greater sense of satisfaction than being successful in the classroom.

10) Doing well in sport competition is easier for me than doing well in the classroom.

11) I get more excited when I do things well in the classroom than when I do things well in my sport.

12) I generally feel more prepared to succeed in academic exams than I do in sport competition.

Λ IF YOU PLAN TO RETURN THIS INVENTORY BY E-MAIL, PLEASE USE THE "UNDERLINE" FUNCTION OF YOUR WORD PROCESSOR TO IDENTIFY YOUR NUMERICAL RATINGS FOR EACH ITEM ON THE FOLLOWING PAGES.

PART C

INSTRUCTIONS: Using the 5-point scale (1 = *Poor Fit*; 5 = *Excellent Fit*) please rate the degree to which the items fit or match with each of the two "constructs":

Perceived competence: The item reflects an individual's beliefs in his or her ability to succeed in a specific domain (or area) of life.

Perceived importance: The item reflects the value an individual assigns to a task or outcome within a specific domain (or area) of life, or to the domain itself.

ITEM 1

I have more ability as an athlete than I do as a student in school.

Construct	Poor fit	Fair fit	Good fit	Very good fit	Excellent fit
Perceived Competence	1	2	3	4	5
Perceived Importance	1	2	3	4	5

Comments about item content or structure:

ITEM 2

Becoming a better student is more important to me than becoming a better athlete.

Construct	Poor fit	Fair fit	Good fit	Very good fit	Excellent fit
Perceived Competence	1	2	3	4	5
Perceived Importance	1	2	3	4	5

Comments about item content or structure:

ITEM 3

Doing well in my sport is more rewarding for me than doing well in the classroom.

Construct	Poor fit	Fair fit	Good fit	Very good fit	Excellent fit
Perceived Competence	1	2	3	4	5
Perceived Importance	1	2	3	4	5

Comments about item content or structure:

INSTRUCTIONS: Using the 5-point scale (1 = *Poor Fit*; 5 = *Excellent Fit*) please rate the degree to which the items fit or match with each of the two "constructs":

Perceived competence: The item reflects an individual's beliefs in his or her ability to succeed in a specific domain (or area) of life.

Perceived importance: The item reflects the value an individual assigns to a task or outcome within a specific domain (or area) of life, or to the domain itself.

ITEM 4

I am able to improve my university grades more easily than I am able to improve my sport skills.

Construct	Poor fit	Fair fit	Good fit	Very good fit	Excellent fit
Perceived Competence	1	2	3	4	5
Perceived Importance	1	2	3	4	5

Comments about item content or structure:

ITEM 5

Being recognised as a "great student" in the classroom is more important to me than being recognised as a "great athlete".

Construct	Poor fit	Fair fit	Good fit	Very good fit	Excellent fit
Perceived Competence	1	2	3	4	5
Perceived Importance	1	2	3	4	5

Comments about item content or structure:

ITEM 6

I have more confidence in myself as an athlete than I do as a student.

Construct	Poor fit	Fair fit	Good fit	Very good fit	Excellent fit
Perceived Competence	1	2	3	4	5
Perceived Importance	1	2	3	4	5

Comments about item content or structure:

INSTRUCTIONS: Using the 5-point scale (1 = *Poor Fit*; 5 = *Excellent Fit*) please rate the degree to which the items fit or match with <u>each</u> of the two "constructs":

Perceived competence: The item reflects an individual's beliefs in his or her <u>ability to succeed</u> in a specific domain (or area) of life.

Perceived importance: The item reflects the <u>value an individual assigns</u> to a task or outcome within a specific domain (or area) of life, or to the domain itself.

ITEM 7

It is more important for me to win games with my team than to receive high grades in my classes.

Construct	Poor fit	Fair fit	Good fit	Very good fit	Excellent fit
Perceived Competence	1	2	3	4	5
Perceived Importance	1	2	3	4	5

Comments about item content or structure:

ITEM 8

I feel more competent in my "study skills" than I do in my sport skills.

Construct	Poor fit	Fair fit	Good fit	Very good fit	Excellent fit
Perceived Competence	1	2	3	4	5
Perceived Importance	1	2	3	4	5

Comments about item content or structure:

ITEM 9

Being successful in sport gives me a greater sense of satisfaction than being successful in the classroom.

