Running Head: PERFECTIONISM IN STUDENTS AND EMPLOYEES

Perfectionism in Students and Employees: Predicting Stress and Intragroup Relationships

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Julian H. Childs
University of Kent

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I have thoroughly enjoyed the work that has gone into this thesis: learning about, and researching, perfectionism, stress, burnout, engagement, and intragroup relationships; developing my research, analytical, and statistical skills; and collaborating with other organizations. I would be reticent to not at least mention other experiences that have also enriched this Ph.D, including: teaching, various training courses including a Certificate in Stress Management, publishing research in journals and also in a press release which was featured as an article in the Times Education Supplement, facilitating a stress management workshop with a group of teachers, collaborating with other researchers on various projects, presenting at and attending conferences, volunteering at the Dover Counseling Centre, working as an editorial assistant for Anxiety, Stress, and Coping and also reviewing articles for journals, and a three-month internship at Acas (Advisory, conciliation and arbitration service) in which I utilized research skills I had not done so in this thesis—namely, devising and conducting a qualitative research study. I look forward to building on this thesis in the future by developing and testing an intervention that aims to help students and employees manage unhelpful aspects of perfectionism in order to reduce stress and burnout, and improve intragroup relationships.

Abstract

Over the past 20 years, Hewitt and Flett's (1991) tripartite model of perfectionism has been the focus of numerous research studies. Academia and work are two life domains in which perfectionism is most prevalent. Nevertheless, there is a lack of research with samples of students and employees on the longitudinal effects of perfectionism on stress, burnout, and engagement, and on the effects of perfectionism on intragroup relationships in a team-work context. The aims of this thesis were therefore to investigate whether perfectionism longitudinally predicts stress, burnout, and engagement, and to investigate whether perfectionism is associated with intragroup relationships in a team-work context. To this end, I conducted six studies. In Study 1, 76 students completed measures of perfectionism, the Big Five, burnout, and engagement twice over four months. In Study 2, 69 employees completed measures of perfectionism, stress, and burnout twice over six months. In Study 3, 195 teachers completed measures of perfectionism, stress, burnout, and engagement twice over three months. In Study 4, 147 students completed a measure of perfectionism and then responded to a vignette about working with a hypothetical partner who was described as a perfectionist. In Study 5, 110 students working on team projects completed measures of perfectionism, cohesion, and engagement. And in Study 6, 149 employees, nested within teams, completed measures of perfectionism, cohesion, and stress. Across studies, socially prescribed perfectionism consistently predicted higher levels of stress and burnout longitudinally, and it was also associated with positive and negative intragroup relationships. In comparison, self-oriented perfectionism was associated with positive intragroup relationships, and other-oriented perfectionism was associated with positive and negative intragroup relationships. The findings suggest that students and employees who strive for exceedingly high standards experience increasing levels of stress and burnout which may harm their future psychological adjustment.

Contents

Chapter 1
Overview, Aims, and Organization of Thesis

1.1. Overview

Over the past 20 years, Hewitt and Flett's (1991) tripartite model of perfectionism has been the focus of numerous research studies. The three forms of perfectionism have been shown to be associated with an array of negative, as well as some positive, characteristics, processes, and outcomes (see Enns & Cox, 2002; Stoeber & Otto, 2006 for reviews). Academia and work are two life domains in which perfectionism is most prevalent (Slaney & Ashby, 1996; Stoeber & Stoeber, 2009). Similarly, stress, burnout, and engagement are central variables in students' and employees' psychological adjustment, and have been shown to impact students, employees, and organizations in numerous ways (e.g., Cooper, Dewe, & O'Driscoll, 2001; Salanova, Schaufeli, Martínez, & Bresó, 2010; Schaufeli, Leiter, Maslach, & Jackson, 1996; Shirom, 2002). Nevertheless, to the best of my knowledge, no study has examined the longitudinal effects of Hewitt and Flett's (1991) model of perfectionism on stress, burnout, and engagement in either students or employees. The studies that have examined Hewitt & Flett's (1991) model of perfectionism and stress, burnout, and engagement were all cross-sectional meaning that they only provide information on the co-occurrence of perfectionism and stress, burnout, and engagement but not information on whether perfectionism predicts changes in stress, burnout, and engagement. Only longitudinal studies can provide such information (Taris, 2000).

Furthermore, Hewitt and Flett's (1991) model differentiates intrapersonal and interpersonal forms of perfectionism, and previous research has shown the three forms of perfectionism to be associated with numerous interpersonal characteristics, processes, and outcomes (e.g., Hewitt & Flett, 1991; R. W. Hill, Zrull, & Turlington, 1997). Moreover, working with others should be important to perfectionists. A perfectionist's performance is interdependent with that of their team, and a positive relationship within the team is a means of not only achieving the team's goals thus bolstering one's own performance, but it is also a means of forging one's identity as a perfectionist (cf. Hogg, 1992; Mullen & Cooper, 1994; Tajfel & Turner, 1979, 1986; also see Chapter 4). Nevertheless, to the best of my knowledge, no study has examined the effects of the three forms of perfectionism on intragroup relationships in a team-work context in either students or employees.

The aim of the present research was therefore to investigate perfectionism in students and employees. In particular, I had two aims. The first aim was to examine whether perfectionism longitudinally predicts stress, burnout, and engagement, and I conducted three studies. The second aim was to examine whether perfectionism is associated with intragroup relationships in a team-work context, and I again conducted three studies.

1.2. Does Perfectionism Longitudinally Predict Stress, Burnout, and Engagement?

1.2.1. Study 1. The aim of Study 1 was to investigate whether perfectionism longitudinally predicts burnout and engagement. In particular, I had three aims: first, to examine whether perfectionism longitudinally predicts increases in burnout and engagement; second, to examine the incremental validity of predicting burnout and engagement with perfectionism over the Big Five (Costa & McCrae, 1992); and third, to examine whether the relationships between perfectionism and burnout and engagement were unidirectional or bidirectional. To this end, a sample of undergraduate students completed questionnaires measuring perfectionism, the Big Five, burnout, and engagement twice over four months.

1.2.2. Study 2. The aim of Study 2 was to expand on Study 1 by investigating whether perfectionism longitudinally predicts stress and burnout in employees. To this end, a sample of employees completed questionnaires measuring perfectionism, stress, and burnout twice over six months.

1.2.3. Study 3. The aim of Study 3 was to expand on Study 2 by investigating whether perfectionism longitudinally predicts stress and burnout using a larger sample of employees working in a different setting, and by investigating positive work-related outcomes, specifically engagement. To this end, a sample of teachers completed questionnaires measuring perfectionism, stress, burnout, and engagement twice over three months.

1.3. Is Perfectionism Associated with Intragroup Relationships and Stress in a Team-Work Context?

1.3.1. Study 4. The aim of Study 4 was to investigate whether perfectionism is associated with dyadic relationships. In particular, I had three aims: first, to examine whether students' perfectionism is associated with the relationship quality with an interaction partner; second, to examine whether the interaction partner's perfectionism is associated with the relationship quality; and third, to examine the interaction effects of students' and partners' perfectionism on the relationship quality. To this end, a sample of undergraduate students

completed a questionnaire on perfectionism, read a vignette about working with a hypothetical student partner who was described as a perfectionist, and then rated the relationship quality.

1.3.2. Study 5. The aim of Study 5 was to investigate perfectionism, cohesion, and engagement and, in doing so, to expand on Study 4 by investigating whether perfectionism is associated with real-world, opposed to hypothetical, intragroup relationships. In particular, I had two aims: first, to examine whether perfectionism is associated with cohesion; and second, to examine whether perfectionism and cohesion are associated with engagement. To this end, a sample of undergraduate students, working on team projects, completed a questionnaire on perfectionism, cohesion, and engagement.

1.3.3. Study 6. The aim of Study 6 was to investigate perfectionism, cohesion, and stress and, in doing so, to expand on Study 5 by investigating multilevel effects in employee teams. In particular, I had two aims: first, to investigate whether perfectionism is associated with cohesion; and second, to investigate whether perfectionism and cohesion are associated with stress. To this end, a sample of teams of employees completed a questionnaire on perfectionism, cohesion, and stress.

1.4. Organization of Thesis

The next three chapters will cover the results of the literature review. In particular, Chapter 2 covers definitions of perfectionism; models, measures, and correlates of perfectionism; and the development of perfectionism. Chapter 3 covers stress, stress and personality, and stress and perfectionism. And Chapter 4 covers intragroup relationships and stress, intragroup relationships and personality, and intragroup relationships and perfectionism. An advance organizer is presented in Chapter 5 to reiterate the aims of Studies 1-3, and these studies are then reported in Chapters 6-8. Similarly, an advance organizer is also presented in Chapter 9 to reiterate the aims of Studies 4-6, and these studies are then reported in Chapters 10-12. The final chapter, the general discussion, comprises an overview of the thesis, a summary of the findings, how the findings meet the two aims of the thesis and extend the literature, limitations, and directions for future research.

Chapter 2
Perfectionism

> They say that nobody is perfect. Then they tell you practice makes perfect. I wish they'd make up their minds.
>
> (Winston Churchill, n.d.)[1].

2.1. Definitions of Perfectionism

2.1.1. Definitions from the literature. Before investigating perfectionism, it is important to define the construct. Theoretical models, empirical measures, and correlates are all dependent upon how perfectionism is defined. Over the past 40 years, however, psychologists have proposed numerous definitions. These definitions stem from psychoanalytic, developmental, behaviorist, trait, social-cognitive, and clinical approaches. Prototypical definitions will be introduced below before perfectionism is comprehensively explored in Models, Measures, and Correlates (see section 2.2.).

The dictionary defines perfectionism as "a disposition to regard anything short of perfection as unacceptable" (Merriam-Webster Online, 2009a) with perfection being "an unsurpassable degree of accuracy or excellence" (Merriam-Webster Online, 2009b). Psychologists have, however, proposed more nuanced definitions in order to better reflect what perfectionism means for the individual. In particular, psychoanalysts refer to perfectionism as the "tyranny of the shoulds" (Horney, 1950, p. 65). Neurotic individuals use dogmatic and prescriptive statements (i.e., shoulds) to move away from the actual self and towards the idealized self. Both the psychoanalytic and the developmental approaches contend that perfectionism is rooted in childhood experiences and interactions with primary care givers (see 2.3. The Development of Perfectionism). In essence, perfectionists believe that their parents will only love them if they are perfect (e.g., Pacht, 1984). Consequently, perfectionists evaluate their performance based on their beliefs about parental approval and disapproval and feel that "their parents have set standards they cannot meet, and failure to meet them means a potential loss of parental love and acceptance" (Frost, Marten, Lahart, & Rosenblate, 1990,

[1] As cited by Quintiles (2009, p. 1).

p. 451). Perfectionists may continue to strive for perfection, and therefore parental love, throughout their adult lives despite perfection being unobtainable (Pacht, 1984).

In contrast to the psychoanalytic and developmental approaches which focus on the antecedents of perfectionism, the behaviorist approach focuses on the consequences of perfectionism. In particular, positive perfectionism is the function of positive reinforcements whereas negative perfectionism is the function of the avoidance of negative reinforcements (Terry-Short, Owens, Slade, & Dewey, 1995). In contrast, the trait approach contends that perfectionism is a multidimensional personality trait comprised of intrapersonal and interpersonal dimensions (e.g., Hewitt & Flett, 1991). Moreover, in both the trait and the social-cognitive approaches, perfectionism is defined in relation to thoughts, emotions, and behaviors regarding the self and others. For example, "[perfectionists are] individuals who are consistently and pervasively self-scrutinizing and are acutely sensitive to the scrutiny of others" (Powers, Koestner, & Topicu, 2007, p. 903).

The clinical approach, finally, contends that perfectionism is characteristic of psychopathology. Perfectionists are people whose "standards are high beyond reach or reason, who strain compulsively and unremittingly toward impossible goals and who measure their own worth entirely in terms of productivity and accomplishment" (D. Burns, 1980, p. 34). Perfectionism is a risk factor for psychopathology because not only do perfectionists demand a certain standard of performance, but they cannot accept any level of performance that falls short of their standard (Hollender, 1965). According to some researchers, perfectionism is not a risk factor of psychopathology but is a clinical disorder in and of itself. "[Clinical perfectionism is] the overdependence of self-evaluation on the determined pursuit of self-imposed personally demanding standards of performance in at least one salient domain, despite the occurrence of adverse consequences" (Shafran, Cooper, & Fairburn, 2002, p. 778).

2.1.2. My definition. I define perfectionism in the present research drawing on trait, social-cognitive, and clinical approaches. As detailed below, perfectionism is: (a) a lower-order personality trait influencing at least one salient life domain, characterized by (b) striving for valued standards of performance which are (c) self-imposed, perceived as imposed by others, and/or imposed onto others. These standards are (d) perceived as exceedingly high and (e) govern a person's cognition, behavior, and affect.

2.1.2.1. Perfectionism is a lower-order personality trait influencing at least one salient life domain. Personality traits describe enduring individual differences which explain why a person has a consistent pattern of cognition, behavior, and affect over time and across

different situations (Allport, 1961). Differences in traits explain why people have different patterns of cognition, behavior, and affect. Traits are pervasively described along the Big Five continua: openness, conscientiousness, extraversion, agreeableness, and neuroticism (Costa & McCrae, 1992; McCrae & Costa, 1999). The Big Five traits form part of a dynamic personality system and, together with environmental influences (e.g., cultural norms), lead to the development of lower-order, environmentally-conditioned personality characteristics. Therefore the higher-order Big Five traits explain consistent patterns of cognition, behavior, and affect across different situations while lower-order traits explain consistent patterns of cognition, behavior, and affect across similar situations.

Correspondingly, perfectionism is a lower-order trait: Perfectionism has been defined as a facet of conscientiousness (MacCann, Duckworth, & Roberts, 2009). For example, the higher-order trait (conscientiousness) is expressed in all life domains but the lower-order trait (perfectionism) may only be expressed in one or two life domains (Stoeber & Stoeber, 2009). Consequently, perfectionism, as a lower-order trait, explains consistent patterns of cognition, behavior, and affect in response to specific situations. Because they are more specific, lower-order traits may actually provide greater predictive ability than higher-order ones (Saucier & Goldberg, 2003). Moreover, research has shown that perfectionism is an enduring individual difference and test-retest studies in varying populations have shown that perfectionism is relatively stable over several months (Hewitt & Flett, 1991; Hewitt, Flett, Turnbull-Donovan, & Mikail, 1991; Soenens et al., 2008) and over a 2.5 year period (Hewitt, Flett, & Cousins, 1994, as cited in Hewitt & Flett, 2002).

In contrast to my definition, researchers from a (higher-order) trait perspective argue that perfectionism must, as a trait, be stable across situations and life domains (e.g., Hewitt & Flett, 1991), and that extreme perfectionists want to be perfect in all life domains (Flett & Hewitt, 2002). However, evidence supports the domain specificity of perfectionism (Slaney & Ashby, 1996; Stoeber & Stoeber, 2009). In particular, perfectionism in different domains has been shown to be associated with different outcomes. In a study comparing students' perfectionism regarding studying and sports, for instance, study-perfectionism was associated with contingent self-worth, perceptions of competence, and task value related to school-work (and not sports); sports-perfectionism showed the opposite pattern (McArdle, 2010). From a clinical perspective, perfectionism needs only be demonstrated in one salient life domain (Shafran et al., 2002). Moreover, higher levels of perfectionism are associated with striving to be perfect in a greater number of life domains (Stoeber & Stoeber, 2009), suggesting that the

number of life domains influenced by perfectionism may actually be an outcome of perfectionism. In turn, striving to be perfect in a greater number of life domains is associated with greater depressive symptomatology (Hewitt, Mittelstaedt, & Flett, 1990). These findings suggest that perfectionism influences a different number of life domains for different perfectionists. Hence, I argue that the number of life domains affected by perfectionism is not a defining feature of perfectionism.

2.1.2.2. Perfectionism is characterized by striving for valued standards of performance. A perfectionist's standards are valued because they are an integral part of their self-identity (e.g., Flett & Hewitt, 2002). These standards are also valued because there are numerous consequences attached to whether these standards are attained or not (see 2.2. Models, Measures, and Correlates of Perfectionism). In contrast to researchers from a behaviorist approach (e.g., Terry-Short et al., 1995), the consequences of success or failure are not included in my definition. Perfectionism is a trait. Perfectionism *per se* does not bring about these consequences: The manner in which perfectionism influences the individual's social-cognition (see below) brings about these consequences.

2.1.2.3. Standards of performance can be self-imposed, perceived as imposed by others, and/or imposed onto others. Individuals' self-identities are not only composed of their personal attributes, but also the attributes of the social groups to which they belong (cf. Social Identity Theory; Tajfel & Turner, 1979, 1986, 1986). In the same vein, individuals' self-concepts are composed of their personal characteristics and their perceptions of their relationships with other people (cf. Rogers, 1959). Consequently, to gain a complete understanding of an individual's perfectionism, it is necessary to look at the role other people play in one's perfectionism, and how one' perfectionism impacts other people (Hewitt & Flett, 1991). Bruch (1970) succinctly remarks that "a living organism must be regarded as a nodal point in an extremely complex network of interactions, relations and transactions" (p. 504).

2.1.2.4. Standards of performance are perceived as exceedingly high. It is problematic to differentiate how one's own standards of performance differ from the objective standards of performance that are required by the situation or by others. Nevertheless, individuals appear to accurately assess their own perfectionistic standards, and self- and observer-ratings of perfectionism are consistent (Hewitt & Flett, 1991, Study 2; see 2.2. Models, Measures, and Correlates of Perfectionism). I also chose not to use standards of performance that are *relatively* high or *excessively* high in that situation, as other researchers have (e.g., Hollender,

1965). The key point is that the standards of performance are difficult to attain and personally demanding for the perfectionist him or herself (e.g., Shafran et al., 2002).

2.1.2.5. Perfectionism governs a person's cognition, behavior, and affect. Perfectionism predisposes an individual to a certain pattern of cognition in specific situations. Drawing on cognitive-behavior models, ongoing conscious thought mediates the impact of traits (i.e., perfectionism) on behavior and emotions (Beck, 1976). Perfectionistic cognitions include: attitudes that striving for perfection is necessary; beliefs about the importance of meeting standards; expectations about the likelihood of failure or success; interpretations of information biased towards failure-confirmation and success-disconfirmation; and hypervigilant meta-cognitive evaluations of one's performance, one's standards, and oneself (Campbell & Di Paula, 2002; Kobori, 2006; Shafran et al., 2002). These cognitive processes influence perfectionistic behavior and affect: Perfectionists are likely to rigidly pursue their standards of performance (Shafran et al., 2002), and have various responses according to how they evaluate their performance (see below).