Construct	Poor fit	Fair fit	Good fit	Very good fit	Excellent fit
Perceived Competence	1	2	3	4	5
Perceived Importance	1	2	3	4	5

Comments about item content or structure:

INSTRUCTIONS: Using the 5-point scale (1 = *Poor Fit*; 5 = *Excellent Fit*) please rate the degree to which the items fit or match with <u>each</u> of the two "constructs":

Perceived competence: The item reflects an individual's beliefs in his or her <u>ability to succeed</u> in a specific domain (or area) of life.

Perceived importance: The item reflects the <u>value an individual assigns</u> to a task or outcome within a specific domain (or area) of life, or to the domain itself.

ITEM 10

Doing well in sport competition is easier for me than doing well in the classroom.

Construct	Poor fit	Fair fit	Good fit	Very good fit	Excellent fit
Perceived Competence	1	2	3	4	5
Perceived Importance	1	2	3	4	5

Comments about item content or structure:

ITEM 11

I get more excited when I do things well in the classroom than when I do things well in my sport.

Construct	Poor fit	Fair fit	Good fit	Very good fit	Excellent fit
Perceived Competence	1	2	3	4	5
Perceived Importance	1	2	3	4	5

Comments about item content or structure:

ITEM 12

I generally feel more prepared to succeed in academic exams than I do in sport competition.

Construct	Poor fit	Fair fit	Good fit	Very good fit	Excellent fit
Perceived Competence	1	2	3	4	5
Perceived Importance	1	2	3	4	5

Comments about item content or structure:

APPENDIX 4

Information Letter for Coaches

UNIVERSITY OF ALBERTA

Faculty of Physical Education and Recreation

E488 Van Vliet Centre
Edmonton, Alberta, Canada T6G 2H9

DATE, 2009

Coach XXX

Dear Coach,

As part of an ongoing sport psychology research program based out of the University of Alberta, we are currently conducting a study looking into varsity athletes' attitudes and performance expectations in sport. The purpose of this letter is to ask for your permission to access the players who you will be coaching on your XXXX team during the 2009/2010 CIS/ACAC season. The title of the study is ***The Domain Specificity of Perfectionism in Varsity Athletes,*** and will be conducted by Keith McDonald (under the supervision of Dr. John Dunn) as part of Keith McDonald's Master's thesis. In the present study we are attempting to:

- examine the underlying reasons why varsity athletes often display different perfectionistic orientations towards their accomplishments in sport vs. school/academic settings.

It is our intention that the results of this study will be used to better understand the construct of perfectionism in sport so that coaches, researchers, and sport psychologists will be better able to assess and identify perfectionistic tendencies in athletes. Ultimately, this study should help pave the way for a greater understanding of perfectionism (and its correlates and consequences) in sport and academic settings.

If you agree to give us permission to approach your athletes, we would only ask for your assistance with scheduling a one-time-only 30-minute meeting with your players during which the players would be informed about the nature of the study and asked to complete four short questionnaires.

Procedures

In terms of the commitments that would be involved for your team, the following is a summary of the procedures that we would employ:

(1) At a team meeting, athletes would complete four brief self-report questionnaires to measure demographic characteristics, perfectionist orientations, and perceptions of experiences in sport versus school (copies of the questionnaires have been attached for your perusal).

(2) The entire meeting will take **no more than 30 minutes**.

(3) The questionnaires will be completed in a suitable room located at your team's training facility or competition facility, and will be scheduled at a time during your regular season that is most convenient for your team.

(4) All questionnaires will be administered by Keith McDonald. Keith is a level 4 NCCP coach in the sport of Trampoline and is currently in the second year of his Master's degree program studying sport psychology under the supervision of Dr. John Dunn (Faculty of Physical Education and Recreation, University of Alberta).

Ethical Issues

(1) It will be made clear to all athletes that their participation in the study is entirely voluntary, and that their decision to participate (or not) will have no impact upon their playing status on their respective team.

(2) All information supplied by the players will be kept strictly confidential, and the anonymity of individual players will be ensured at all times. Only the research team (Keith McDonald and Dr. John Dunn) will have access to individual results. Teammates, parents, and coaches will not be given access to individual results.