2.2. Models, Measures, and Correlates of Perfectionism

There are three overarching models of perfectionism: unidimensional models, multidimensional models, and dual perfectionism models. Each model is associated with different measures of perfectionism and different correlates. Unfortunately, the models suffer from ambiguity and a lack of uniformity. Generally, the dimensional approaches propose that perfectionism is comprised of one or more distinct forms of perfectionism (Broman-Fulks, Hill, & Green, 2008). Each form is a continuum, and higher scores on a form of perfectionism are associated with more extreme outcomes. Individuals are discriminated on degree of perfectionism rather than type. In contrast, dual perfectionism models propose that perfectionism is composed of different categories: Individuals are classified as one type of perfectionist or another (Broman-Fulks et al., 2008). Table 1 summarizes the perfectionism models, measures, and correlates.

Table 1
Summary of Perfectionism Models, Measures, and Correlates

Measure	Model	Facets	Outcomes	Number of items and Cronbach's α
Burns Perfectionism Scale (BPS; D. Burns, 1980)	Unidimensional	n/a	Negative	10 items; .70, .78 (Hewitt, Mittelstaedt, & Wollert, 1989)
Frost Multidimensional Perfectionism Scale (FMPS; Forst et al., 1990)	Multidimensional	Concern over mistakes	Negative	9 items; .88, .90
		Personal standards	Positive	7 items; .83, .87
		Doubts about actions	Negative	4 items; .77, .72
		Parental criticism	Negative	4 items; .84, .91
		Parental expectations	Negative	5 items; .84, .57
		Organization	Positive	6 items .93, .95
Hewitt Multidimensional Perfectionism Scale (HMPS; Hewitt & Flett, 1991)	Multidimensional	Self-oriented	Ambivalent	15 items; .86, .89, .88
		Socially prescribed	Negative	15 items; .87, .86, .81
		Other-oriented	Ambivalent	15 items; .82, .79, .74
Almost Perfect Scale–Revised (APS–R; Slaney, Rice, Mobley, Trippi, & Ashby, 2001)	Dual: high standards differentiates perfectionists from non-perfectionists; discrepancy differentiates unhealthy from healthy perfectionists	High standards	Positive	7 items; .85
		Order	Positive	4 items; .86
		Discrepancy	Negative	12 items; .92

(table continued on next page)

Table 1 continued
Summary of Perfectionism Models, Measures, and Correlates

Measure	Model	Facets	Outcomes	Number of items and Cronbach's α
Perfectionism Inventory (PI; R. W. Hill, Huelsman, Furr, Kibler, Vicente, & Kennedy, 2004)	Dual: striving for excellence, organization, planfulness, and high standards for others indicate perfectionistic strivings; concern over mistakes, rumination, need for approval, and perceived parental pressure indicate perfectionistic concerns	Striving for excellence	Positive	6 items; .85
		Organization	Positive	8 items; .91
		Planfulness	Positive	7 items; .86
		High standards for others	Positive	7 items; .83
		Concern over mistakes	Negative	8 items; .86
		Rumination	Negative	7 items; .87
		Need for approval	Negative	8 items; .87
		Perceived parental pressure	Negative	8 items; .88

2.2.1. Unidimensional models. Unidimensional models stem from psychoanalytic, social-cognitive, and clinical approaches. Perfectionism is regarded as psychopathological. Compared to dual perfectionism models, perfectionism is a continuum: the higher the level of perfectionism, the more maladaptive; the lower the level of perfectionism, the less maladaptive. Psychoanalysts were among the first to report on the association between perfectionism and psychopathology. Perfectionism was found to be a feature of neurotic individuals who were described as using perfectionist self-directing statements (shoulds) to move from the actual self to the idealized self (Horney, 1950). However, the idealized self is unrealistic, unattainable, and not based in reality. Consequently, shoulds are ultimately self-defeating because failure to live up to them results in individuals instead perceiving themselves to be the despised self who is hated by all for not attaining the idealized self.

Subsequent unidimensional models of perfectionism have contended that perfectionists' intensive self-criticism, when standards are inevitably perceived to have not been meet, is debilitating and underlies why perfectionism is associated with psychopathology (e.g., Pacht, 1984). Clinical perfectionism, for instance, is mutually exclusive to adaptive forms of motivation and the "healthy pursuit of excellence" (Shafran et al., 2002, p. 778). Perfectionists may only hold perfectionistic standards in one (or a limited number of) life domains. However, self-evaluation is overly dependent on striving for and achieving perfectionistic standards. Hence, self-evaluation is extremely sensitive to perceived failure in the perfectionism-domain, and perfectionists will intensively criticize themselves for any perceived shortcomings. Moreover, some mental health problems, such as eating disorders, are claimed to be caused by clinical perfectionism: Perfectionism is not comorbid to the disorder; it is the disorder (Shafran et al., 2002).

Perfectionism is significant in the development and maintenance of psychological disorders. Psychiatric patients often present with comorbid perfectionism (Shafran et al., 2002). Perfectionism is associated with a range of mental health problems and is listed as a diagnostic criterion, associated feature, or predisposing factor in six Axis I and Axis II psychiatric disorders, including social phobias, obsessive compulsive personality, and narcissistic personality disorder (Diagnostic and Statistical Manual of Mental Disorders Fourth Edition; American Psychiatric Association, 2000). Furthermore, perfectionism predicts poor treatment response in depressed patients across different treatment modalities (Blatt, Zuroff, Bondi, Sanislow, & Pilkonis, 1998; Blatt, Zuroff, Quinlan, & Pilkonis, 1996; Zuroff et al., 2000). Perfectionism appears to interfere with the development of a therapeutic alliance

because patients fear that accepting anything less than perfection is abject failure, and that by giving up their perfectionism patients will show their "true helplessness" (Leahy, 2001, p. 117).

2.2.1.1. Unidimensional measures of perfectionism. Most unidimensional models measure perfectionism with a subscale of a diagnostic tool (e.g., Dysfunctional Attitudes Scale; Weissman & Beck, 1978; Eating Disorder Inventory; Garner, Olmstead, & Polivy, 1983) or with a subscale of a non-clinical outcome measure (e.g., Workaholism Behaviors; Spence & Robbins, 1992). The Burns Perfectionism Scale, adapted from the Dysfunctional Attitudes Scale (Weissman & Beck, 1978), was one of the first widely used perfectionism measures (D. Burns, 1980; sample item: "If I don't set the highest standards for myself, I am likely to end up a second-rate person"). Higher scores are associated with maladaptive outcomes. The BPS has been shown to be associated with higher levels of neuroticism and higher levels of trait and state anxiety after stressful life events (Flett, Hewitt, & Dyck, 1989). The BPS has also shown positive correlations with self-criticism, self-blame, and depressed mood, and it longitudinally predicted increased levels of depressed mood following failure on an important task (Hewitt et al., 1989).

2.2.1.2. Critical evaluation of unidimensional models. A strength of unidimensional models is that the definition of perfectionism is theoretically based; in contrast, multidimensional models are criticized for defining perfectionism based on how it is measured (Shafran et al., 2002). However, unidimensional models do not maintain a clear conceptual and empirical distinction between the perfectionism construct versus the outcomes associated with performance-evaluation (Hewitt, Flett, Besser, Sherry, & McGee, 2003). Unidimensional models are informed by, and useful for, clinical practice (Shafran et al., 2002). However, this also means that they are limited to clinical populations. Furthermore, it is argued that some unidimensional measures actually tap multidimensional constructs but do not differentiate the different forms of perfectionism. For instance, confirmatory factor analysis of the Eating Disorder Inventory (Garner et al., 1983) shows two dimensions: self-oriented and socially prescribed perfectionism (see below; Joiner & Schmidt, 1995).

2.2.2. Multidimensional models. Two multidimensional models will be explored. Each model proposes different forms of perfectionism and uses different measurements.

2.2.2.1. FMPS. Frost and colleagues' Multidimensional Perfectionism Scale (FMPS; Frost et al., 1990) stems from developmental and clinical perspectives. Compared to other multidimensional models, the FMPS is more self-referent and focuses on antecedents of

perfectionism. There are five core forms of perfectionism, which can be used to calculate total perfectionism, and a sixth ancillary form.

The first form of perfectionism, concern over mistakes, is the core and defining facet of the FMPS and it is characterized by individuals overgeneralizing and reacting negatively to mistakes (sample item: "If I do not do well all the time, people will not respect me"). The second form, personal standards, is characterized by individuals setting excessive and unattainable standards of performance, stringently evaluating their performance, and being self-critical about their performance (sample item: "I expect higher performance in my daily tasks than most people"). The third form, doubts about actions, is characterized by individuals scrutinizing and doubting the quality of their performance (sample item: "I usually have doubts about the simple everyday things that I do"). The fourth form, parental criticism, is characterized by individuals perceiving that their parents were excessively critical of their performance (sample item: "As a child, I was punished for doing things less than perfect"). The fifth form, parental expectations, is characterized by individuals perceiving that their parents had excessive expectations of their performance (sample item: "My parents wanted me to be the best at everything"). The sixth and final form, organization, is characterized by individuals being excessively concerned with order and organization (sample item: "Organization is very important to me"). Organization is not correlated to all five of the core FMPS facets and it is not used to calculate overall perfectionism.

The FMPS is a widely used measure of trait perfectionism and has demonstrated reliability and validity in numerous studies (e.g., Frost et al., 1990; Frost & Steketee, 1997; Frost et al., 1995). The six forms of perfectionism show a differential pattern of relationships with indicators of physical health and psychological well-being (see Frost et al., 1990, Studies 3 and 4). Concern over mistakes, doubts about actions, parental criticism, and parental expectations are associated with negative characteristics, processes, and outcomes. In contrast, personal standards and organization are associated with ambivalent, positive, and negative characteristics, processes, and outcomes. In particular, concern over mistakes have shown positive correlations with depression, anxiety, obsessive-compulsive symptoms, hostility, paranoia, psychoticism, distress, feelings of guilt, and procrastination. Doubts about actions have shown positive correlations with health complaints, depression, anxiety, obsessive-compulsive symptoms, hostility, phobic anxiety, paranoia, psychoticism, distress, feelings of guilt, and procrastination. Parental expectations have shown positive correlations with distress, obsessive-compulsive symptoms, and procrastination. Parental criticism has shown positive

correlations with distress and procrastination. In contrast, personal standards have shown a positive correlation with efficacy and a negative correlation with frequency of procrastination. However, personal standards have also shown positive correlations with obsessive-compulsive symptoms and procrastination due to fear of failure. Organization, finally, has shown a negative correlation with procrastination.

2.2.2.2. HMPS. Hewitt and Flett's (1991) Multidimensional Perfectionism Scale (HMPS) stems from social-cognitive and clinical perspectives. The primary difference between the forms of perfectionism is not the perfectionist's behavior but the target or source of the perfectionist's standards. Compared to other multidimensional models, there is less emphasis on the antecedents of perfectionism. There are three forms of perfectionism and higher scores are associated with more extreme outcomes. Unlike the FMPS (Frost et al., 1990), a total perfectionism score cannot be calculated by collapsing across the different forms.

The first form of perfectionism, self-oriented perfectionism, is characterized by individuals setting excessively high standards for their own performance, being motivated to strive to attain perfection and to avoid failure, and stringently evaluating their performance (sample item: "I demand nothing less than perfection of myself"). The second form, socially prescribed perfectionism, is characterized by individuals perceiving that significant others impose excessively high standards onto them; individuals believe that others exert pressure on them to be perfect and stringently evaluate their performance (sample item: "People expect nothing less than perfection from me"). The third and final form, other-oriented perfectionism, is characterized by individuals holding excessively high standards for the performance of significant others, placing importance on others attaining perfection, and stringently evaluating others' performance (sample item: "If I ask someone to do something, I expect it to be done flawlessly").

The HMPS is a widely used measure of trait perfectionism and has demonstrated reliability and validity in numerous studies (see Hewitt & Flett, 2004, for a review). In particular, self- and observer-ratings have been shown to be consistent. Students rated themselves on the HMPS and had a friend also rate them; psychiatric patients rated themselves on the HMPS and their psychiatrist also rated them (Hewitt & Flett, 1991, Study 2). There was a positive correlation for participant-observer scores on the same subscale (e.g., both self-oriented perfectionism), but there was a non-significant correlation for participant-observer scores on different subscales (e.g., participant self-oriented perfectionism, observer socially

prescribed perfectionism). Moreover, the HMPS has been shown to demonstrate high test-retest reliability over 3 months (self-oriented perfectionism: .88, socially prescribed perfectionism: .75, and other-oriented perfectionism: .85; Hewitt & Flett, 1991, Study 3).

The three forms of perfectionism show a differential pattern of relationships with indicators of physical health, perceptions of performance and standards, and psychological well-being. In terms of physical health, self-oriented perfectionism and socially prescribed perfectionism have shown negative correlations with indicators of physical health, and other-oriented perfectionism has shown non-significant correlations (Hewitt & Flett, 1991). In terms of perceptions of performance and standards, results indicate construct validity. Self-oriented perfectionism has shown positive correlations with indicators that high performance and standards are important to oneself, socially prescribed perfectionism has shown positive correlations with indicators that high performance and standards are important to significant others, and other-oriented perfectionism has shown positive correlations with indicators that high performance and standards are important to oneself and to significant others (Hewitt & Flett, 1991, Study 3). In terms of psychological well-being, all three forms of perfectionism have shown a positive correlation with self-criticism. In addition, self-oriented perfectionism has also shown positive correlations with alcohol abuse, self-blame, and narcissism. In comparison, socially prescribed perfectionism has shown positive correlations with overgeneralization of failure, self-blame, other-blame, fear of negative evaluation, need for approval, and external locus of control. Other-oriented perfectionism, finally, has shown positive correlations with other-blame, authoritarianism, dominance, narcissism, and antisocial personality characteristics (Hewitt & Flett, 1991, Studies 3 and 5).

Numerous studies have examined the HMPS in student samples. Results indicate that self-oriented perfectionism and other-oriented perfectionism are ambivalent forms of perfectionism and are associated with positive and negative characteristics, processes, and outcomes. Socially prescribed perfectionism, in contrast, is a negative form of perfectionism and is associated with negative characteristics, processes, and outcomes. In particular, self-oriented perfectionism has shown positive relationships with positive affect, successful goal attainment, intrinsic or autonomous motivation, institutional attachment, hostility, tension, and fatigue (e.g., Campbell & Di Paula, 2002; Frost, Heimberg, Holt, Mattia, & Neubauer, 1993; Hewitt & Flett, 2004; R. W. Hill, McIntire, & Bacharach, 1997; Mann, 2004; Miquelon, Vallerand, Grouzet, & Cardinal, 2005; Powers et al., 2005; Saboonchi & Lundh, 2003). In contrast, socially prescribed perfectionism has shown positive relationships with negative

affect, fear of social rejection, mental and physical distress, extrinsic or controlled motivation, and neuroticism, and a negative relationship with institutional attachment (Campbell & Di Paula, 2002; Enns & Cox, 2002; Hewitt & Flett, 2004; Hewitt, Flett, Sherry, et al., 2003; R. W. Hill, McIntire, & Bacharach, 1997; Mann, 2004; Miquelon et al., 2005). Fewer significant results have been found with other-oriented perfectionism and, as it pertains to excessively high standards *for* others, it is not consistently associated with self-referent outcomes. Moreover, other-oriented perfectionism is defined as a peripheral form of perfectionism because it is primarily relevant to other-referent outcomes (see Enns & Cox, 2002; Stoeber & Otto, 2006 for overviews). Nevertheless, other-oriented perfectionism has shown positive relationships with subjective well-being and interpersonal problems, and a negative relationship with institutional attachment (Habke, Hewitt, & Flett, 1999; R. W. Hill, Zrull, & Turlington, 1997; Mann, 2004; O'Connor & O'Connor, 2003; Saboonchi & Lundh, 2003).

2.2.3. Critical evaluation of multidimensional models. The FMPS (Frost et al., 1990) and the HMPS (Hewitt & Flett, 1991) have demonstrated convergent validity. Self-oriented perfectionism (HMPS) has been associated with concern over mistakes, personal standards, and organization (FMPS). Socially prescribed perfectionism (HMPS) has been associated with all of the FMPS dimensions, except for organization. Furthermore, other-oriented perfectionism (HMPS) has been associated with concern over mistakes and personal standards (FMPS; Enns & Cox, 1999, 2002; Flett, Sawatzky, & Hewitt, 1995; Frost et al., 1993).

Still, there are many limitations of the multidimensional models. Some multidimensional measures were developed solely using non-clinical samples (i.e., FMPS; Frost et al., 1990). Nevertheless, multidimensional researchers contend that all perfectionism is psychopathological (e.g., Frost et al., 1990; Hewitt & Flett, 2002), similar to unidimensional models (e.g., Shafran et al., 2002). It is difficult to reconcile positive findings associated with some perfectionism dimensions with an unequivocally negative view of perfectionism (Stoeber & Otto, 2006).

As previously mentioned, multidimensional conceptualizations of perfectionism are too readily equated with their method of measurement (Shafran et al., 2002). Some dimensions blur causes, consequences, effects, and correlates of perfectionism making it is difficult to know what is being measured. For instance, socially prescribed perfectionism (HMPS; Hewitt & Flett, 1991), parental expectations, and parental criticism items (FMPS; Frost et al., 1990) include antecedents of perfectionism, while other-oriented perfectionism (HMPS; Hewitt &

Flett, 1991), organization, concern over mistakes, and doubts about actions items (FMPS; Frost et al., 1990) include consequences of perfectionism.

There is confusion over the meaning of some dimensions and whether they are core perfectionism dimensions, peripheral dimensions, or another albeit related construct. For instance, Frost and colleagues (1990) themselves remark that organization is not a core feature of perfectionism. Moreover, some argue that other-oriented perfectionism and socially prescribed perfectionism (HMPS; Hewitt & Flett, 1991) are not perfectionism because perfectionism is self-referent (Rhéaume, Freeston, Dugas, Letarte, & Ladouceur, 1995; Shafran et al., 2002), and other-oriented perfectionism is often criticized as having an ambiguous link to perfectionism (Enns & Cox, 2002). In rebuttal, researchers argue that unidimensional and dual perfectionism models actually measure intra- and interpersonal forms of perfectionism but have failed to articulate the distinction (Hewitt, Flett, Besser, et al., 2003). Still, other researchers argue that there is a lack of specificity in HMPS (Hewitt & Flett, 1991) items regarding the target and source of interpersonal perfectionistic standards, potentially leading to different interpretations between participants. For instance, socially prescribed perfectionism includes items referring to parents and also to unspecified others (R. Chang & Chang, 2009).

2.2.3. Dual perfectionism models. Dual perfectionism models stem from psychoanalytic, developmental, behaviorist, and clinical perspectives. Dual perfectionism models differentiate two types of perfectionist or two types of perfectionism. Hamachek (1978) was the first researcher to posit that perfectionism was not unilaterally destructive, and differentiated normal perfectionists from neurotic perfectionists. Normal perfectionists enjoy striving for high standards but can accept lesser standards if the situation demands it; normal perfectionists are also satisfied with their efforts, and experience positive outcomes. Neurotic perfectionists do not. On the contrary. Neurotic perfectionists' best efforts never seem good enough, they are never satisfied with their performance, and they experience negative outcomes (Hamachek, 1978). Hamachek's (1978) neurotic perfectionism is comparable to clinical perfectionism (i.e., it is unilaterally psychopathological; see 2.2.1. Unidimensional models).

Recently, researchers have integrated dual and multidimensional approaches to highlight the positive aspects of perfectionism. Despite Hamachek's (1978) early distinction between normal and neurotic perfectionism, subsequent research focused on neurotic or unhealthy aspects of perfectionism. In dual perfectionism models, individuals rate themselves

along a number of dimensions and are then labeled as high in perfectionistic strivings (also labeled "normal perfectionism," "positive perfectionism," "adaptive perfectionism," "healthy perfectionism," "conscientious perfectionism," and "personal standards perfectionism") and/or as high in perfectionistic concerns (also labeled "neurotic perfectionism," "negative perfectionism," "maladaptive perfectionism," "unhealthy perfectionism," "self-critical perfectionism," "self-evaluative perfectionism," and "evaluative concerns perfectionism") (Stoeber & Otto, 2006). Individuals may also be categorized as a healthy perfectionist (also labeled "normal perfectionist"), an unhealthy perfectionist (also labeled "neurotic perfectionist"), or as a non-perfectionist (see Stoeber & Otto, 2006, for an overview). Healthy perfectionists have high levels of perfectionistic strivings and low levels of perfectionistic concerns. In contrast, unhealthy perfectionists have high levels of perfectionistic strivings and perfectionistic concerns, while non-perfectionists have low levels of both (Slaney, Rice, & Ashby, 2002; Stoeber & Otto, 2006). Healthy perfectionists are likely to experience positive outcomes, even more so than non-perfectionists. Unhealthy perfectionists, in contrast, are likely to experience numerous negative outcomes (see Slaney et al., 2002; Stoeber & Otto, 2006, for comprehensive reviews).

2.2.3.1. A multidimensional measure that differentiates perfectionistic strivings and perfectionistic concerns. The Perfectionism Inventory (R. W. Hill et al., 2004) stems from developmental, social-cognitive, and clinical perspectives. These researchers sought to develop a comprehensive and parsimonious multidimensional measure that captures all features of perfectionism. Items were created to assess the three HMPS (Hewitt & Flett, 1991) and the six FMPS (Frost et al., 1990) dimensions, and confirmatory factor analysis indicated eight forms of perfectionism.

The first form of perfectionism, striving for excellence, is characterized by individuals pursuing perfect results and high standards (sample item: "I drive myself rigorously to achieve high standards"). The second form, organization, is characterized by individuals being excessively concerned with order and organization (sample item: "I always like to be organized and disciplined"). The third form, planfulness, is characterized by individuals planning ahead and deliberating over decisions (sample item: "I tend to deliberate before making up my mind"). The fourth form, high standards for others, is characterized by individuals imposing their own perfectionistic standards onto others (sample item: "I get upset when other people do not maintain the same standards I do"). The fifth form, concern over mistakes, is characterized by individuals experiencing distress and anxiety about making

mistakes (sample item: "I am particularly embarrassed by failure"). The sixth form, rumination, is characterized by individuals obsessively worrying about past errors, less than perfect performances, or future mistakes (sample item: "I spend a lot of time worrying about things I've done, or things I need to do"). The seventh form, need for approval, is characterized by individuals seeking validation from others and being highly sensitive to criticism (sample item: "I compare my work to others and often feel inadequate"). The eighth and final form, perceived parental pressure, is characterized by individuals feeling the need to be perfect in order to obtain parental approval (sample item: "My parent(s) hold me to high standards").

High levels of striving for excellence, organization, planfulness, and high standards for others indicate perfectionistic strivings, and high levels of concern over mistakes, rumination, need for approval, and perceived parental pressure indicate perfectionistic concerns (R. W. Hill et al., 2004). The Perfectionism Inventory demonstrates reliability and validity (R. W. Hill et al., 2004). The subscales of the Perfectionism Inventory have also demonstrated convergent validity with the HMPS (Hewitt & Flett, 1991) and with the FMPS (Frost et al., 1990) subscales. In particular, concern over mistakes (Perfectionism Inventory) showed a positive correlation with concern over mistakes (FMPS). Striving for excellence (Perfectionism Inventory) showed positive correlations with personal standards (FMPS) and self-oriented perfectionism (HMPS). In addition, rumination (Perfectionism Inventory) showed positive correlations with concern over mistakes, doubts about actions, personal standards (FMPS), and self-oriented and socially prescribed perfectionism (HMPS; R. W. Hill et al., 2004, Study 3). Furthermore, concern over mistakes, need for approval, and rumination (Perfectionism Inventory) also showed positive correlations with psychiatric symptoms, interpersonal sensitivity, fear of negative evaluation, and obsessive-compulsive symptoms (R. W. Hill et al., 2004). The Perfectionism Inventory has also been shown to explain variance in psychiatric symptoms and fear of negative evaluation above and beyond variance explained by the HMPS (Hewitt & Flett, 1991) and FMPS (Frost et al., 1990) subscales (see R. W. Hill et al., 2004, Study 3).

2.2.3.2. A multidimensional measure that categorizes healthy and unhealthy perfectionists. The Almost Perfect Scale (APS; D. P. Johnson & Slaney, 1996) and the Almost Perfect Scale–Revised (APS–R; Slaney et al., 2001) stem from a counseling approach. These researchers sought to develop an empirically sound, balanced positive-negative measure of perfectionism that captures defining features of perfectionism and not causes, correlates, or

consequences of perfectionism. Items were taken from previous measures, however, and the first APS (D. P. Johnson & Slaney, 1996) was disproportionally negative. The researchers rectified this with the APS–R (Slaney et al., 2001) and confirmatory factor analysis indicated three forms of perfectionism.

The first form of perfectionism, high standards, is characterized by individuals holding high standards of performance and believing that it is important to achieve these standards (sample item: "I try to do my best at everything I do"). The second form, order, is characterized by individuals being neat, organized, and disciplined which is important to them (sample item: "I like to always to be organized and disciplined"). The third and final form, discrepancy, is characterized by individuals feeling that they are unable to attain their standards of performance and, consequently, being self-critical (sample item: "My performance rarely measures up to my standards").

High levels of high standards categorize one as a perfectionist, low levels categorize one as a non-perfectionist. In contrast, high levels of discrepancy categorize one as an unhealthy perfectionist, low levels categorize one as a healthy perfectionist (Slaney et al., 2001). Organization is not used for categorization, however (e.g., Rice & Ashby, 2006)[2]. The APS–R demonstrates reliability and validity (Slaney et al., 2001). In addition, high standards have shown positive correlations with self-esteem, academic achievement, and psychological adjustment, while discrepancy has shown negative correlations with self-esteem, academic achievement, and psychological adjustment. Organization, meanwhile, has shown positive correlations with self-esteem and psychological adjustment (Slaney et al., 2001).

2.2.3.3. Aspects of multidimensional measures. Researchers have integrated models and measures of perfectionism. Literature reviews and factor analyses have been used to determine which forms of perfectionism indicate perfectionistic strivings and which indicate perfectionistic concerns, from which a combination of forms can be used to classify an individual as a healthy perfectionist, an unhealthy perfectionist, or as a non-perfectionist (e.g., Slaney et al., 2002; Stoeber & Otto, 2006).

Perfectionistic strivings are, for instance, comprised of personal standards, organization (FMPS; Frost et al., 1990), self-oriented perfectionism, other-oriented perfectionism (HMPS; Hewitt & Flett, 1991), high standards (APS–R; Rice & Ashby, 2006; Slaney et al., 2001),

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[2] The APS–R (Slaney et al., 2001) is not always used to categorize healthy and unhealthy perfectionists, and can be use capture perfectionistic strivings (i.e., high scores on high standards) and perfectionistic concerns (i.e., high scores on discrepancy; e.g., Nounopoulos, Ashby, & Gilman, 2006).

striving for excellence, organization, planfulness, and high standards for others (Perfectionism Inventory; R. W. Hill et al., 2004). In contrast, perfectionistic concerns are, for instance, comprised of concern over mistakes, doubts about actions, parental expectations, parental criticism (FMPS; Frost et al., 1990), socially prescribed perfectionism (HMPS; Hewitt & Flett, 1991), discrepancy (APS–R; Slaney et al., 2001), concern over mistakes, rumination, need for approval, and perceived parental pressure (Perfectionism Inventory; R. W. Hill et al., 2004).

Perfectionistic strivings have been shown to be positively related to positive affect and scores on working memory tests, and negatively related to attachment avoidance, attachment anxiety, external locus of control, suicidal ideation, and depression (E. C. Chang, Watkins, & Banks, 2004; Frost et al., 1993; R. W. Hill et al., 2004; Rice, Lopez, & Vergara, 2005; Slade, Coppel, & Townes, 2009; Suddarth & Slaney, 2001; also see Stoeber & Otto, 2006, for a review). In contrast, perfectionistic concerns have been shown to be positively related to negative affect, depression, attachment avoidance, attachment anxiety, external locus of control, trait anxiety, psychopathological symptoms, depression, anxiety, fear of negative evaluation, somatic complaints, interpersonal sensitivity, hostility, phobic anxiety, paranoia, psychoticism, and obsessive-compulsive symptoms, and negatively related to task efficiency and scores on attention and executive function tests (Frost et al., 1993; R. W. Hill et al., 2004; Rice et al., 2005; Rhéaume et al., 2000; Slade et al., 2009; Suddarth & Slaney, 2001; also see Stoeber & Otto, 2006, for a review).

Moreover, it is important to control for the overlap between perfectionistic concerns and perfectionistic strivings (cf. Stoeber & Otto, 2006). In particular, perfectionistic concerns have also been shown to suppress the effect of perfectionistic strivings (R.W. Hill, Huelsman, & Araujo, 2010). In a sample of students, when regarding zero-order correlations, perfectionistic strivings were not associated with indicators of psychological well-being, life satisfaction, or positive affect. However, when controlling for perfectionistic concerns, perfectionistic strivings were positively associated with all outcomes.

2.2.3.4. Critical evaluation of dual perfectionism models. Dual perfectionism models unify previous models and, in doing so, explain seemingly discrepant results which have been obtained using the numerous perfectionism measures available; specifically, findings of positive associations between perfectionism and positive characteristics, processes, and outcomes (Slaney et al., 2002; Stoeber & Otto, 2006). Dual perfectionism models are supported by cluster analyses which have found groupings of healthy versus unhealthy perfectionists (W. D. Parker, 1997; Rice & Mirzadeh, 2000). Factor analyses also show that a

two factor model fits the data better than a one factor model, indicating that perfectionism is indeed comprised of a positive and a negative factor (e.g., Bieling, Israeli, & Antony, 2004; Frost et al., 1993; R. W. Hill et al., 2004; Stumpf & Parker, 2000).

Critics, however, point out that cluster analysis will often create clusters to explain the data, regardless of whether or not these clusters naturally occur, and that factor analysis is not specifically designed to determine whether unobservable latent constructs are categorical opposed to continuous (Broman-Fulks et al., 2008). A recent study analyzed two large perfectionism datasets using taxometric procedures, which are designed to expose naturally occurring patterns in observable measurements to reveal the underlying unobservable phenomena (Broman-Fulks et al., 2008). Results across analytic procedures and assessments supported a dimensional approach to perfectionism. Individual differences in perfectionism scores reflect degree of perfectionism rather than type. The researchers conclude that any dichotomization of perfectionism is arbitrary and will lose information because perfectionism is a dimensional variable (Broman-Fulks et al., 2008).

Researchers question whether the terms perfectionistic strivings and healthy perfectionist can applicable to perfectionism (e.g., Hall, 2006). Because self-criticism and concern over mistakes, for instance, are core and defining features of perfectionism, striving for high standards of performance in the absence of these maladaptive features (as is the case in perfectionistic strivings) is argued to reflect adaptive achievement motivation opposed to perfectionism per se.

Despite evidence supporting the relative temporal stability of perfectionism (see Hewitt & Flett, 1991, Study 3), environmental cues may indeed influence how perfectionism is expressed. Chang and Chang (2009) primed students with perfectionistic concerns or perfectionistic strivings by asking them to write about a time when striving for high standards had led to negative outcomes or positive outcomes, respectively. Students in the former condition had higher levels of perfectionistic concerns and lower levels of perfectionistic strivings after the manipulation, and students in the latter condition had lower levels of perfectionistic concerns and higher levels of positive affect (R. Chang & Chang, 2009).

2.2.4. The present research. The present research focuses on the HMPS (Hewitt & Flett, 1991), which captures three forms of perfectionism: self-oriented perfectionism, socially prescribed perfectionism, and other-oriented perfectionism. The HMPS (Hewitt & Flett, 1991) is a widely used, reliable, and valid measure of perfectionism (see 2.2.2. Multidimensional

models). Moreover, it captures intra- and interpersonal forms of perfectionism and measures perfectionism according to my definition (see 2.1. Definitions of Perfectionism).

2.3. The Development of Perfectionism

Parents are believed to be very important in the development of perfectionism. First, perfectionism appears to be in part hereditary. In a study comparing monozygotic (i.e., identical) and dizygotic (i.e., fraternal) twins, up to 43% of the variance in perfectionism was attributable to genetics (Tozzi et al., 2004). Furthermore, perfectionism is believed to in part develop during childhood and arise from parent-child interactions. There are three hypothesized, albeit not mutually exclusive, pathways (see Flett, Hewitt, Oliver, & Macdonald, 2002; Stoeber & Childs, in press, for overviews):

2.3.1. The parents' perfectionism hypothesis. The parents' perfectionism hypothesis stems from social learning theory (Bandura, 1977). Here, children develop perfectionism because they model (i.e., observe and imitate) their parents' perfectionism, and, in samples of university students and their parents, students' perfectionism was associated with their parents' perfectionism (E. C. Chang, 2000; Frost, Lahart, & Rosenblate, 1991). In another sample of university students and their parents, female students' perfectionism showed a higher correlation with their mother's perfectionism, and male students' perfectionism showed a higher correlation with their father's perfectionism, suggesting that same-sex modeling (i.e., mother-daughter, father-son) is more important than opposite-sex modeling (i.e., mother-son, father-daughter; Vieth & Trull, 1999). In a sample of junior athletes, however, the relationship between athletes' and parents' perfectionism was not moderated by sex (Appleton, Hall, & Hill, 2010). Here, athletes' self-oriented perfectionism was associated with their perception of their parents' self-oriented perfectionism, athletes' other-oriented perfectionism was associated with their perception of their parents' other-oriented perfectionism, and athletes' socially prescribed perfectionism was associated with their perception of their parents' socially prescribed perfectionism.

2.3.2. The parental pressure hypothesis. The parental pressure hypothesis stems from models of socialization: the social expectations model and the social reactions model (see Flett et al., 2002, for details). Parental pressure to be perfect is a combination of parental expectations that the child should be perfect (social expectations) and parental criticism if the child fails to fulfill these expectations (social reactions). Correspondingly, parental pressure has been associated with perfectionistic concerns and with indicators of psychological malad-

justment (Frost et al., 1993; Stoeber & Otto, 2006). Moreover, in a sample of junior elite athletes, athletes who perceived their parents as initiating a worry-conducive climate (i.e., athletes who perceived their parents as disparaging of mistakes and as highly critical of failure) had more cognitions about striving for perfection, attaining perfection, and avoiding imperfection (Appleton, Hall, & Hill, 2011). Furthermore, in the study with junior athletes discussed above (Appleton et al., 2010), athletes' socially prescribed perfectionism was also associated with their perception of their parents' other-oriented perfectionism, in line with the social expectations theory that children develop perfectionism as a result of parental expectations to be perfect. In contrast, a number of studies have found that parental pressure is also associated with perfectionistic strivings and psychological adjustment (e.g., Stöber, 1998; Stoeber & Eismann, 2007). Parental expectations may mainly lead to perfectionistic strivings, whereas parental criticism may mainly lead to perfectionistic concerns (Rice et al., 2005), possibly explaining these divergent results.

2.3.3. The parenting style hypothesis. The parenting style hypothesis stems from evidence that an authoritarian, harsh, and controlling parenting style is associated with higher levels of psychological maladjustment and psychopathology compared to an authoritative, warm, and supportive parenting style (Baumrind, 1971, 1991). Correspondingly, an authoritative, harsh, and controlling parenting style is seen as a factor in the development of unhealthy forms of perfectionism, particularly perfectionistic concerns (see Flett et al., 2002 for a review). In a sample of university students, critical parenting and low parental care were associated with higher levels of perfectionistic concerns (Enns, Cox, & Clara, 2002). In particular, parental psychological control has been shown to longitudinally predict increases in adolescents' perfectionistic concerns (Soenens et al., 2008). Moreover, in a study where mothers and their children were observed when completing a laboratory task, children with higher levels of socially prescribed perfectionism had mothers who used higher levels of control during task-completion as scored by independent raters (Kenney-Benson & Pomerantz, 2005). In contrast, parental responsiveness and supportive, open parental communication have been associated with lower levels of perfectionistic concerns (Miller-Day & Marks, 2006).

2.3.4. Critical evaluation of research on the development of perfectionism. The majority of the above evidence is based on cross-sectional studies of university students and their parents, and on studies of university students' retrospective reports about perceived parenting. However, cross-sectional studies cannot show causal influences and developmental

trajectories, and findings from retrospective studies may be biased because how people remember their childhood and upbringing is influenced by a person's present-day personality (Halverson, 1988). Finally, a myriad of other factors are likely to influence the development of perfectionism, other than parent-child interactions, such as interactions with peers and other adults, in addition to cultural and societal standards and ideas about perfectionism.

Chapter 3

Stress

People are not disturbed by things but by the view they take of them.

(Epictetus, 1955)[3].