(3) Coaches will be asked to leave the room during the time that questionnaires are completed by the athletes so that players do not feel pressure to participate.

(4) There are no inherent psychological or physical risks associated with the protocol.

(5) The study has been cleared by the Faculty Research Ethics Board at the University of Alberta. A copy of the ethics clearance is available upon request.

Copies of the information letters and consent forms that we would provide your players have been attached for your examination.

Retention of Data and Information Dissemination

(1) All data will be coded and stored in a locked office to which only the researchers (i.e., Keith McDonald and Dr. John Dunn) will have access.

(2) All data will be destroyed five years post publication (i.e., following conference presentations, journal publications, etc.).

(3) An executive report of the study's findings will be mailed to coaches at the completion of the study.

(4) We will be happy to discuss, in person, any aspect of the study with you.

(5) Participants (i.e., the athletes) can ask for a free copy of the report from the researchers when the report has been completed in the summer of 2010.

We hope that the preceding information clarifies our intent and procedures. Please feel free to contact Keith McDonald (e-mail: keith1@ualberta.ca) or Dr. John Dunn (780-492-2831; e-mail: john.dunn@ualberta.ca) if you have any questions or concerns about the study. Alternatively, if you wish to speak to someone who is not directly involved with this study, please contact Dr. Wendy Rodgers, Chair of the Faculty Research Ethics Board, at 780-492-2677.

We hope that you will consider our request to allow us to conduct the study, the results of which should make a valuable contribution to understanding the attitudes and experiences varsity athletes in Alberta. Keith McDonald will try to contact you next week either by phone or by e-mail to discuss our proposal. In the event that you wish to know more about our current research program before making any decision about participation, a summary of Dr. John Dunn's research and applied sport psychology consulting work can be found at the following website: http://www.per.ualberta.ca/jdunn/

Thank you for your consideration.

Sincerely,

Keith McDonald, BA

John G. H. Dunn, PhD

APPENDIX 5

Information Letter for Athletes

UNIVERSITY OF ALBERTA

Faculty of Physical Education and Recreation

E488 Van Vliet Centre
Edmonton, Alberta, Canada T6G 2H9

DATE , 2009

Dear Varsity Athlete,

The purpose of this letter is to ask you to consider participating in a research project (titled ***The Domain Specificity of Perfectionism in Varsity Athletes***) that is being conducted by Keith McDonald and Dr. John Dunn from the Faculty of Physical Education and Recreation at the University of Alberta (U of A). This study is part of Keith McDonald's Master's thesis in the area of sport psychology.

The purpose of this study is to examine the extent to which varsity athletes have perfectionistic orientations towards their accomplishments in sport and school. The main objective of this study is to better understand the construct of perfectionism in sport so that coaches, researchers, and sport psychologists will be better able to assess and identify perfectionistic tendencies in athletes. Although the results of this study will have no immediate benefits for you, it is hoped that the information you provide will ultimately be used to assist athletes in their quest to achieve better performance in competition through the development of mental skills training programs. In addition, it is hoped that the information from this study can be used to further the understanding of the factors associated with of perfectionism in high performance varsity sport.

Should you agree to participate in the study, you will be asked to commit no more than **30 minutes of your time** on a non-game day in mid season to complete four brief questionnaires. The questionnaires would be completed at a team meeting scheduled by your head coach. The questionnaires would ask you to provide information about your playing experiences, and about your motives, goals and performance expectations in sport and school. To ensure confidentiality and anonymity, you will *not* be asked to put your name on any questionnaires, and no individual information will be shared with players or coaches at any time. All data will be coded and stored in a locked office at the U of A. Only the two researchers (Keith McDonald and Dr. John Dunn) will have access to your individual information. There are no known psychological or physical risks inherent with the research process.

Please understand that your participation in the study is voluntary. You are free to ignore any questions in the questionnaires that you do not wish to answer. You may decline to participate or withdraw from the study at any time, for any reason, without consequence. Should you decide to withdraw or not participate, your decision can be

expressed either verbally or in writing to any member of the research team at any time. Your information will then be removed from the study upon your request.