3.1. Stress

Stress is a significant occupational hazard that can impair students' and employees' physical health, psychological adjustment, and performance (Royal College of Psychiatrists, 2003; Shirom, 2002). Studying at university presents a number of stressful experiences to students, including financial difficulties, balancing course loads, studying, test anxiety, and living away from home (Royal College of Psychiatrists, 2003). Stress has a negative impact on students. Stress has been shown to be associated with lower levels of academic achievement, and it has also been shown to longitudinally predict attrition (Daugherty & Lane, 1999; Pritchard & Wilson, 2003).

In the workplace, stress is estimated to be the cause of between 60-80% of accidents (Cooper, Liukkonen, & Cartwright, 1996). Alongside depression and anxiety, stress is one of the leading causes of employee absenteeism and every year causes an estimated 11.4 million lost working days in the United Kingdom, costing society £3.7 billion or US $5.7 billion (Health and Safety Executive, 1999; Health and Safety Executive, 2010). In the National Health Service (NHS) alone, the largest employer in Europe, stress is estimated to account for over 30% of sickness absence, costing taxpayers £300-400 million or US $480-650 million (NHS Employers, n.d.; NHS Employers, 2010). Stress, depression, and anxiety are the leading cause of absenteeism due to ill-health in the education sector (Health and Safety Executive, 2000). Across occupations, teachers have the highest levels of stress, depression, or anxiety, and a staggering 81% of teachers experience stress, depression, or anxiety (Health and Safety Executive, 2000; Teacher Support Network, 2010). Despite businesses being required to curtail levels of stress in the workplace by law (e.g., Management of Health and Safety at Work Regulations 1999), work-related stress is increasing (Health and Safety Executive, 2008).

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[3] This is the version of the quote modified by Ellis (1994, p. 64).

There are numerous models of stress in the literature[4]. Five models of stress will be explored below: the engineering model, the physiological model, the transactional model, the interactional model, and the role stress model.

3.1.1. The physiological model. According to the physiological model, stress is a dependent variable that is internal to the individual (see Cooper et al., 2001; Palmer, 2003, for overviews). In particular, according to Selye's (1956) general adaptation syndrome, stress results from a person's physiological response to a stressor, where a stressor is a nonspecific and neutrally valenced environmental stimulus. Here, stress is defined as "the nonspecific response of the body to any demand made upon it" (Selye, 1956, p. 14).

There are three stages in the stress response. First, the individual encounters the stressor and experiences alarm: their fight-or-flight response is triggered (Cannon, 1929). Here, the sympathetic nervous system (part of the autonomic nervous system which controls automatic physiological processes) increase catecholamines (i.e., adrenaline and noradrenaline) and cortisol which prepare the body for action (see Sonnentag & Fritz, 2006). Second, the individual attempts to remove the stressor and experiences resistance: the sympathetic nervous system remains active for as long as the stressor remains present. Third, if the individual cannot remove the stressor, they experience exhaustion: the sympathetic nervous system is chronically activated and, correspondingly, the parasympathetic nervous system remains inactive meaning that the body cannot relax and restore energy. Exhaustion leads to the disease of adaptation, that is, physiological strain and ill health (Selye, 1956).

Individuals respond differently to differing levels of demand. Dovetailing with the Yerkes-Dodson law (Yerkes & Dodson, 1908), individuals are optimally aroused with moderate levels of demand and experience eustress: they take action and are engaged with a task (Selye, 1956). Individuals are non-optimally aroused with low or high levels of stimulation and experience stress. Individuals are not aroused with low levels of stimulation and experience hypostress: they do not experience alarm, they fail to take action, and they are bored. In contrast, individuals are excessively aroused with high levels of stimulation and

[4] Researchers propose an overarching distinction between stressors, stress, and strains which can be used to facilitate the interpretation of models of stress (e.g., Cooper et al., 2001; Griffin & Clarke, 2011). In particular, stressors are features of the environment or stimuli. In comparison, stress is the ongoing process involving individuals' perceptions of environmental stimuli (i.e., stressors), their attempts to manage or adapt to environmental stimuli, and their responses to these attempts at adaptation (i.e., strains). In turn, strains are the cognitive, affective, behavioral, and physiological outcomes that individuals experience because of attempting to adapt to stressors. Consequently, stress includes both stressors and strains and it is the overarching term which describes individuals' transactions with their environments (also see the transactional model).

experience hyperstress: they experience exhaustion, are overstretched, and, over time, suffer the disease of adaptation (Selye, 1956).

3.1.2. The engineering model. According to the engineering model, stress is a stimulus or independent variable that is external to the individual: It is a feature of the environment and occurs when there is too much or too little external stimulation (see Cooper et al., 2001; Palmer, 2003, for overviews). Stress produces a strain reaction when the demands placed on a person exceed the elastic limit of the person's ability to cope or adapt; if the stress is not removed, the strain reaction can be irreversible (Cox & Mackay, 1981).

Although criticized for being too simplistic (see 3.1.7. Critical evaluation), the engineering model is useful in terms of producing taxonomies of aspects of the work environment that are more likely to produce a strain reaction (e.g., S. Cartwright & Cooper, 1997). For instance, contemporary workplace risk assessments identify six features of the environment: (a) demands (e.g., employees' work load and work patterns), (b) control (i.e., employees' latitude over the way in which they carry out their work), (c) interpersonal relationships (e.g., harassment and bullying), (d) change management (i.e., whether or not employees are consulted before changes are brought about), (e) role (e.g., whether or not employees understand their role within the organization), and (f) lack of support (i.e., emotional, instrumental, and tangible support; see Cousins et al., 2004; Kerr, McHugh, & McCrory, 2009).

3.1.3. The transactional model. According to the transactional model (Lazarus & Folkman, 1984), stress is a process resulting from an individual's relationship with their environment. The transactional model arose out of observations that one soldier's reaction to a stressful situation did not mean that other soldiers would react in the same way (Lazarus, 1993). Stress refers to an individual's internal representation of a specific and problematic transaction with their environment, and results from the individual's cognitive processing of, and emotional reactions to, that transaction (Lazarus, 1999). I will draw upon complementary aspects of the physiological model of stress when exploring the transactional model. Specifically, stressors (Selye, 1956) which are external influences that act upon an employee and are neutrally valenced, that is, they can be positive, negative, or both.

According to the transactional model, employees make two appraisals when they encounter stressors at work (Lazarus & Folkman, 1984). *Primary appraisals* involve determining the personal significance of the stressor. Stressors can be appraised as harm or loss (the person has already incurred damage), threat (there is a risk of future damage),

challenge (there is an opportunity for growth or mastery), or benign-positive (the experience is positive and joyful). *Secondary appraisals* involve evaluating coping resources and selecting a coping option. The two appraisals operate concurrently meaning that, for example, a threat appraisal could be changed to a challenge appraisal (in primary appraisal), if the individual determines that they have sufficient coping resources (in secondary appraisal). Hence, stress describes a person's perception that the demands of a stressor exceed their personal resources (Lazarus & Folkman, 1984).

Another theory can be drawn upon to complement the transactional approach. According to the Broaden-and-Build theory, experiencing negative emotions narrows individuals' thought-action repertoires and constrains personal coping resources, while experiencing positive emotions broadens thought-action repertoires and builds personal coping resources (Fredrickson, 1998, 2001). In the transactional model, for stress to occur a stressor must be appraised as either: (a) harm or loss, or (b) threat. Over time, stress perceptions lead to negative outcomes because, in attempting to cope with the stressor, the employee is experiencing negative emotions and is constantly depleting their resources. Consequently, future stressors are likely to be appraised as harm or loss or threat because the employee has a diminished level of thought-action repertories and coping resources available to deal with the stressor, potentially precipitating a downward spiral (also see Hobfoll, 1989; Salanova, Schaufeli, Xanthopoulou, & Bakker, 2010).

Again drawing on Selye's (1956) model, eustress, in contrast, describes optimal stress whereby a person perceives that the demands of a stressor are equal to their personal resources. Here, the stressor is appraised as either: (a) challenge, or (b) benign-positive (Lazarus & Folkman, 1984). Over time, eustress perceptions lead to positive outcomes because the employee experiences positive emotions which broaden and build their coping resources (Fredrickson, 1998, 2001). Consequently, future stressors are likely to be appraised as challenge or benign-positive because the employee has an expanded level of thought-action repertories and coping resources available to deal with the stressor, potentially precipitating an upward spiral (again see Hobfoll, 1989; Salanova et al., 2010). In a sample of teachers, for example, work-related resources and work engagement were assessed every week for five consecutive weeks (Bakker & Bal, 2010). Weekly increases in work-related resources predicted weekly increases in engagement and, in turn, teachers with higher levels of engagement were better able to rally their resources to cope with stressors in subsequent weeks.

3.1.4. The interactional model. There are two predominant interactional models. First, according to Person-Environment fit theory (French, Caplan, & van Harrison, 1982), stress is determined by the interaction between characteristics of the employee and characteristics of the job environment. In particular, stress arises from incongruence between an employee and their job. There are two types of incongruence: (a) the inability of an employee's attitudes and abilities to meet the demands of the job, and (b) the inability of the job environment to meet the employee's needs. The greater the incongruence, the greater the stress, and incongruence can arise out of objective or subjective incongruence.

Second, according to the Demands-Control Model (Karasek, 1979), stress is determined by the interaction between two job characteristics: demands and control. Demands are sources of stress or stressors, and more demands result in higher levels of stress. Control moderates the demands-stress relationship, however, and low levels of control, in addition to high levels of demands, are necessary for stress to occur (e.g., de Jonge & Kompier, 1997; Karasek, 1979). In contrast, low levels of demands and low levels of control lead to passivity, whereas high levels of both demands and control are optimal, leading to increased work motivation and mastery (de Jonge & Kompier, 1997; Karasek & Theorell, 1990; see Häusser, Mojzisch, Niesel, & Schulz-Hardt, 2010, for a recent review).

The Demands-Control Model (Karasek, 1979) has been extended to the Demands-Control-Support model (J. V. Johnson & Hall, 1988) and, more recently, to the Job Demands-Resources model (Bakker, Demerouti, de Boer, & Schaufeli, 2003; Demerouti, Bakker, Nachreiner, & Schaufeli, 2001). According to the Demands-Control-Support model (J. V. Johnson & Hall, 1988), low levels of support, in addition to high levels of demands and low levels of control, are necessary for stress to occur. The Job Demands-Resources model (Bakker et al., 2003; Demerouti et al., 2001), in comparison, was developed to specify the conditions of the work environment that lead to stress. Here, demands are defined as physical, psychological, social, or organizational aspects of a job which require prolonged physical or psychological effort, which, in turn, produce physical or psychological costs and ill health. Similarly, resources are aspects of a job which: (a) reduce demands and the corresponding costs, (b) help an employee to achieve their work goals, or (c) stimulate personal growth, mastery, and work motivation. Stress occurs when employees experience high levels of demands with (or without) low levels of resources. In particular, demands have been shown to be associated higher levels of burnout and ill health whereas resources have been shown to be

associated with higher levels of engagement, motivation, and organizational commitment (Hakanen, Bakker, & Schaufeli, 2006; Schaufeli, Bakker, & van Rhenen, 2009).

3.1.5. The role stress model. The present research adopts the role stress model (Rizzo, House, & Lirtzman, 1970). Individuals enact different roles in different life domains: "The life of the individual can thus be seen as an array of roles which he plays in the particular set of organizations and groups to which he belongs" (Kahn, Wolfe, Quinn, Snoek, & Rosenthal, 1964, p. 11), with a role being "a set of expectations about behavior for a position in a social structure" (Rizzo et al., 1970, p. 155). Based on the chain of command and unity of command principals, for employees to fulfill their roles in a workplace effectively, and the organization to therefore be effective also, the organization should be comprised of hierarchical relationships involving a single flow of authority, through which an employee should be sent a unified role (Rizzo et al., 1970). Nevertheless, communicating or sending roles (i.e., expectations about behavior) to a role incumbent (i.e., an employee holding a particular role) is problematic because, in addition to one's superior, a role incumbent may also be sent roles by anyone in their role set—that is, colleagues, customers, clients, subordinates, and the employee him or herself may all hold expectations about the behavioral requirements of the role (Kahn et al., 1964). Hence, role stress occurs when an employee experiences role conflict, role ambiguity (Rizzo et al., 1970), or role overload (Kahn et al., 1964).

One of the most widely researched models of role stress (e.g., Jackson & Schuler, 1985) is that of Rizzo and colleagues (Rizzo et al., 1970) which differentiates between two key forms of role stress: role conflict and role ambiguity. Role conflict occurs when an employee is expected to perform incompatible behaviors, and role ambiguity occurs when an employee is unclear about the behaviors they are expected to perform (Katz & Kahn, 1978; Rizzo et al., 1970). In particular, role conflict may arise from: (a) intrarole conflict whereby the employee's standards are incompatible with the expectations of the role, (b) intrasender conflict whereby a role sender has incompatible expectations of the role, (c) role overload whereby an employee has two or more incompatible roles, or (d) intersender conflict whereby two or more role senders have incompatible expectations of the same role (King & King, 1990; Rizzo et al., 1970). In comparison, role ambiguity may arise from unclear behavioral requirements, unclear consequences of fulfilling or failing to fulfill behavioral requirements, (Rizzo et al., 1970), or unclear methods of effectively fulfilling behavioral requirements (Jackson & Schuler, 1985), meaning that the role incumbent is unable to accurately predict the outcomes of their actions (Kahn et al., 1964).

In line with the transactional model of stress, role stress arises out of problematic transactions with the environment because employees respond, not to the objective role that is sent by individuals in their role set, but to their perception of the role that is sent by individuals in their role set (House, 1974; Rizzo et al., 1970; Katz & Kahn, 1978). Hence, role stress is a result of characteristics of the organization, the individual, and the interpersonal relationships in a role set. In a sample of managers, for example, subjective role conflict was more strongly related to negative perceptions of supervisors and lower levels of job satisfaction than objective role conflict (Berger-Gross & Kraut, 1984).

Again like the transactional model of stress (e.g., Lazarus & Folkman, 1984), personality characteristics are vital to determining role stress (Kahn et al., 1964; also see 3.3. Stress and Perfectionism). A role incumbent's personality characteristics will influence: (a) how the incumbent is perceived by others in the role set, (b) what others in the role set expect from the incumbent, (c) the roles that others in a role set send to the incumbent—that is, the expectations that others in the role set hold for the incumbent and how they communicate these expectations, (d) how the incumbent perceives the roles that are sent by others in the role set, and (e) how the incumbent responds when experiencing role conflict or ambiguity. For instance, if intrapunitive employees experience role conflict they may criticize and blame themselves whereas extrapunitive employees may criticize and blame others in the role set (Kahn et al., 1964). In addition, employees characterized by neurotic anxiety have been shown to experience higher levels of role conflict than those characterized by emotional stability, and introverted employees have been shown to be more likely to experience role conflict, and to experience more negative outcomes when they do, than extroverted employees (Kahn et al., 1964). Personality characteristics, in turn, influence interpersonal relationships within a role set. In an interview study, employees scoring high on rigid personality (characterized by inflexible attitudes, being critical of others, and concerns with neatness and order) reported a dislike of delegation and being dependent on others, and a preference for performing tasks in isolation (Kahn et al., 1964).

I chose role conflict and role ambiguity because they incorporate intrapersonal and interpersonal expectations of one's behavior, maintaining conceptual parity with the model of perfectionism which captures intrapersonal (i.e., self-oriented) and interpersonal (i.e., socially prescribed) perfectionism (Hewitt & Flett, 1991; see Chapter 2). Moreover, role stress should be salient to perfectionists because it involves perceived discrepancies between performance and intrapersonal or interpersonal standards which is central to perfectionism (Hewitt & Flett,

1991; see Chapter 2), and because perfectionists, given their dependence on self-evaluation, struggle when performance standards are ambiguous (cf. Shafran et al., 2002; Mitchelson, 2009). Finally, role conflict and role ambiguity are versatile as they can be placed into the Job Demands-Resources model (Bakker et al., 2003; Demerouti et al., 2001) as job demands.

Role stress has a negative impact on employees, organizations, and customers. Initial research found that role conflict was associated with higher levels of job-related tension, in addition to lower levels of job satisfaction, confidence in the organization, trust in role senders, respect for role senders, and liking of role senders; role ambiguity, meanwhile, was also associated with higher levels of job-related tension, in addition to lower levels of job satisfaction, self-confidence, trust in role senders, respect for role senders, and liking of role senders (Kahn et al., 1964; Rizzo et al., 1970). Subsequent research has shown role stress to be associated with higher levels of anxiety, physical symptoms, cortisol response, tension, anxiety, and turnover intentions; higher levels of negative perceptions of the organization, performance feedback, task identity, leadership, and participation in decision-making; and lower levels of wellbeing, organizational and affective commitment, work involvement, job learning effectiveness, overall job satisfaction, and satisfaction with supervision, work, coworkers, pay, and opportunities for advancement—with role ambiguity tending to show stronger relationships with outcomes than role conflict (e.g., Chieh-Peng, 2010; Nixon, Mazzola, Bauer, Kruger, & Spector, 2011; Panaccio & Vandenberghe, 2009; Rydstedt, Cropley, & Devereux, 2011; Vandenberghe, Panaccio, Bentein, Mignonac, & Roussel, 2011; also see Beehr & Glazer, 2005; Jackson & Schuler, 1985; Örtqvist & Wincent, 2006, for reviews). In terms of performance, role conflict has been associated with lower levels of supervisor- and coworker-rated performance whereas role ambiguity has been associated with lower levels of supervisor-, coworker-, and self-rated performance (see Abramis, 1994; C. D. Fisher & Gitelson, 1983; Gilboa, Shirom, Fried, & Cooper, 2008; Örtqvist & Wincent, 2006; Tubre & Collins, 2000, for reviews).

3.1.6. Consequences of stress. One consequence of chronic and severe stress, that is, one form of strain, is burnout. Burnout is a psychological syndrome characterized by exhaustion, mental distancing, and inefficacy (Schaufeli et al., 1996). Exhaustion, in turn, is characterized by a depletion of one's emotional resources to such a degree that it also impinges on one's non-work activities (Schaufeli et al., 1996; Schaufeli, Salanova, González-Romá, & Bakker, 2002). Mental distancing is characterized by a negative and detached attitude towards one's work as a whole (cynicism) or towards one's coworkers and customers

specifically (depersonalization; Schaufeli et al., 1996; Schaufeli, Salanova, et al., 2002). Inefficacy is characterized by feeling incompetent at work and unable to solve problems that arise at work (Schaufeli et al., 1996; Schaufeli, Salanova et al., 2002). Although initially applied to human service workers where burnout was conceptualized as resulting from the depletion of resources due to interpersonal interactions with clients, customers, or patients, burnout is now one of the most widely researched consequences of chronic and severe stress, and it has been found to occur in employees form a range of professions as well as in students (e.g., Cooper et al., 2001; Schaufeli, Martínez, Pinto, Salanova, & Bakker, 2002).

Burnout has a negative impact on employees, organizations, and customers. Burnout has been associated with higher levels of physical ill-health, absenteeism, turnover, insomnia, depression, alcohol and drug abuse, and marital and family problems, and with lower levels of work morale and quality of patient care (see Schaufeli et al., 1996; Shirom, 2002, for reviews). Over a three-year period, burnout has been shown to predict increases in depression (Hakanen, Schaufeli, & Ahola, 2008). Burnout has been associated with higher levels of negative perceptions of job characteristics (e.g., job tasks), working excessively and compulsively, and negative affect, and with lower levels positive affect (Schaufeli, Bakker, van der Heijden, & Prins, 2009; also see Maudgalya, Wallace, Daraiseh, & Salem, 2006; Thoresen, Kaplan, Barsky, Warren, & de Chermont, 2003 for reviews). In terms of performance, exhaustion is consistently associated with lower levels of objective ratings of in-role job performance, organizational citizenship behavior, and customer satisfaction (see Taris, 2006, for a review). Burnout and its negative consequences can actually be contagious: Burnout has been found to crossover from an employee to their team (Bakker, van Emmerik, & Euwema, 2006; Westman, Bakker, Roziner, & Sonnentag, in press).

Students and employees who do not experience chronic stress, or those who experience eustress (González-Morales, 2010), can be described as high in engagement which is "the antipode of job burnout" (Bakker, Schaufeli, Leiter, & Taris, 2008, p. 188) and "a positive, fulfilling work-related state of mind that is characterized by vigor, dedication, and absorption" (Schaufeli, Salanova, et al., 2002, p. 74). Vigor, in turn, is characterized by feeling energetic while working, being willing to invest effort in work, and resilience and persistence in the face of obstacles (Schaufeli & Bakker, 2004). Dedication is characterized by feeling strongly involved in and enthusiastic about work, in addition to experiencing inspiration and pride while working (Schaufeli & Bakker, 2004). Absorption, finally, is characterized by feeling happily engrossed in work (Schaufeli & Bakker, 2004).

Engagement has a positive impact on employees, organizations, and customers. Higher levels of engagement have been associated with higher levels of psychological well-being, good social relationships, positive perceptions of job characteristics, organizational commitment, and customer loyalty, and with lower levels of turnover intentions (Hakanen et al., 2008; Salanova, Augt, & Peiro, 2005; Schaufeli & Bakker, 2004; Schaufeli, Taris, & van Rhenen, 2008). Lower levels of engagement have been shown to predict actual turnover 16-months later (de Lange, De Witte, & Notelaers, 2008). In terms of performance, engagement has been associated with higher levels of coworker-rated performance, and engagement has also been found to predict higher levels of self-rated, supervisor-rated, and coworker-rated performance over time (Bakker, Demerouti, & Verbeke, 2004; Halbesleben & Wheeler, 2008). Mirroring burnout, engagement and its positive consequences can also be contagious: Engagement has been found to crossover from an employee to their team and, when engaged employees had high levels of contact with a coworker, the coworker's level of engagement increased, in turn increasing the coworker's level of performance (Bakker et al., 2006; Bakker & Xanthopoulou, 2009).

I chose to include burnout and engagement, in addition to role stress, in order to capture the consequences of chronic stress, opposed to simply the perception of stress (Schaufeli et al., 1996). Moreover, role stress has been shown to be associated with burnout and engagement. In particular, role conflict has been shown to be associated with higher levels of exhaustion, cynicism, and depersonalization, and role ambiguity has been shown to be associated with higher levels of exhaustion, cynicism, depersonalization, and inefficacy (e.g., Acker, 2003; Alacorn, 2011; Garrosa, Moreno-Jiménez, Rodríguez-Muñoz, Rodríguez-Carvajal, 2011; Schaufeli et al., 2009; Tunc & Kutanis, 2009; see Cordes & Dougherty, 1993; Lee & Ashforth, 1996; Örtqvist & Wincent, 2006, for reviews). In addition, total role stress has been shown to longitudinally predict increased levels of exhaustion, role conflict has been shown to longitudinally predict increased levels of cynicism and depersonalization, while role ambiguity has been shown to longitudinally predict increased levels of inefficacy (Lee & Ashforth, 1993; Örtqvist & Wincent, 2010; Peiró, González-Romá, Tordera, & Mañas, 2001; Prieto, Soria, Martínez, & Schaufeli, 2008). In terms of engagement, total role stress has been shown to be associated with lower levels of vigor and dedication, role conflict has been shown to be associated with lower levels of vigor and dedication, and role ambiguity has been shown to longitudinally predict decreased levels of dedication (Garrosa et al., 2011; Hallberg & Schaufeli, 2006; Prieto et al., 2008).

3.1.7. Critical evaluation. A plethora of terms, approaches, and models are used in the stress literature, leading to difficulties in comparing and integrating findings (see Cooper et al., 2001; Griffin & Clarke, 2009; Le Fevre, Matheny, & Kolt, 2003; Sonnentag & Frese, 2003 for overviews). Both the engineering and physiological models ignore the role of psychological, perceptual, and cognitive processes, and the individual is arguably treated as a passive vehicle (Cox, 1990). Regarding the physiological model in particular, critics have noted that the physiological response process to stressors is ambiguous and cannot be uniformly applied across individuals. In particular, the different physiological symptoms of the stress response have low correlations, making it problematic to identify a specific response system (Lacey, 1967), and the physiological changes and symptoms are not unique to the stress response and can indicate other medical conditions (e.g., Mason, 1971). In addition, there are individual differences in sympathetic nervous system reactivity to the same stressful event (Dimsdale & Moss, 1980). Regarding the engineering model, stressors do not have a uniform effect on individuals according to the amount or intensity of the stressor (Cox, 1978). For instance, interpersonal, intergroup, and cultural differences mean that not all stressors will even be perceived as stressful by all individuals (Douglas, 1992).

Regarding the transactional model, key limitations are whether primary and secondary appraisals are consciously or automatically processed (Cox & Mackay, 1981) and, similarly, whether appraisal is necessary to precipitate an emotional response (Zajonc, 1984). Lazarus (1999) argues that appraisals can be both "deliberate and largely conscious" as well as "intuitive, automatic and unconscious" (p. 82) and also that, over time, habitual conscious appraisals can become automatic. Another criticism is the subjective measurement of the personal meaning of stressful events because some events are likely to be perceived as stressful for the majority of people, suggesting an objective assessment is feasible (e.g., Costa & McCrae, 1990).

The interactional models focus more on aspects of the work environment, and less on aspects of the employee, than the transactional model. Regarding Person-Environment fit theory, evidence suggests that subjective perceptions of incongruence are more predictive of stress than objective incongruence (French et al., 1982). Similarly, regarding the Demands-Control Model, evidence suggests that additive effects of job demands and control are stronger than interactive ones (Karasek, 1979; see Chapter 13: General Discussion for limitations of the role stress model).

Regarding the consequences of stress, burnout was initially measured by high scores on exhaustion and cynicism (or depersonalization) and either by high scores on reverse-coded efficacy beliefs or by low scores on efficacy beliefs (referred to as reduced professional accomplishment; Maslach, Jackson, & Leiter, 1996). Reverse-coded efficacy beliefs have been shown to inadequately capture burnout. Studies using confirmatory factor analysis have shown that the efficacy subscale of burnout actually loads onto engagement, not burnout, with low scores indicating low levels of engagement and not high levels of burnout (Schaufeli, Salanova, et al., 2002; Schaufeli & Bakker, 2004). Consequently, researchers developed an inefficacy subscale of burnout which loads onto burnout (Schaufeli & Salanova, 2007). In addition, researchers disagree as to how to measure engagement. In particular, some researchers argue that high levels of engagement are indicated by low burnout scores, with low levels of exhaustion indicating high levels of vigor (and vice versa) and low levels of cyncism indicating high levels of dedication (and vice versa; González-Romá, Schaufeli, Bakker, & Lloret, 2006; Maslach & Leiter, 1997). In contrast, other researchers argue that burnout and engagement are separate albeit related constructs and that different measures are needed to capture high levels burnout and high levels of engagement (Schaufeli & Bakker, 2003, 2004, 2010). The present research adopts the latter approach. An employee with low levels of burnout may not necessarily have high levels of engagement, and an employee with low levels of engagement may not necessarily have high levels of burnout (Schaufeli & Bakker, 2003). Employees who are not burnt out or engaged with their work are bored, disinterested, and experience hypostress (cf. Selye, 1956). In a recent longitudinally study which followed managers over two years, although managers with high levels of cynicism had low levels of dedication, exhaustion and vigor were not significantly negatively associated (Mäkikangas, Feldt, Kinnunen, & Tolvanen, in press).

3.2. Stress and Personality

Interest in the link between personality and stress was fostered by research findings suggesting that personality characteristics might be able to predict stress-related illness. In particular, different personality characteristics have been consistently associated with different levels of risk of developing coronary heart disease (e.g., H. S. Friedman & Booth-Kewley, 1987; M. Friedman & Rosenman, 1959). The Type A behavior pattern is a profile of cognitive, behavioral, emotional, and physiological responses that has been identified as a risk factor for coronary heart disease (Ganster, 1987). Type A is characterized by "intense

ambition, competitive 'drive,' constant preoccupation with occupational 'deadlines,' and a sense of time urgency" (M. Friedman & Rosenman, 1959, p. 1295); its antipode, Type B, is characterized by the absence of this pattern. In a study of approximately 3,500 males over eight and a half years, Type A was shown to predict coronary heart disease above and beyond standard risk factors (Rosenman et al., 1975).

Controversies over which aspects of Type A were better predictors of coronary heart disease (e.g., H. S. Friedman & Booth-Kewley, 1987) led researchers to differentiate two facets of Type A. Resembling perfectionistic strivings, achievement strivings (i.e., striving for high standards) is said to be the positive facet of Type A whereas impatience-irritability is said to be the negative facet related to coronary heart disease (Spence, Helmreich, & Pred, 1987). Recently, researchers have identified the Type D or distressed behavior pattern (Denollet et al., 1996). Type D is characterized by high levels of both: (a) negative affectivity or experiencing negative emotions, and (b) social inhibition or inhibiting the expression of emotions in social situations (Denollet, 1997). Type D is associated with greater cortisol reactivity to stress (Habra, Linden, Anderson, & Weinberg, 2003) and Type D has been shown to be a risk factor for coronary heart disease, as well as a risk factor for poor physical and psychological health in coronary heart disease patients (see Pedersen & Denollet, 2006, for a review).

In addition to behavioral profiles, the Big Five personality traits (Costa & McCrae, 1992; see Chapter 2) have been shown to be related to stress. In particular, neuroticism has been consistently associated with higher levels of stress and individuals high in neuroticism perceive greater amounts of stress regardless of actual workload, feel more threatened by stressful events, and use more maladaptive coping strategies (e.g., avoidance) in stressful situations than individuals low in neuroticism (Conard & Matthews, 2008; David & Suls, 1999; Gallagher, 1990). In contrast, agreeableness, extraversion, and conscientiousness have all been associated with lower levels of stress (Zellars, Perrewé, & Hochwarter, 2000). The Big Five have also been associated with burnout: neuroticism with higher levels of exhaustion and cynicism, agreeableness with lower levels of cynicism and inefficacy, extraversion with lower levels of exhaustion and inefficacy, and conscientiousness with lower levels of inefficacy (Ganjeh, Arjenaki, Nori, & Oreyzi, 2009). The Big Five have also been shown to incrementally predict burnout above and beyond other work-related variables. Controlling for demographic characteristics (e.g., education), neuroticism has been associated with higher levels of exhaustion, and extraversion and conscientiousness with lower levels of exhaustion

(De Vries & Van Heck, 2002). Controlling for job demands (e.g., workload) neuroticism has been associated with higher levels of exhaustion and cynicism, agreeableness with lower levels of cynicism and inefficacy, extraversion with lower levels of exhaustion, and conscientiousness with lower levels of inefficacy (Kim, Shin, & Umbriet, 2007). Even after controlling for stress and job characteristics (e.g., number of hours worked), the Big Five were still associated with burnout: neuroticism with higher levels of cynicism and inefficacy, and openness with lower levels of inefficacy (Zellars et al., 2000).

Moreover, and more importantly, the Big Five have been shown to predict burnout over time. In a sample of employees, neuroticism longitudinally predicted increased levels of burnout five months later, even after controlling for job characteristics (e.g., autonomy) and stress (Goddard, Patton, & Creed, 2004). In another study, however, the Big Five failed to explain variance in burnout seven months later after controlling for baseline levels of burnout (Mills & Huebner, 1998). Finally, only study has examined the Big Five and burnout and engagement. Controlling for job characteristics (e.g., position in organization), neuroticism was cross-sectionally associated with higher levels of burnout and lower levels of engagement while conscientiousness was associated with higher levels of engagement (Kim, Shin, & Swanger, 2009). Neuroticism and conscientiousness appear to be the most consistently associated and important dimensions of the Big Five when investigating burnout and engagement (Kim et al., 2009).

3.3. Stress and Perfectionism

Intuitively, perfectionism clearly plays an important role in study-life, work-life, and in stress in particular. On the one hand, "perfectionism should be of interest to employers as it is the employees with demanding standards and higher thresholds for performance who often represent an ideal employee in many organizations" (Mitchelson, 2009, p. 351). On the other hand, "perfectionism places unrealistic demands on, and produces debilitating emotional and practical outcomes for, both the individual and the organization as a whole" (McMahon & Rosen, 2008, p. 60). Furthermore, employees often comment on the role perfectionism plays in stress and burnout: In an interview study, for instance, nurses reported that perfectionism, coupled with an inability to meet demanding self-imposed standards, almost led them to burn out (Vinje & Mittelmark, 2006).

Research has consistently shown that perfectionism is related to stress, ranging from physiological responses to a stress test (e.g., Wirtz et al., 2007), academia (e.g., Dunkley, Blankstein, Halsall, Williams, & Winkworth, 2000), work (e.g., Fry, 1995), interpersonal relationships (e.g., Habke & Flynn, 2002), childrearing (e.g., Hewitt & Flett, 2002), and acculturation (e.g., Wei, Mallen, Heppner, Ku, Liao, & Wu, 2007). Theory and research underlying why perfectionism is associated with stress will first be explored, and then research evidence supporting the association between perfectionism and stress will be reviewed.

3.3.1. Why perfectionism is associated with stress. Regarding Hewitt and Flett's (1991) model of perfectionism (see Chapter 2), for both self-oriented and socially prescribed perfectionists, one's sense of self is inexorably tied to attaining exceedingly high standards of performance (e.g., Hall, 2006; Hewitt & Flett, 1991, 1993; Shafran et al., 2002). Striving for exceedingly high standards may initially be adaptive and rewarding as these perfectionists are highly invested in their studies or work and may achieve high levels of performance. In a sample of professional musicians, for instance, self-oriented perfectionism was associated with higher levels of time spent practicing, problem-solving attempts when distressed, and achievement (e.g., Kobori, Yoshie, Kudo, & Ohtsuki, 2011). However, perfectionists' patterns of achievement-related cognition, affect, and behavior are likely to be maladaptive over time (e.g., Hall, 2006; Hewitt & Flett, 1991, 1993; Shafran et al., 2002). In particular, perfectionists are likely to experience stress, opposed to eustress, when they encounter a stressor in the environment because they perceive failure as extremely ego-threatening since failure risks tarnishing one's self-identity and self-worth as a perfectionist. Perfectionists are therefore unlikely to perceive failure as an opportunity to learn, grow, and master the task.

Just one experience of failure may lead to negative outcomes for self-oriented perfectionists because it confirms their fears that they cannot achieve their self-imposed standards despite tenaciously striving for them (Hall, 2006). For example, student athletes performed a muscular endurance task twice and were given failure feedback after both trials (A. P. Hill, Hall, Appleton, & Duda, 2011). Following failure on the first trial, students with higher levels of self-oriented perfectionism had more negative reactions to the second trail than students with lower levels of self-oriented perfectionism. In particular, students with higher levels of self-oriented perfectionism had significantly greater increases in perceptions of threat, and significantly greater decreases in effort and satisfaction, than students with lower levels of self-oriented perfectionism. Because they have an internal locus of control as standards are self-imposed, self-oriented perfectionists take personal responsibility for failures

which results in debilitating self-criticism. Hence, self-oriented perfectionists face a paradox in that they are likely to perceive that they have failed to achieve their self-imposed standards because they impose exceedingly high standards. The inability to tolerate mistakes and failure, and the corresponding debilitating self-criticism, is the very cornerstone of self-oriented perfectionism and differentiates it from adaptive forms of motivation and achievement striving (see Hall, 2006).

Like self-oriented perfectionists, socially prescribed perfectionists may experience negative outcomes after a single instance of failure (Hall, 2006). Unlike self-oriented perfectionists, however, socially prescribed perfectionists do not hold perfectionistic standards for their performance, but they believe that significant others impose perfectionistic standards onto them (e.g., Hall, 2006; Hewitt & Flett, 1991, 1993; Shafran et al., 20023). Self-oriented perfectionists' self-identity and self-worth are contingent upon attaining self-acceptance by living up to their own perfectionistic standards. In contrast, socially prescribed perfectionists believe that love, acceptance, and approval are conditional upon attaining others' perfectionistic standards. Hence, socially prescribed perfectionists' self-identity and self-worth are contingent upon attaining both self-acceptance and also the acceptance of others, while avoiding the disapproval of others, by living up to the perfectionistic standards of others. In a sample of undergraduate students, for instance, both self-oriented perfectionism and socially prescribed perfectionism were associated with contingencies of self-worth based on outperforming others; however, while self-oriented perfectionism was also associated with contingencies of self-worth based on personal competence, socially prescribed perfectionism was associated with contingencies of self-worth based on the approval of others (A. P. Hill, Hall, & Appleton, 2011). Contingencies based on the approval of others are under less personal control, making them harder to fulfill, than contingencies based on personal competence, meaning that socially prescribed perfectionists need to intensively and rigorously pursue this form of self-worth (e.g., Crocker & Park, 2004). Attaining the perfectionistic standards of others is not only under less personal control than attaining self-imposed perfectionistic standards, but any perceived stressors signal extremely negative interpersonal consequences to socially prescribed perfectionists as they believe that significant others will reject them (Hewitt & Flett, 1993). For instance, of the three forms of perfectionism, only socially prescribed perfectionism has been shown to be associated with beliefs that failure is associated with negative interpersonal consequences (Conroy, Kaye, & Fifer, 2007).