The study has been approved by the Faculty Research Ethics Board at the University of Alberta and by the head coach of your team. However, you are in no way obligated to participate in the study. Failure to participate will have no bearing on your playing involvement with your team.

Your coaches will not know if you participate in the study or not. Coaches will not be present in the room during the time you complete the questionnaires. Only your teammates and the researcher will be in the room when questionnaires are completed. Moreover, the individual information that you provide will only be accessed by the researchers (i.e., Keith McDonald and Dr. John Dunn). Normally, information is retained for a period of five years following any publication of the group information (e.g., conference presentation or journal publication), after which time all individual information will be destroyed. You can obtain a free copy of the final report by contacting Keith McDonald or Dr. John Dunn when the report has been completed in July 2010.

Please feel free to contact Keith McDonald (e-mail: keith1@ualberta.ca) or Dr. John Dunn (phone: [780]-492-2831; e-mail john.dunn@ualberta.ca) if you have any questions or concerns about the study. Alternatively, if you wish to speak to someone who is not directly involved with this study, please contact Dr. Wendy Rodgers, Chair of the Faculty Ethics Committee, at (780)-492-2677.

We hope that you will consider this request to participate in the study. You will be assisting with the development of scientific knowledge pertaining to the psychological characteristics of Canadian varsity athletes. We want to reinforce that we only need you for one 30-minute session in mid-season. In the event that you wish to know more about our current research program before making any tentative decisions about participation, a summary of Dr. John Dunn's research interests and applied sport psychology work can be found at the following website:
http://www.per.ualberta.ca/jdunn/

Thank you for your consideration.

Sincerely,

Keith McDonald, BA John G.H. Dunn, PhD

APPENDIX 6

Athlete Consent Form

UNIVERSITY OF ALBERTA
Faculty of Physical Education and Recreation
E488 Van Vliet Centre
Edmonton, Alberta, Canada T6G 2H9

Title of Project: ***The Domain Specificity of Perfectionism in Varsity Athletes***

Principal Investigator: ***Mr. Keith McDonald, e-mail: keith1@ualberta.ca***
Dr. John Dunn, University of Alberta, Tel: (780)-492-2831, e-mail: john.dunn@ualberta.ca

Part 2 (to be completed by the research participant):

Do you understand that you have been asked to be in a research study?	Yes	No
Have you read and received a copy of the attached Information Sheet?	Yes	No
Do you understand the benefits and risks involved in taking part in this research study?	Yes	No
Have you had an opportunity to ask questions and discuss this study?	Yes	No
Do you understand that you are free to refuse to participate, or to withdraw from the study at any time, without consequence, and that your information will be removed from the study at your request?	Yes	No
Has the issue of confidentiality been explained to you? Do you understand who will have access to your information?	Yes	No

If you have any questions or concerns regarding this study, you can contact any of the investigators whose names have been provided above. If you wish to speak to someone who is not involved with this study, please contact Dr. Wendy Rodgers, Chair of the Faculty Ethics Committee, at (780)-492-2677.