When perfectionists first experience stress, they may engage in increased achievement striving to compensate for the threat to self-worth (c.f. Hall, 2006). However, increased achievement striving may be maladaptive in the long-term as it may deplete resources meaning that perfectionists are likely to experience stress when they encounter subsequent stressors (Hobfoll, 1989; Lazarus & Folkman, 1984; Salanova et al., 2010). If perfectionists repeatedly encounter stressors in the environment they are not only likely to experience high levels of stress but they are also likely to experience high levels of negative outcomes (i.e., strains) because of debilitating self-criticism and reduced self-worth (e.g., Hall, 2006; Hewitt & Flett, 1991, 1993; Shafran et al., 2002).

Successfully achieving high standards of performance may not necessarily validate a perfectionist's self-worth and ameliorate stress, however. Perfectionists engage in all-or-nothing thinking: they judge themselves, and their performance, in absolutes—total success or total failure (Shafran et al., 2010). In a sample of head teachers, all-or-nothing thinking was associated with a greater number of stress-related symptoms (Ostell & Oaklands, 1999). Correspondingly, perfectionists are likely to perceive that they have failed a task because anything less than a flawless performance is abject failure, and perfectionists experience low levels of satisfaction even after successfully completing a task (e.g., Mor, Day, Flett, & Hewitt, 1995). Moreover, individuals with high levels of self-oriented perfectionism have been shown to raise their standards of performance after successful goal attainment (Kobori, Hayakawa, & Tanno, 2009). Similarly, socially prescribed perfectionism has been associated with dissatisfaction after flawed and also perfect performances; self-oriented perfectionism, meanwhile, has been associated with satisfaction after a perfect performance and dissatisfaction after a flawed one (Stoeber & Yang, 2010).

In a choice reaction time study, Besser and colleagues (Besser, Flett, Hewitt, & Guez, 2008) examined the effects of objective performance and positive or negative feedback that was independent of performance. Controlling for pre-task measures, in contrast to students with lower levels of socially prescribed perfectionism, students with higher levels of socially prescribed perfectionism: (a) had decreased positive affect following negative feedback; (b) did not have increased positive affect following high objective performance; (c) had increased negative affect following low objective performance; (d) had decreased self-esteem following positive or negative feedback; and (e) had increased blood pressure following negative feedback. Students with higher levels of self-oriented perfectionism had increased blood pressure following poor objective performance, increased negative affect following positive or

negative feedback, and had higher levels of negative cognitive processes (e.g., rumination) following negative feedback (Besser et al., 2008).

Perfectionists may be perfectionistic in only one, or a limited number of, life domains, but their entire self-worth is contingent upon attaining perfection in said domain(s) (Shafran et al., 2002). Hence, perfectionists readily overgeneralize failure: failing at one task in a perfectionistic domain means that they are a failure in life (e.g., Hewitt et al., 1991). Perfectionists are therefore likely to experience stress when they encounter stressors in their studies or in their work because a single instance of failure poses a risk of debilitating self-criticism and reduced self-worth as it would mean that they are a failure at everything in their life. Still, because of all-or-nothing thinking, perfectionists rigidly pursue their goals and are less likely to adapt their standards in response to stressors compared to non-perfectionists. Self-oriented perfectionism, socially prescribed perfectionism, and other-oriented perfectionism have all been associated with lower levels of flexible goal adjustment (Hewitt & Flett, 2002).

All-or-nothing thinking is one type of thinking error or cognitive distortion, and thinking errors are unhelpful patterns of cognitive information processing that lead to negative emotions (Palmer & Szymanska, 1997). Both socially prescribed perfectionism and self-oriented perfectionism are associated with a number of other thinking errors that are likely to predisopose perfectionists to experience high levels of stress. In particular, socially prescribed perfectionism has been associated with self-blame, catastrophizing, failure to put the event into perspective, failure to use positive reappraisal, and self-directed "should" statements; self-oriented perfectionism has been associated with self-blame, self-directed and other-directed "should" statements, catastrophizing, and low frustration tolerance (Flett, Hewitt, & Cheng, 2008; Rudolph, Flett, & Hewitt, 2007).

Perfectionists automatically generate thinking errors when they encounter a stressor. During task completion, individuals with high levels of socially prescribed perfectionism or self-oriented perfectionism have automatic thoughts regarding the attainment of perfection which, in turn, lead to thinking errors (Besser et al., 2008). Correspondingly, socially prescribed perfectionism and perfectionistic concerns (of which socially prescribed perfectionism is a facet; Stoeber & Otto, 2006, also see Chapter 3) are associated with perceptions of tasks as threatening, and with high levels of anxiety during ego-involving tasks (Flett, Hewitt, Blankstein, & Dynin, 1994; Flett, Hewitt, & Hallett, 1995; Frost et al., 1995). Moreover, automatic perfectionistic thoughts have been associated with depressive symptoms,

even after controlling for the influence of trait perfectionism and other personality variables (Flett, Hewitt, Blankstein, & Gray, 1998). Thoughts about delivering a perfect performance also interfere with task performance when evaluation standards are salient (see Flett et al., 1998; Frost et al., 1990). Correspondingly, in a sample of students who performed a proof reading task, perfectionistic strivings (of which self-oriented perfectionism is a facet; Stoeber & Otto, 2006) were associated with lower efficiency and more false alarms whereas perfectionistic concerns were associated with more missed errors (Stoeber & Eysenck, 2008). Perfectionists even have unhelpful thoughts about experiencing stress: Perfectionists' meta-cognition about perceiving stress may lead to perceptions of failure as they blame themselves for being unable to cope with the stressor (Hewitt & Flett, 1993).

3.3.2. Research supporting the association between perfectionism and stress. Research evidence suggests that perfectionism is associated with stress via four cognitive-behavioral pathways: stress generation, stress anticipation, stress perpetuation, and stress enhancement (see Hewitt & Flett, 2002).

3.3.2.1. Stress generation. Perfectionism is related to stress generation in that perfectionists are more likely to experience higher levels of stress than non-perfectionists. In a sample of female executives, unidimensional perfectionism was associated with higher levels of stress, perceptions that stressors had significant personal consequences, and burnout-related symptoms, and with lower levels of job satisfaction (Fry, 1995). However, evidence suggests that perfectionistic concerns and socially prescribed perfectionism are associated with stress generation more so than perfectionistic strivings and self-oriented perfectionism.

Perfectionistic concerns have been shown to predict higher levels of cortisol response after a stressful task above and beyond exhaustion, trait anxiety, and other personality characteristics (Wirtz et al., 2007). More generally, in samples of students and psychiatric patients, perfectionistic concerns have been shown to be related to higher levels of stress, depression, general anxiety, test anxiety, hassles, self-blame, and negative affect, and to lower levels of perceived efficacy and positive affect (Bieling et al., 2004; Dunkley, Zuroff, & Blankstein, 2003; Dunkley, Zuroff, & Blankstein, 2006). Moreover, in a sample of students, the relationship between perfectionistic concerns and stress was exacerbated for students with low personal standards for performance but who perceived that others imposed high standards on to them (van Yperen & Hagedoorn, 2008). In a sample of teachers, perfectionistic concerns were associated with higher levels of perceptions of stress and burnout, whereas perfectionistic strivings were associated with higher levels of perceptions of eustress and

lower levels of burnout (Stoeber & Rennert, 2008). In a sample of working adults with family obligations (adults who worked at least 20 hours a week and had a partner and/or dependent child at home), both high levels of perfectionistic strivings and low levels of perfectionistic concerns were associated lower levels of work-family conflict, compared to either high levels of both perfectionism dimensions or low levels of both, even after controlling for the influence of the Big Five (Mitchelson, 2009).

Like perfectionistic concerns, in a sample of university students, socially prescribed perfectionism has been associated with higher levels of perceived pressure, self-imposed pressure, and perceived hassles, whereas self-oriented perfectionism has also been associated with higher levels of perceived pressure and self-imposed pressure (Flett, Parnes, & Hewitt, 2001, as cited in, Hewitt & Flett, 2002). Perfectionists' stressors appear to be a result of their perfectionism more so than a result of contextual factors. In two studies—one with a sample of patients with chronic fatigue syndrome (Luyten et al., 2011) and one with psychiatric patients (Hewitt, Flett, & Ediger, 1996)—independent raters coded negative life events as caused by the situation or as potentially caused by the participant's personality characteristics. In the former sample, personality-related daily hassles partially mediated the relationship between perfectionistic concerns and depression. In the latter sample, self-oriented perfectionism and socially prescribed perfectionism were both associated with higher levels of personality-related stressful life events three months later, but were unrelated to situation-related stressful life events.

Perfectionists make tasks more stressful by self-handicapping due to anticipated failure (Hobden & Pliner, 1995). One prevalent means of self-handicapping is procrastination. Perfectionists believe that they must perform a task perfectly because their self-worth is dependent on attaining perfection (see Pacht, 1984; Shafran, Egan, & Wade, 2010). The need to achieve such a high standard leads to procrastination because the perfectionist wants to avoid failing to reach their standard as this would confirm their low self-worth (Shafran et al., 2010). Procrastination results in less time to complete the task and, correspondingly, the person experiences more stress and is more likely to make minor errors (Palmer & Cooper, 2010). If the perfectionist consequently delivers an imperfect performance, they are likely to perceive that they have failed the task and, in turn, failed as a person, thus enhancing their belief that they must perform perfectly next time in order to bolster their tarnished self-worth (Shafran et al., 2002, 2010).

Academic procrastination is associated with negative academic outcomes, such as low course grades (e.g., Beswick, Rothblum, & Mann, 1988). Correspondingly, perfectionism is associated with academic procrastination: Socially prescribed perfectionism and perfectionistic concerns have been consistently associated with higher levels of procrastination (L. R. Burns, Dittmann, Nguyen, & Mitchelson, 2000; Flett, Blankstein, Hewitt, & Kloedin, 1992; Onwuegbuzie, 2000; Walsh & Ugumba-Agwunobi, 2002). Although self-oriented perfectionism has been associated with the fear of failure facet of procrastination (Onwuegbuzie, 2000), self-oriented perfectionism has been shown to be associated with lower levels of overall procrastination (Frost et al., 1990; Kilbert, Langhinrichsen-Rohling, & Saito, 2005). In a sample of students, controlling for the overlap between self-oriented perfectionism and socially prescribed perfectionism, students with high levels of socially prescribed perfectionism procrastinated more than non-perfectionists, and students with high levels of self-oriented perfectionism procrastinated the least of the three groups (Kilbert et al., 2005). High self-efficacy beliefs have been found to fully mediate the negative relationship between self-oriented perfectionism and procrastination (Seo, 2008). In self-oriented perfectionism and socially prescribed perfectionism, although self-worth may be equally contingent upon attaining perfectionistic standards (Hewitt & Flett, 1993), a crucial difference in regards to procrastination appears to be that, in contrast to socially prescribed perfectionists, self-oriented perfectionists believe that they can attain their standards.

3.3.2.2. Stress anticipation. Perfectionists anticipate that they will experience more stress in the future than non-perfectionists. Socially prescribed perfectionism has been associated with anticipation of future hassles, and self-oriented perfectionism and socially prescribed perfectionism have both been associated with anticipation of future negative social interactions, anticipation of future depression (Hewitt & Flett, 2002), and anticipation of future suicide attempts (Hewitt, Flett, & Weber, 1994). In a sample of women in the final month of pregnancy, self-oriented perfectionism, socially prescribed perfectionism, and other-oriented perfectionism were associated with concerns about future parenting mistakes (Hewitt & Flett, 2002). Moreover, total perfectionism has been associated with persistent worry and fear of failure (e.g., Frost et al., 1990), and the three HMPS (Hewitt & Flett, 1991) dimensions have been associated with lower levels of tolerance of failure and with higher levels of fear of failure, with socially prescribed perfectionism also being associated with higher levels of hopelessness (e.g., Dean & Range, 1996; Flett, Hewitt, et al., 1991).

3.3.2.3. Stress perpetuation. Perfectionists experience more protracted episodes of stress than non-perfectionists. In striving to live up to the perfectionistic standards of others, socially prescribed perfectionists face a paradox in that they do not believe that they can attain these standards even though doing so is the very cornerstone of their self-worth (e.g., Hewitt & Flett, 1993). When socially prescribed perfectionists encounter a stressor, they ruminate about others' exceedingly high standards for their performance and their inability to live up to these standards, thus drawing further attention to the discrepancy between other's standards and their own actual performance (Flett et al., 1998). By attending to this perceived discrepancy, the perfectionist becomes preoccupied with other's expectations, magnifying them to the point that they become irrational and self-defeating shoulds which, in turn, decrease self-efficacy and may lead to stress and burnout (Ellis, 2002; Horney, 1950).

In samples of undergraduate students, rumination mediated the relationship between perfectionistic concerns and depression (Harris, Pepper, & Maack, 2007); high levels of rumination also interacted with high levels of self-oriented perfectionism and socially prescribed perfectionism to predict increased depression in response to stressful life events four weeks later (Olson & Kwon, 2008). In a sample of fathers-to-be and of women in their final month of pregnancy, self-oriented perfectionism and socially prescribed perfectionism cognitions were associated with a tendency to ruminate during depressed mood and with concern over parenting (Flett & Hewitt, 2000, as cited in, Hewitt & Flett, 2002).

Perfectionists are likely to use maladaptive coping strategies (such as avoidant coping) thus prolonging episodes of stress. In samples of employees, perfectionistic concerns have been associated with higher levels of avoidant coping and with lower levels of active coping and perceived support (J. C. Dunn, Whealton, & Sharpe, 2006; Stoeber & Rennert, 2008). In contrast, perfectionistic strivings have been associated with lower levels of avoidant coping and with higher levels of active coping (Stoeber & Rennert, 2008). In samples of students, perfectionistic concerns have been associated with higher levels of avoidant coping and alcohol abuse, and with lower levels of perceived social support; perfectionistic concerns were also associated with lower confidence in ability to cope with academic stressors, which, in turn, was associated with lower academic performance (Dunkley et al., 2000; Nounopoulos et al., 2006; Rice & Van Arsdale, 2010). In contrast, perfectionistic strivings have been associated with higher levels of active coping and with lower levels of substance abuse, in addition to higher confidence in ability to cope with academic stressors, which, in turn, was

associated with higher academic performance (Dunkley et al., 2000; Nounopoulos et al., 2006; Rice & Van Arsdale, 2010).

Like perfectionistic concerns and strivings, socially prescribed perfectionism has been associated with maladaptive coping and self-oriented perfectionism with adaptive coping. Socially prescribed perfectionism has been associated with higher levels of negative social problem-solving tendencies and emotion-focused coping, and with lower levels of constructive thinking (e.g., self-blame; Flett, Hewitt, Blankstein, Solnik, & Van Brunschot, 1996; Flett, Russo, & Hewitt, 1994; Hewitt, Flett, & Endler, 1995). In a sample of athletes, maladaptive coping mediated the relationship between socially prescribed perfectionism and higher levels of burnout (A. P. Hill, Hall, & Appleton, 2010). In comparison to socially prescribed perfectionism, self-oriented perfectionism and other-oriented perfectionism have been associated with higher levels of positive social problem-solving tendencies and learned resourcefulness; self-oriented perfectionism has also been associated with higher levels of constructive thinking and task-oriented coping (Dunkley & Blankstein, 2000; Flett, Hewitt, Blankstein, & O'Brien, 1991; Flett, Hewitt, & De Rosa, 1996; Flett et al., 1994). In a sample of athletes, adaptive coping mediated the relationship between self-oriented perfectionism and lower levels of burnout (A. P. Hill, Hall, & Appleton, 2010). Self-oriented perfectionism is, however, associated with some maladaptive coping tendencies. Self-oriented perfectionism has been associated with higher levels of emotion-focused coping (Hewitt, Flett, & Endler, 1995) and with lower levels of self-acceptance in stressful situations (Flett et al., 1994).

Perfectionists' episodes of stress may also be prolonged because they might fail to seek social support (Hewitt & Flett, 2002; also see Chapter 4). Perfectionists are unable to admit to their imperfections (Leahy, 2001). In a sample of psychiatric patients, self-oriented perfectionism, socially prescribed perfectionism, and other-oriented perfectionism were all associated with lower levels of recognition of need for help, stigma tolerance, interpersonal openness, and confidence in mental health professionals, and with higher levels of dysfunctional help-seeking attitudes (Hewitt, Flett, & Endler, 1995). In this study, for perfectionists who had sought help with a problem, socially prescribed perfectionism was associated with lower levels of comfort in seeking help, and all three forms of perfectionism were associated with higher levels of difficulty with continuing treatment (Hewitt, Flett, & Endler, 1995).

Socially prescribed perfectionists believe that they must not only be perfect to attain the approval of others, but that they must also appear to others as perfect (Sherry, Hewitt, Flett, Lee-Baggley, & Hall, 2007). However, striving to appear as perfect may further prevent socially prescribed perfectionists from seeking social support to help cope with stressors, and it may also divert self-regulatory resources away from coping with stressors as the perfectionists are utilizing resources to conceal their perfectionism, and associated stress, from being exposed to others (e.g., D. M. Clark & Wells, 1995; Schmeichel & Baumeister, 2004).

3.3.2.4. Stress enhancement. Irrespective of stress, perfectionists experience negative outcomes at work, meaning that they are likely to have a lower level of resources when they encounter a stressor. In a sample of employees from a variety of organizations, perfectionistic concerns were associated with lower levels of job satisfaction; perfectionistic strivings, in contrast, were associated with higher and lower levels of job satisfaction, and with higher levels of intrinsic work motivation (Huelsman, Bergman, Occhio, & Hill, 2009). Huelsman and colleagues (2009) also investigated person-environment fit: how an employee's perfectionism matched the perfectionism required by the job. Perfectionistic strivings were again associated with ambivalent outcomes. In particular, employees who reported that they had high standards for others, and that their job required high standards for others, scored low on job satisfaction. In contrast, employees who reported that they had high levels of striving for excellence, and that their job required high levels of striving for excellence, scored high on intrinsic work motivation.