_____ _____
Signature of Research Participant (i.e., Athlete) Date

_____
Printed Name

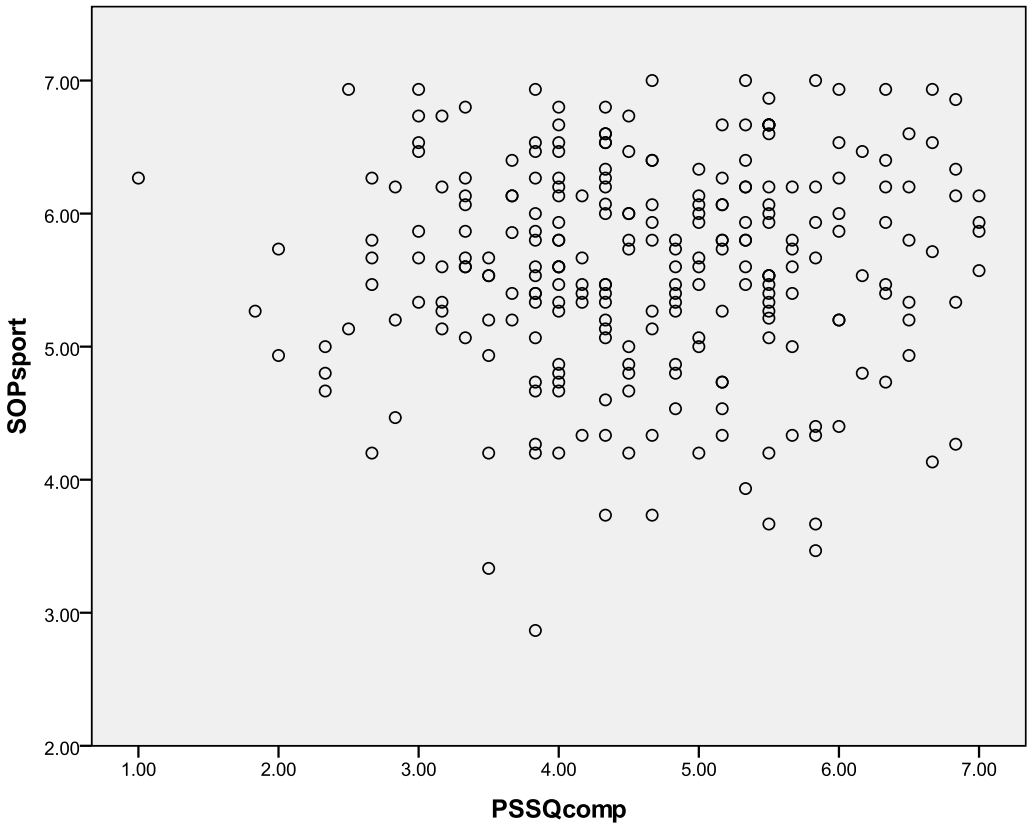
I believe that the person signing this form understands what is involved in the study and voluntarily agrees to participate.

_____ _____
Signature of Researcher Date

Participants are free to contact Dr. John Dunn for a free summary of the results in DATE following the completion of the data analysis phase of the study

APPENDIX 7

Scatter Plot of SOP.Sport and PSSQ Competence Scores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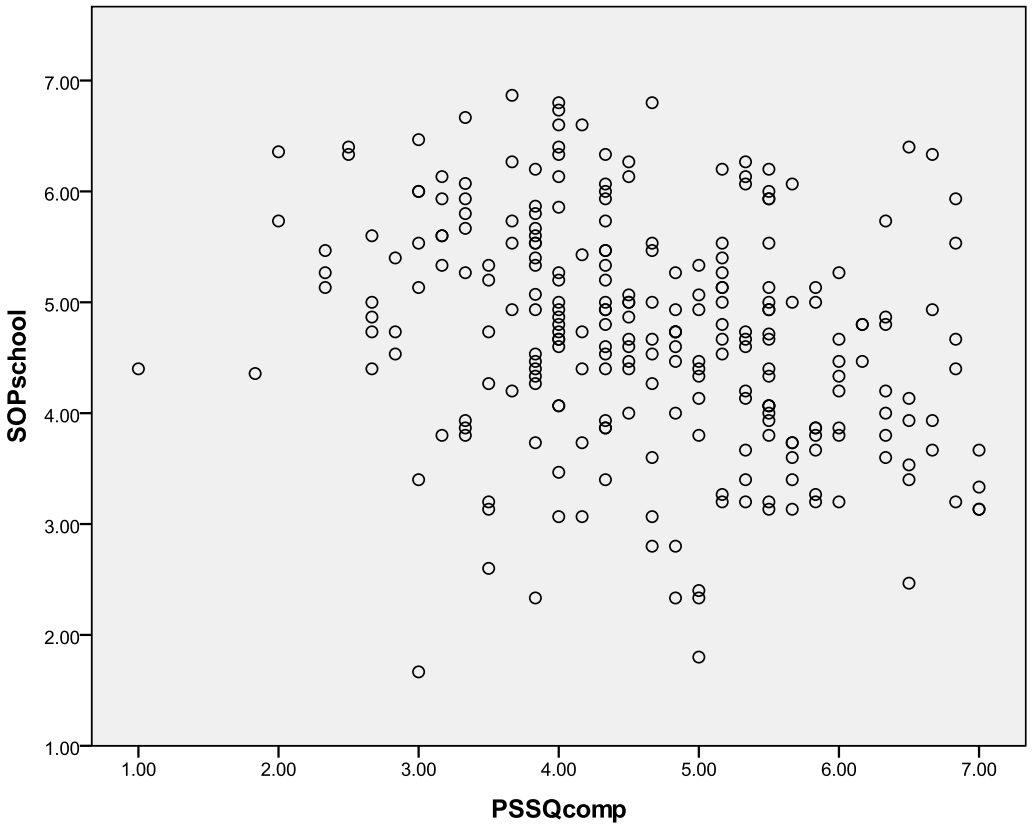
6.00
5.00
4.00
3.00
2.00
1.00
2.00
3.00
4.00
5.00
6.00
7.00
PSSQcomp

APPENDIX 8

Scatter Plot of SOP.School and PSSQ Competence Scores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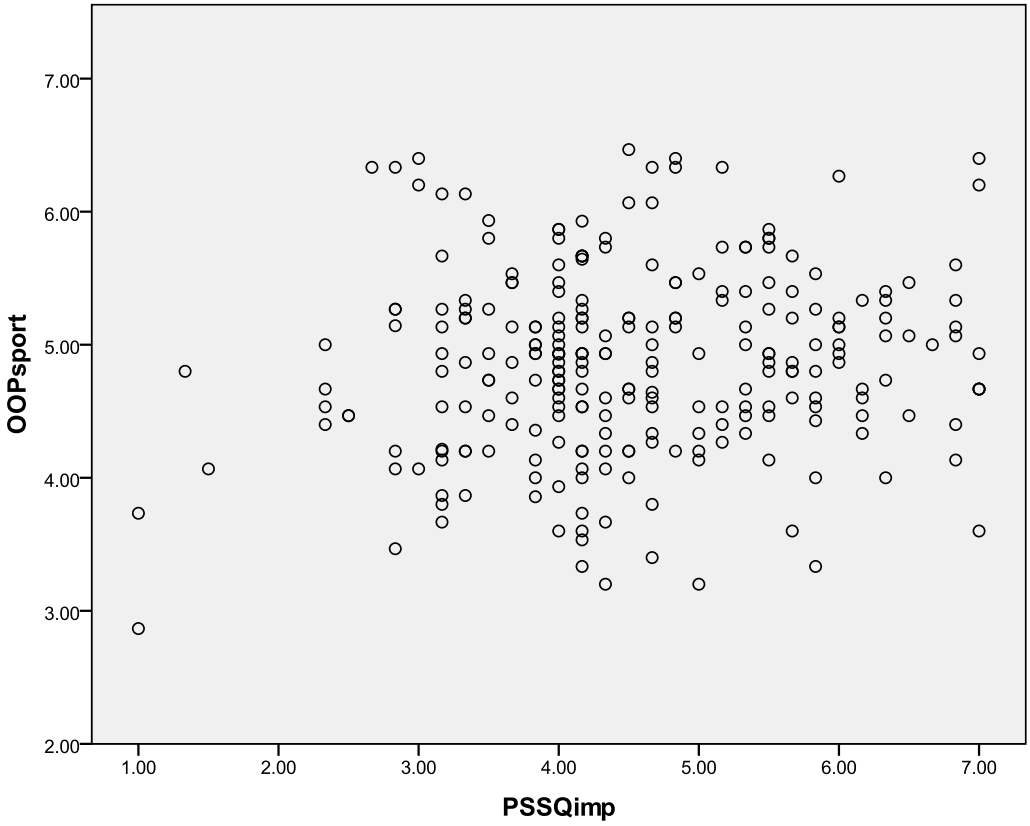
7.00
PSSQcomp