Perfectionists experience more negative outcomes of stress than non-perfectionists. According to the diathesis-stress model of perfectionism, individuals with high levels of perfectionism perceive negative life events or stressors as stressful to such a degree that the person becomes depressed (see Hewitt & Dyck, 1986). In a sample of students, high levels of socially prescribed perfectionism predicted higher levels of maladjustment and hopelessness one month later, but only at higher levels of stress (E. C. Chang & Rand, 2000). In a sample of students, stress fully mediated the relationship between unidimensional perfectionism and lower levels of life satisfaction, and stress partially mediated the relationship between unidimensional perfectionism and higher levels of worry and negative affect (E. C. Chang, 2000). Similarly, in another sample of students, stress fully mediated the relationships between perfectionistic concerns and lower levels of life satisfaction and higher levels of suicide ideation, and stress also partially mediated the relationship between perfectionistic concerns and higher levels of negative affect (E. C. Chang et al., 2004).

Dovetailing with the specific vulnerability model of perfectionism, negative life events must be congruent with a person's salient perfectionism dimension in order to precipitate depression because these congruent stressors are ego-involving as attaining perfection is equated with self-worth (see Hewitt & Flett, 1993). Correspondingly, self-oriented perfectionism interacts with achievement stressors to predict depression whereas socially prescribed perfectionism interacts with interpersonal stressors (Hewitt & Flett, 1993). There is, however, mixed support for the diathesis-stress and specific vulnerability models of perfectionism. On the one hand, in a sample of depressed patients, self-oriented perfectionism did interact only with achievement stressors to predict increased depression whereas socially prescribed perfectionism interacted only with interpersonal stressors to predict increased depression (Hewitt & Flett, 1993, Study 1). On the other hand, in a sample of psychiatric patients, although self-oriented perfectionism again interacted only with achievement stressors to predict increased depression one-year later, socially prescribed perfectionism did not interact with either type of stressor (Enns & Cox, 2005). Moreover, some studies have found that neither self-oriented perfectionism nor socially prescribed perfectionism interacted with either achievement or interpersonal stressors to predict increased depression (Dean & Range, 1996).

Nevertheless, evidence suggests that individuals with high levels of perfectionistic concerns or socially prescribed perfectionism, as opposed to high levels of perfectionistic strivings or self-oriented perfectionism, are likely to experience enhanced negative outcomes of stress. In a sample of coaches, perfectionistic concerns were associated with higher levels of stress and burnout whereas perfectionistic strivings were unrelated to both outcomes (Tashman, Tenenbaum, & Eklund, 2010). In samples of undergraduate students, perfectionistic concerns were associated with higher levels of burnout and lower levels of engagement whereas perfectionistic strivings were associated with lower levels of burnout and higher levels of engagement (Stoeber & Childs, 2010; Zhang, Gan, & Cham, 2007). In a sample of nurses (Magnusson, Nias, & White, 1996) and professors (J. C. Dunn et al., 2006), perfectionistic concerns were associated with higher levels of perceived hassles, psychological distress, and fatigue, whereas perfectionistic strivings were associated with lower levels of fatigue. In a sample of clinical psychologists, higher total perfectionism (FMPS; Frost et al., 1990) was associated with higher levels of stress; here, stress also partially mediated the relationship between perfectionism and personal-burnout, and it completely mediated the

relationship between perfectionism and burnout related to work and clients (D'Souza, Egan, & Rees, 2011).

Mirroring the results with perfectionistic concerns and perfectionistic strivings, in four studies investigating athletes, socially prescribed perfectionism was associated with higher levels of burnout whereas self-oriented perfectionism was associated with lower levels of burnout (Appleton, Hall, & Hill, 2009; A. P. Hill & Appleton, 2011; A. P. Hill, Hall, Appleton, & Kozub, 2008; A. P. Hill, Hall, Appleton, & Murray, 2010). In a sample of students, stress fully mediated the relationship between socially prescribed perfectionism and lower levels of wellbeing (E. C. Chang, 2006). In a sample of teachers, socially prescribed perfectionism was associated with higher levels of professional distress and emotional and physiological manifestations of stress, and with lower levels of job satisfaction (Flett, Hewitt, & Hallett, 1995). In a sample of psychologists, again only socially prescribed perfectionism was associated with lower levels of job satisfaction (Wittenberg & Nocross, 2001). In a sample of career mothers (women who worked at least 25 hours a week and had a child under nine years of age), other-oriented perfectionism was associated with higher levels of burnout at home and socially prescribed perfectionism was associated with higher levels of burnout both at home and at work (Mitchelson & Burns, 1998).

Van Yperen and colleagues (van Yperen, Verbraak, & Spoor, 2011) compared four groups of mental health patients (who were diagnosed with work-related psychological problems) with a control group of patients (who were diagnosed with non-work-related psychological problems). The four work-related psychopathology groups were diagnosed with burnout, depression, anxiety-disorder, or two or more of these three disorders. Patients suffering from burnout or depression had higher levels of socially prescribed perfectionism than the control patients. In addition, patients suffering from two or more disorders had higher levels of socially prescribed perfectionism than patients suffering from anxiety-disorder in isolation and the control patients, suggesting that socially prescribed perfectionism was associated with greater psychopathology (van Yperen et al., 2011).

In the only study to investigate the three HMPS (Hewitt & Flett, 1991) dimensions and burnout and engagement at work, self-oriented perfectionism and other-oriented perfectionism were associated with lower levels of burnout and higher levels of engagement while socially prescribed perfectionism showed the opposite pattern (Childs & Stoeber, 2010). In particular, self-oriented perfectionism was associated with lower levels of cynicism and inefficacy in addition to higher levels of vigor, dedication, and absorption; other-oriented perfectionism was

associated with lower levels of exhaustion and higher levels of vigor; and socially prescribed perfectionism was associated with higher levels of exhaustion, cynicism, and inefficacy, in addition to lower levels of vigor and dedication (Childs & Stoeber, 2010). Self-oriented perfectionism has also been associated with some negative stress-related outcomes, however: In a sample of coronary heart disease patients and healthy matched controls, self-oriented perfectionism and other-oriented perfectionism were more prevalent in the coronary heart disease patients (Azar, Ghojazadeh, Abdi, Yaghoubi, & Imani, 2010).

The findings that perfectionistic strivings and self-oriented perfectionism are associated with both stress and negative outcomes, as well as eustress and positive outcomes, is concordant with the theory underlying perfectionism (see 3.3.1. Why perfectionism is associated with stress; also see Chapter 2). Failure is not associated with negative interpersonal consequences in perfectionistic strivings and self-oriented perfectionism, meaning that these forms of perfectionism may not be associated with the negative outcomes of stress to the same extent as perfectionistic concerns and socially prescribed perfectionism.

3.3.2.5. Critical evaluation. A strength of the evidence on the relationship between perfectionism and stress is that researchers have investigated a number of stress-related characteristics, processes, and outcomes providing strong evidence that perfectionism plays a significant role in stress (see Hewitt & Flett, 2002). The majority of this evidence comes from studies with student and psychiatric samples, however, which is surprising given that work is one of the life domains most affected by perfectionism (Slaney & Ashby, 1996; Stoeber & Stoeber, 2009). Similarly, stress, burnout, and engagement are central variables in employees' psychological adjustment and have been shown to impact employees and organizations in numerous ways (e.g., Cooper et al., 2001; Salanova, Schaufeli, Martínez, & Bresó, 2010; Schaufeli et al., 1996; Shirom, 2002). Still, all of the studies that have examined Hewitt and Flett's (1991) model of perfectionism—the model adopted in the present research (see Chapter 2)—and stress, burnout, and engagement in employees were cross-sectional, meaning that they only provide information on the co-occurrence of perfectionism and stress, burnout, and engagement, but not information on whether perfectionism predicts changes in stress, burnout, and engagement. Only longitudinal studies can provide such information (Taris, 2000).

However, research is first needed to determine whether perfectionism, a lower-order personality trait, predicts outcomes above and beyond higher-order personality traits (c.f. Saucier & Goldberg, 2003; also see Chapter 2). Taking the Big Five (Costa & McCrae, 1992) higher-order traits, cross-sectional studies have consistently demonstrated that self-oriented

perfectionism and perfectionistic strivings are related to conscientiousness, and socially prescribed perfectionism and perfectionistic concerns are related to neuroticism (e.g., Dunkley & Kyparissis, 2008; Enns, Cox, & Clara, 2005; Hewitt & Flett, 2004; R. W. Hill, McIntire, & Bacharach, 1997; Rice, Ashby, & Slaney, 2007; Sherry et al., 2007). This pattern of associations is concordant with conscientiousness being characterized by organization and goal-direct behavior, and neuroticism being characterized by psychological maladjustment and unrealistic goals (e.g., Costa & McCrae, 1992; John & Srivastava, 1999). Still, a longitudinal study found that while conscientiousness longitudinally predicted increases in self-oriented perfectionism, neuroticism did not longitudinally predict changes in socially prescribed perfectionism (Stoeber, Otto, & Dalbert, 2009).

In addition to being the two Big Five traits consistently associated with perfectionism, research has shown that neuroticism and conscientiousness are the two Big Five traits consistently associated with burnout and engagement (see Kim et al., 2009). In particular, neuroticism has been shown to be associated with higher levels of burnout and lower levels of engagement and conscientiousness with lower levels of burnout and higher levels of engagement. To the best of my knowledge, no study has examined whether perfectionism longitudinally predicts burnout and engagement above and beyond the Big Five, however. Nevertheless, evidence suggests that the lower-order trait perfectionism might incrementally predict burnout and engagement above and beyond the Big Five higher-order traits. In particular, perfectionism has been shown to predict workaholism above and beyond the Big Five: perfectionistic strivings and perfectionistic concerns were associated with higher levels of workaholism, even after controlling for the impact of neuroticism (M. A. Clark, Lelchook, & Taylor, 2010). In addition, as perfectionism is believed to be a trait (see Chapter 2), perfectionism should longitudinally predict changes in burnout and engagement in a unidirectional manner. If the relationship was bidirectional, and burnout and engagement longitudinally predicted changes in perfectionism, the belief that perfectionism is a trait would not be supported.

Chapter 4
Intragroup Relationships

> A senior project manager that I worked with was so obsessed with quality and mistake-proofing that he ended up creating a huge, impractical infrastructure and processes for ensuring quality. He was extremely detail-oriented and made small tasks seem insurmountably large. The result was employee de-motivation and too much policing to get the smallest job done.
>
> Such persons never believe in delegation since they feel that there could be the possibility of inconsistencies or loss of quality if they did. They also have the tendency to micro-manage. They would be not just be concerned about the end, but also the means to it. All this results in their leading a stressful lifestyle and creating stress for others because they are unrelenting in their quest to achieve perfection in everything they do.
>
> (Lakshman, 2005, Perfectionist is that you? para. 1-2).

4.1. Intragroup Relationships

Employers value the ability to work effectively with others. Job applications and interviewers invariably inquire as to applicants' interpersonal skills (e.g., Leigh, 2004). With an estimated 80% of organizations world-wide utilizing some form of team-work (S. G. Cohen & Bailey, 1997), and 81% of employees in the UK working in a team (European Foundation for the Improvement of Living and Working Conditions, 2007), interpersonal relationships are an integral aspect of working life.

A salient interpersonal relationship for students and employees is that within their team, with a team being defined as "a distinguishable set of two or more people who interact dynamically, interdependently, and adaptively toward a common and valued goal/objective/mission, who have each been assigned specific roles or functions to perform, and who have a limited life-span of membership" (Salas, Dickinson, Converse, & Tannenbaum, 1992, p. 4). Teams have a salient organizational function or identity (West, Borril, & Unsworth, 1998), and, although some argue that there is no difference between a team and a group (e.g., Kozlowski & Bell, 2003), others argue that the primary difference is

that team members' performance is interdependent while group members' performance is both interdependent and individual, for instance (e.g., Furnham, 2006).

According to Tuckman (1965), teams develop through five stages (also see Arnold et al., 2006). The first stage, forming, involves team members meeting but having little communication because they are unclear about their roles and about the purpose of the team. The second stage, storming, involves team members being in conflict about assigning roles and performing the task for which they were formed. In this stage the team makes little progress toward achieving its goals. The third stage, norming, involves team members establishing patterns and rules for communication and behavior, and undertaking their task in earnest. The fourth stage, performing, involves team members devoting their full attention to achieving their task, and the team is ideally close, supportive, and cohesive. Once the team has accomplished their task, they experience the fifth and final stage, disbanding, which involves team members analyzing and reflecting on their performance and deciding future steps.

According to Sundstrom and colleagues (Sundstrom, McIntyre, Halfhill, & Richards, 2000), employee teams can be defined according to six types. The first type is production teams which cyclically produce tangible products and vary on autonomy from supervisor-lead to self-directed. The second type is service teams which repeatedly engage in transactions with customers who have different needs meaning that the transactions are varied. The third type is management teams which are responsible for directing and coordinating employees. The fourth type is project teams which are temporary and specialized, and exist only to execute time-constrained tasks[5]. The fifth type is action and performance teams which are comprised of interdependent experts who engage in complex, time-constrained tasks. The sixth and final type is advisory teams which are temporary and task-specific and work outside of, but parallel to, organizational processes.

Three dimensions underlie these different types of team (Sundstrom, DeMeuse, & Futrell, 1990). The first dimension, work team differentiation, refers to the degree to which a team is dissimilar to other teams in the organization, in terms of attributes such as specialization, autonomy, and the team's life span. The second dimension, external integration, refers to the degree to which a team's task is synchronized with, and reliant upon, other aspects of the organization. The third dimension, work cycles, refers to the length of the team's task and the degree to which performance episodes are repeated.

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[5] Student teams are classified as project teams (Skilton, Forsyth, & White, 2008).

Alternatively, Robbins (2003) proposes that teams can be classified according to four types. The first type is problem-solving teams which meet regularly to discuss how to improve the performance, efficiency, and environment of the team. The second type is self-managed teams which absorb the leadership role, formerly performed by an official supervisor. The third type is cross-functional teams which perform a specific task and are comprised of employees with different areas of expertise, albeit from equivalent hierarchical levels within the organization. The fourth and final type is virtual teams which are physically or geographically dispersed and use technology to interact, communicate, and thus achieve the team's goals.

4.1.1. Intragroup relationships and stress. Team-work is associated with an array of positive psychological, behavioral, attitudinal, and emotional outcomes (Rasmussen & Jeppesen, 2006). Teams appear to outperform individuals, especially in complex tasks or tasks requiring specialized knowledge (e.g., Robbins, 2003). Field studies support this and, in a sample of nursing home staff for instance, team-work was associated with higher quality of patient care (Murkamel, Cai, & Temkin-Greener, 2009). Employees who work in teams have higher levels of wellbeing than employees working alone (Carter & West, 1999). In samples of manufacturing employees, wellbeing increased longitudinally after the introduction of team-working, when teams were carefully managed (S. K. Parker & Williams, 2001). However, wellbeing decreased when team-working failed, which occurred when there was a lack of support from management or a lack of interdependent work practices or outputs (S. K. Parker & Williams, 2001).

Team-work can buffer the unhelpful effects of stress as well as benefit individuals regardless of stress (S. Cohen & Wills, 1985). According to the Demands-Control-Support model (J. V. Johnson & Hall, 1988; also see Chapter 3), individuals have the highest levels of stress if they have high job demands, low control, and low social support. Social support can be defined as the resources provided by others (S. Cohen & Syme, 1985), and it consists of four types: emotional support, informational support, instrumental (i.e., tangible) support, and appraisal (i.e., feedback) support (House, 1981). Evidence corroborates the main and interaction effects of social support on stress, and social support is negatively associated with demands and stress, and it also buffers the effects of demands on stress (for a review, see Viswesvaran, Sanchez, & Fisher, 1999). Social support most consistently buffers against the demands-stress relationship if the available support matches the needs of the demand (S. Cohen & Wills, 1985; Frese, 1999; Kahn & Byosiere, 1992). However, high levels of social

support can also be associated with higher levels of stress (Schaubroeck & Fink, 1998), as high levels of support may induce feelings of inferiority (M. C. W. Peeters, Buunk, & Schaufeli, 1995).

Individuals are more likely to give support to, and receive support from, other team members if they perceive themselves to share a common social identity (Branscombe, Schmitt, & Harvey, 1999; Haslam, O'Brien, Jetten, Vormedal, & Penna, 2005). If individuals ascribe to the social identity of the team (Tajfel & Turner, 1979, 1986), they will perceive and foster a cohesive intragroup relationship within the team in order to bolster and preserve this team-member identity (Hogg, 1992). Initial definitions of cohesion focused on the total interpersonal attractions between constituent team members (e.g., Lott & Lott, 1965), and, although numerous definitions have subsequently been proposed in the literature, the core aspect of cohesion is characterized by "the group members' inclinations to forge social bonds, resulting in the group sticking together and remaining united" (Casey-Campbell & Martens, 2009, p. 223). Cohesive intragroup relationships are appraised by team members as cooperative, supportive, and caring (Hogg, 1992). In contrast, cohesion is reduced by team conflict which involves strong interpersonal disagreements, negative communication, tension, lack of cooperation, frustration, anger, fear, and distrust (Jehn, 1995, 1997; Jehn & Mannix, 2001). When a team has a high level of relationship conflict, team members are more likely to withdraw effort and to experience negative affect (Jehn, 1995). In samples of students rating hypothetical team-work vignettes (Study 1) and of actual teams of employees (Study 2), relationship conflict demotivated team members and reduced affective commitment to the team, for instance (Chen, Sharma, Edinger, Shapiro, & Farh, 2011).

Cohesion is believed to be multidimensional but there is, however, disagreement over the constituent dimensions (see Beal, Cohen, Burke, & McLendon, 2003; Casey-Campbell & Martens, 2009; Mullen & Cooper, 1994, for overviews). Some researchers differentiate between task commitment, interpersonal attraction, and group pride (Beal et al., 2003; Mullen & Cooper, 1994). Task commitment is characterized by the opportunity to achieve the team's goals, and the dedication to these goals. In comparison, interpersonal attraction is characterized by a shared liking of team members. Group pride, finally, is characterized by endorsement of the ideologies or principles that the team represents, coupled with a belief in the importance of team membership. Conversely, most researchers differentiate between task cohesion and interpersonal cohesion (Evans & Jarvis, 1980; Gross & Martin, 1952; Zaccaro & Lowe, 1988; also see Casey-Campbell & Martens, 2009, for an overview). Task cohesion is

characterized by a shared commitment to the team and its goal. Interpersonal cohesion, in comparison, is characterized by attraction to, and linking of, the team. Task cohesion can be further divided into two facets: group integration-task, characterized by the similarity and alignment within the team regarding achieving the team's goals, and individual attraction to the group-task, characterized by team members' feelings of personal involvement in the team's performance and goals (Carron, Brawley, & Widmeyer, 2002). Similarly, interpersonal cohesion can be further divided into two facets: group integration-social, characterized by the similarity and alignment within the team regarding the team's social activities, and individual attraction to the group-social, characterized by team members' feelings of personal involvement in the team's social activities (Carron et al., 2002).