APPENDIX 9

Scatter Plot of OOP.Sport and PSSQ Importance Scores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OOPsport
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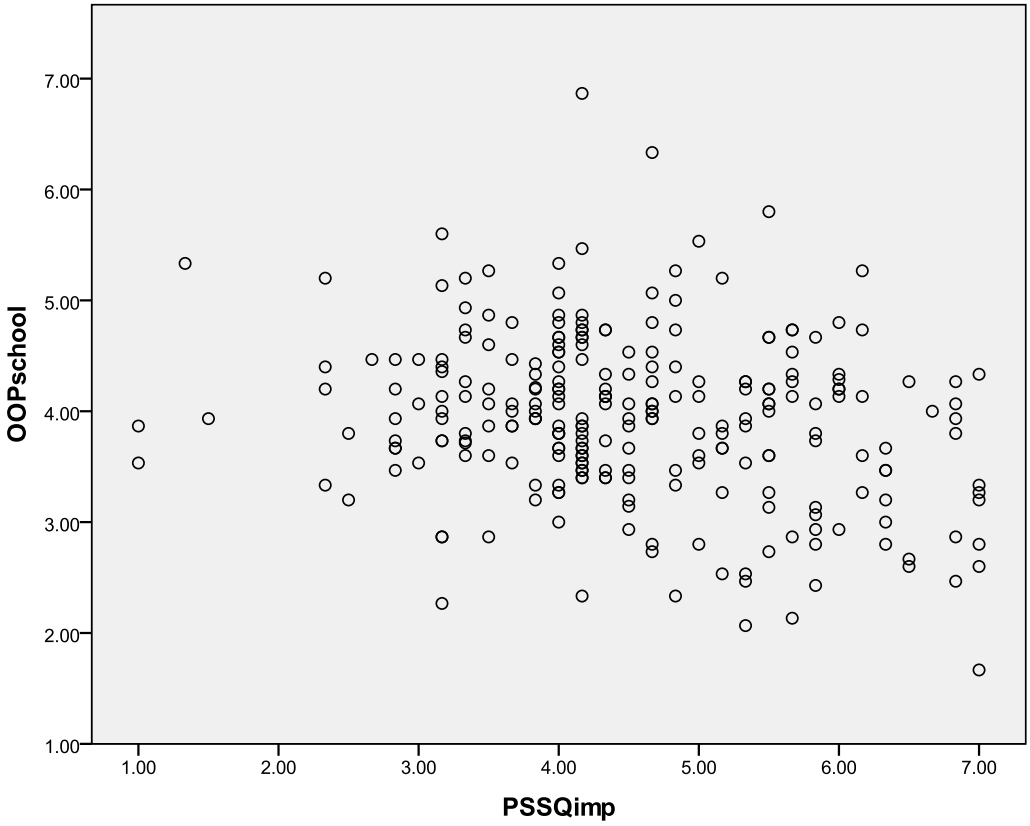
7.00
PSSQimp

APPENDIX 10

Scatter Plot of OOP.School and PSSQ Importance Scores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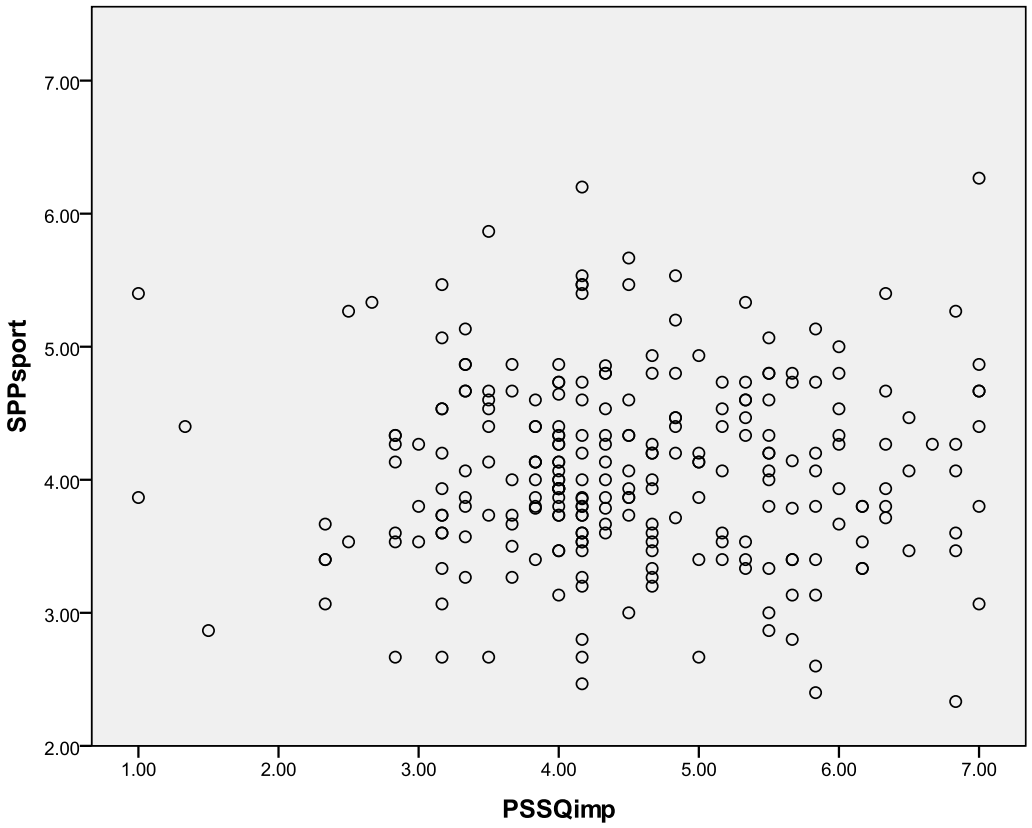
7.00
PSSQimp

APPENDIX 11

Scatter Plot of SPP.Sport and PSSQ Importance Scores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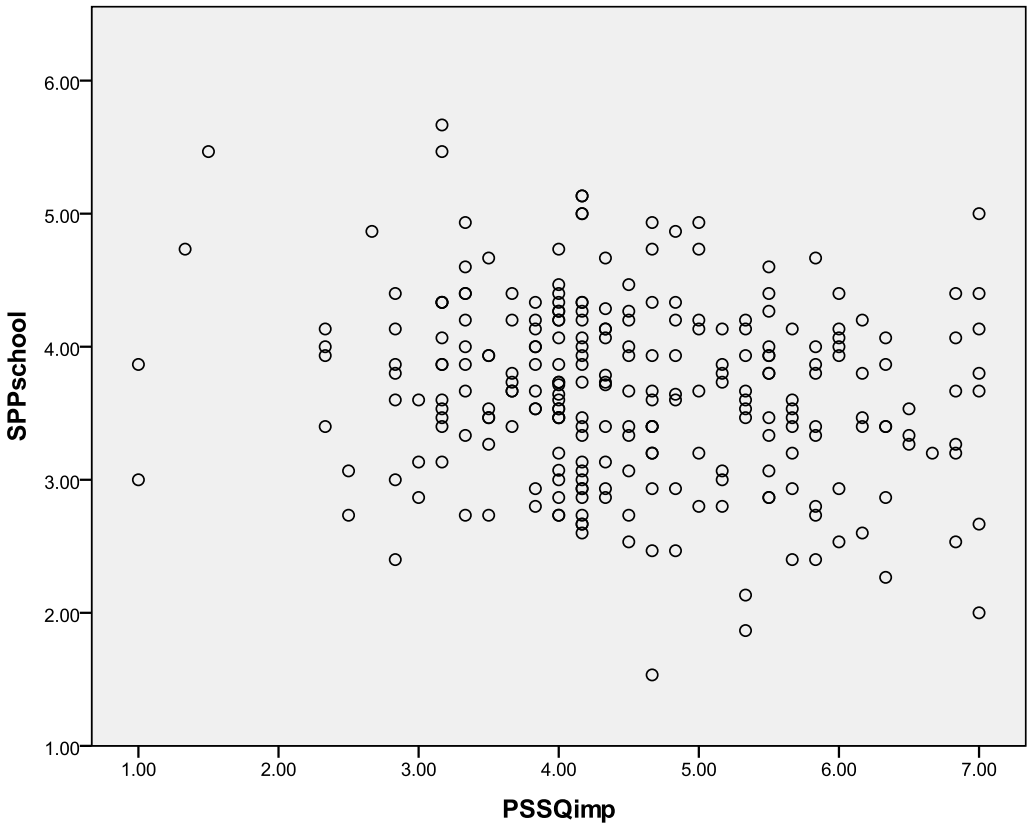
5.00
6.00
7.00
PSSQimp

APPENDIX 12

Scatter Plot of SPP.School and PSSQ Importance Scores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1.00
2.00
3.00
4.00
5.00
6.00
7.00
PSSQimp