Cohesion is believed to improve the communication between team members, engendering greater participation in the team as well as goal, task, and role acceptance (D. Cartwright, 1968). Cohesion is also believed to build bonds between team members, which fosters social and motivational resources and leads to higher levels of productivity (e.g., Beal et al., 2003). Employees who appraise their team as highly cohesive have higher levels of job performance, job satisfaction, and wellbeing, and lower levels of stress and burnout (Bliese & Britt, 2001; Bliese & Halverson, 1996, 1998; Carter & West, 1999; Griffith, 1989, 2002; Keller, 1986; Kjørom & Halvari 2002; Lasalvia et al., 2009; Oliver, Harman, Hoover, Hayes, & Pandhi, 1999). Cohesive relationships are robust, and cohesion has been shown to be stable even during times of failure (Taylor, Doria, & Tyler, 1983).

Individual ratings of a team's cohesion do appear to accurately reflect the overall consensus of the team (Carron et al., 2005). Studies examining group-level effects corroborate the helpful effects of cohesion to the individual. In a sample of ice hockey teams, players in teams with higher levels of cohesion had higher levels of task satisfaction (Spink, Nickel, Wilson, & Odnokon, 2005). In samples of students, students in teams with higher levels of cohesion displayed more helpful behaviors to team mates (Ng & Van Dyne, 2005), and teams with higher levels of cohesion had higher levels of collective efficacy (Lent, Schmidt, & Schmidt, 2006). In a sample of employees, employees in teams with higher levels of cohesion engaged in more organizational citizenship behaviors (Shin & Choi, 2010).

Cohesion can also be unhelpful to teams, however (Mullen, Anthony, Salas, & Driskell, 1994; Westman et al., in press). For instance, it can promote poor decision making if the team becomes more preoccupied with maintaining positive intragroup relationships than with effective problem-solving (Janis, 1982). Cohesion increases adherence to intragroup

norms, even if these norms are detrimental to the team (Brown, 1999). In a laboratory study, students were assigned to teams that were manipulated as being either high or low in cohesion and, during task completion, only communicated with other team members via fictitious notes (i.e., produced by the researcher; Schacter, Ellertson, McBride, & Gregory, 1951). Students in teams with a high level of cohesion and a low performance norm (i.e., notes with a message to loaf) had lower levels of performance than students in teams with a high level of cohesion and a high performance norm (i.e., notes with a message to try hard); there were no differences in performance in the low cohesion teams, however (Schacter et al., 1951).

Similarly, the stress of a team member may have consequences for the other people in the team, not just for the individual experiencing stress (Tucker, Sinclair, & Thomas, 2005), and cohesion may facilitate the transmission of stress throughout a team. Burnout and engagement, the respective effects of stress and eustress (see Chapter 3), have been found to crossover from an employee to their team (Bakker et al., 2006; Bakker & Xanthopoulou, 2009; Westman et al., in press; also see Chapter 3). Burnout only crossed over, however, when teams had high levels of cohesion and social support (Westman et al., in press), and engagement only crossed over when team members had high levels of contact (Bakker & Xanthopoulou, 2009). This evidence may therefore suggest that the more cohesive a team is the more readily stress might crossover. Furthermore, if team members share a perception of high stress they may lack the resources to provide social support to each other within the team. Disintegration, the opposite of cohesion, is said to occur when an entire team experiences high levels of stress (Griffith & Vaitkus, 1999). Here, team members are unable to provide social support to colleagues, team members withdraw from the team and pursue their own goals, and the team breaks down (Griffith, & Vaitkus, 1999).

Team characteristics and individual differences will result in differences in cohesion both between and within teams. Structural characteristics of a team can predict levels of cohesion and teams with a higher degree of interaction and entativity, and a smaller size, are likely to be more cohesive (Mullen & Cooper, 1994). However, with cohesion being "the resultant of all the forces acting on the members to remain in the group" (Festinger, 1950, p. 274), cohesion may be influenced by characteristics that existed prior to the team's formation, such as traits and motivations (Casey-Campbell & Martens, 2009). Hence, individual differences may result in differences in perceptions of cohesion, leading to differences in access to social support from the team and, subsequently, differences in stress. For instance, in a sample of private sector employees, attachment insecurity was associated with higher levels

of burnout, and this relationship was partially mediated by lower appraisals of team cohesion (Ronen & Mikulincer, 2009).

4.1.2. Critical evaluation. Evidence as to the effects of cohesion is controversial (see Mullen & Copper, 1994), and the literature is "dominated by confusion, inconsistency, and almost inexcusable sloppiness with regard to defining the construct" (Mudrack, 1989, p. 45). There is a plethora of definitions and measurements which limits the comparability and replicatability of findings (see Casey-Campbell & Martens, 2009, for an overview). Five key limitations will be discussed.

First, researchers have examined teams that were either experimentally created, and high or low cohesion was induced, or that were naturally occurring (see Mullen & Cooper, 1994 for an overview). Studies using naturally occurring teams tend to display stronger results of cohesion, potentially because of low ecological validity in laboratory studies or common method bias in field studies (Mullen & Cooper, 1994). Second, studies have failed to take into account wider contextual influences. For instance, intergroup competition has been shown to increase intragroup cohesion (Sherif, 1966). Third, researchers have examined cohesion at different levels. Definitions and measures have been at the individual level, the group level, both the individual and group levels, or cohesion has been measured by aggregating individual perceptions—measurement at the individual level is most prevalent (Buckner, 1988; Carless & De Paola, 2000; Carron et al., 2002; Cota, Longman, Evans, Dion, & Kilik, 1995; Hogg, 1992; also see 4.2. Intragroup Relationships and Personality for a continuation of this discussion).

Fourth, the need to, and importance of, distinguishing between task and interpersonal cohesion are unclear. Studies have shown stronger effects for task cohesion. For instance, task cohesion has been shown to be more strongly associated with higher levels of individual and group performance, and lower levels of absenteeism, compared to interpersonal cohesion; task cohesion has also been shown to lead to interpersonal cohesion (Mullen & Cooper, 1994; Zaccaro, 1991; Zaccaro & Lowe, 1988). Conversely, research has shown that, when groups require interaction to succeed on a group task, both forms of cohesion are required (Zaccaro & McCoy, 1998). Nevertheless, research has also shown that task cohesion is only related to subjective performance whereas interpersonal cohesion is only related to objective performance, however (A. Chang & Bordia, 2001).

Finally, the majority of the studies discussed above were cross-sectional, precluding inferences about causality. The few studies that have reported cross-lagged effects suggest that cohesion is more likely to be an outcome variable than a predictor (see Mullen & Cooper,

1994). For instance, the effect of high performance increasing levels of cohesion appears to be stronger than the effect of high cohesion increasing levels of performance. Disentangling effects is complicated further as the positive effects of high levels of cohesion may increase cohesion, and the negative effects of low levels of cohesion may decrease cohesion, leading to positive and negative spirals, respectively (Pethe, 2002). Moreover, team processes change over time, from the initial period of forming to disbanding, and researchers need to account for how cohesion changes during a team's life, as team members may initially focus on interpersonal cohesion to form a structure and to establish roles and norms, but may then shift towards task cohesion in order to accomplish the team's goal (Gersick, 1988).

4.2. Intragroup Relationships and Personality

Personality characteristics have been shown to explain the quality of a team's intragroup relationship (e.g., Bell, 2007). The Big Five (Costa & McCrae, 1992), in particular, are associated with a number of social-cognitive and interpersonal characteristics, processes, and outcomes that are relevant to how a person perceives and interacts with others (Hirschfield, Jordan, Thomas, & Field, 2008). Moreover, team members can be categorized in terms of eight roles or patterns of behavior (Belbin, 1981, 1993), which describe the expression of the Big Five in a team-work context (S. G. Fisher, Hunter, & Macrosson, 2001).

The first role, coordinator, is characterized by high levels of agreeableness. Coordinators are calm, tolerant, and focused on goals, and they also promote decision making and encourage individuals to contribute to the team. The second role, completer-finisher, is characterized by low levels of neuroticism. Completer-finishers are hardworking and orderly, and they also search out errors and omissions and ensure that detailed aspects of the task are planned. The third role, resource investigator, is characterized by high levels of extraversion. Resource investigators are friendly and adaptable, and they also gather information from outside the group. The fourth role, team-worker, is characterized by high levels of agreeableness. Team-workers are caring, diplomatic, and cooperative, and they also promote team morale and provide emotional support. The fifth role, implementer, is characterized by high level of extraversion. Implementers turn ideas into practical actions. The sixth role, monitor-evaluator, is characterized by high levels of conscientiousness. Monitor-evaluators are detached, intelligent, and skeptical, and they also evaluate ideas logically and analytically. The seventh role, plant, is characterized by high levels of openness. Plants are innovative and independent, and they also solve difficult problems and provide imaginative new ideas. The

eighth and final role, shaper, is characterized by low levels of neuroticism. Shapers are energetic and high in need for achievement.

The Big Five show a differential pattern of relationships with intragroup variables. Agreeableness is helpful to intragroup relationships and has been associated with higher levels of friendliness, cooperation, altruism, striving for cohesion, facilitating cohesion, and resolving conflict, and with lower levels of competitiveness (Barrick, Stewart, Neubert, & Mount, 1998; Costa & McCrae, 1992; Graziano, Hair, & Finch, 1997). Conscientiousness is helpful to intragroup relationships and has been associated with higher levels of working hard, responsibility, organization, self-discipline, achievement, task-orientation, goal completion, and cooperation, and with lower levels of social loafing (Costa & McCrae, 1992; Mohammed & Angell, 2003; Molleman, Nauta, & Jehn, 2004). Extraversion can be helpful and unhelpful to intragroup relationships and has been associated with higher levels of talkativeness, being outgoing, enthusiasm, energy, optimism, assertiveness, positive team attitudes, and stimulating discussion, but also with higher levels of divergence from task completion, dominance, and conflict (Barrick et al., 1998; Costa, McCrae, 1992; Kichuk & Wiesner, 1998; Mohammed & Angell, 2003). Openness is generally neither helpful nor unhelpful to intragroup relationships but has been associated with higher levels of creativity and lower levels of cohesion (Costa & McCrae, 1992; Van Vianen & De Dreu, 2001). Neuroticism is unhelpful to intragroup relationships and has been associated with lower levels of cooperation, perceptions of a relaxed interpersonal atmosphere, stability within the team, and task cohesion (Barrick et al., 1998; Molleman et al., 2004; Neuman, Wagner, & Christiansen, 1999; Van Vianen & De Dreu, 2001).

Drawing on Person-Environment fit theory (e.g., Muchinsky & Monohan, 1987), teams will be more effective when they are composed of members with similar levels of personality traits (supplementary fit) or with differing levels of personality traits, whereby a member high in a given trait can compensate for a member low in that trait (complementary fit; also see Prewett, Walvoord, Stilson, Rossi, & Barannick, 2009 for an overview). Although teams may be more effective when they are dissimilar on surface characteristics, such as knowledge, skill, and expertise (van Knippenberg, De Dreu, & Homan, 2004), in terms of personality, however, similarity (i.e., supplementary fit) appears to be most effective and there are three reasons.

First, according to Attraction-Selection-Attraction theory (Schneider, 1987), employees are more likely to work in organizations that match their personality. Potential employees are more likely to seek organizations that are in line with their personality; in turn, candidates with

a good fit are more likely to be selected for, and remain in, the position. Second, according to the Similarity-Attraction Paradigm (Byrne, 1979), employees are more satisfied in teams that are in line with their personality as their values and beliefs are reinforced. Similarly, team members will foster homogeneity in order to increase identification and integration in the team, securing their common identity (Tajfel & Turner, 1979, 1986). Third, similar teams are more effective and, once formed, team members may become more similar in order to improve effectiveness (Halfhill, Sundstrom, Lahner, Calderone, & Nielson, 2005) by reducing interpersonal conflict due to conflicting personality traits (Vaccaro, 1988).

Evidence supports the supplementary fit hypothesis. Teams with higher levels of conscientiousness and agreeableness, and teams that are similar in these two dimensions, have higher levels of performance (see Barrick, Mount, & Judge, 2001; M. A. G. Peeters, van Tuijl, Rutte, & Reymen, 2006, for reviews). However, teams with even one member low in agreeableness have lower levels of performance (see Bell, 2007, for a review). In a study examining multilevel effects, students in homogenously conscientiousness teams had higher levels of team-level cohesion and, in turn, were more satisfied with their team than students in teams with differing levels of conscientiousness (Gevers & Peeters, 2009).

In a sample of employees, team members' aggregated personality was found to be associated with team members' aggregated cohesion and the supervisor-rated performance of the team (Barrick et al., 1998). In particular, aggregated extraversion was associated with higher levels of aggregated cohesion, aggregated conscientiousness and agreeableness were associated with higher levels of performance, and aggregated neuroticism was associated with lower levels of aggregated cohesion and performance (Barrick et al., 1998). Moreover, teams dissimilar in extraversion had lower levels of aggregated cohesion, teams with one member low in extraversion had lower levels of performance, and teams with one member low in agreeableness had lower levels of performance and aggregated cohesion (Barrick et al., 1998). In a sample of students, whether teams interacted electronically (i.e., via videoconference) or in person (i.e., face-to-face) moderated the effect of personality on cohesion (MacDonnell, O'Neill, Kline, & Hambley, 2009). Aggregated openness was associated with higher levels of aggregated cohesion for videoconference teams, but it was associated with lower levels of cohesion for face-to-face teams. For these teams, aggregated extraversion was associated with higher levels of aggregated cohesion.

4.2.1. Critical evaluation. Two prevalent criticisms of personality research in organizational context in general are: small effect sizes associated with personality dimensions, and potential bias of self-reports due to impression management (see Judge, Klinger, Simon, & Yang, 2008). In terms of research investigating the effect of personality in teams, in particular, the primary limitation is the levels of analysis. The majority of research either examined the individual level, ignoring the fact that participants were nested within teams and thus were likely to share some similarities, or aggregated participants' scores within the same team, assuming that everyone in the team responded in the same way (Griffith, 2002). Such techniques may lead to Type I and Type II errors and biased parameter estimates (Nezlek, 2001; Peugh, 2010). Multilevel linear modeling, however, may eliminate many of the problems associated with nested data (Heck, Thomas, & Tabata, 2011; Hox, 2010). Multilevel linear modeling enables the simultaneous investigation of the effects of group-level and individual-level predictors because both between-group and within-group variation can be examined, while accounting for the non-independence of observations.

4.3. Intragroup Relationships and Perfectionism

How individuals perceive and evaluate themselves influences how they engage with others (Bowlby, 1988). Hence, perfectionists, who perceive themselves negatively, are likely to perceive their relationships with others as negative and insecure (D. Burns, 1980). Perfectionism is associated with a number of social-cognitive and interpersonal characteristics, processes, and outcomes that are relevant to how a person interacts with others, and to how a person perceives others as interacting with them. Clinicians report that their perfectionistic patients respond defensively to criticism, withdraw from others to avoid revealing potential imperfections, apply their unattainable standards onto others leading to inevitable disappointment (D. Burns, 1980), and anticipate that others will reject them (Beck, 1976).

Given the paucity of research on perfectionism in a team-work context (in particular, the impact of perfectionism on work or academic intragroup relationships) research on perfectionism and broader interpersonal relationships will also be explored below, as informing the present research.

4.3.1. Perfectionism and social-cognitive and interpersonal characteristics. Research supports the above observations, and wanting to appear as perfect to others, for instance, has been shown to be associated with appraisals of interpersonal situations as threatening (Hewitt, et al., 2003; Hewitt, Habke, Lee-Gabbley, Sherry, & Flett, 2008).

However, evidence suggests that perfectionistic concerns, socially prescribed perfectionism, and other-oriented perfectionism are associated with negative interpersonal characteristics more than perfectionistic strivings and self-oriented perfectionism.

Perfectionistic concerns have been associated with higher levels of anger, hostility, aggression, and criticism towards peers, as well as anxious, avoidant, and insecure attachment orientations (J. G. H. Dunn & Syrotuik, 2003; Öngen, 2010; Rice et al., 2005; Rice & Mirzadeh, 2000; Ulu & Tezer, 2010). Perfectionistic concerns have also been associated with lower levels of empathy, cooperation, social responsibility, and interpersonal connections (J. G. H. Dunn & Syrotuik; Rice et al., 2005; Wei, Mallinckrodt, Russell, & Abraham, 2004). Individuals with high levels of perfectionistic concerns have been shown to have insufficient affect regulation and coping skills, and to be preoccupied by concerns over how they will be viewed (Dunkley et al., 2003). In a sample of psychiatric patients, perfectionistic concerns predicted higher levels of depression three years later, and this relationship was mediated by low levels of perceived social support and high levels of negative social interactions, even after controlling for baseline depression and neuroticism (Dunkley, Sanislow, Grilo, & McGlashan, 2006). In contrast, perfectionistic strivings have been associated with lower levels of anger and hostility, and with higher levels of secure attachment orientations and interpersonal connections (Öngen, 2010; Rice et al., 2005; Wei et al., 2004).

> The other-oriented perfectionist's imposition of unrealistic demands on significant others and the socially prescribed perfectionist's conviction that significant others impose unrealistic demands on him or her are particularly likely to lead to dissatisfaction with relationships and anger at those seen as demanding perfection (Dimitrovsky, Levy-Shiff, & Schattner-Zanany, 2002, p. 635).

These two interpersonal forms of perfectionism are believed to be particularly unhelpful to interpersonal relationships. Individuals with high levels of socially prescribed perfectionism appear to have a negative self-perception in interpersonal contexts and also to perceive and relate to others in an equally negative fashion. In student samples, socially prescribed perfectionism has been related to higher levels of social disconnection, interpersonal distress, psychosocial adjustment problems, interpersonal sensitivity, others' expectations of one's behavior, fear of negative evaluation, need for approval, fear of social rejection, social anxiety and phobia, shyness, loneliness, shame, defeat, arrogance, other-

blame, negative evaluations of social comparison, submissive behavior, hyperresponsibility, feeling overly controlled, and passive aggressive personality characteristics; in addition to lower levels of social self-esteem (Alden, Bieling, & Wallace, 1994; Bieling & Alden, 1997; E. C. Chang, Sanna, Chang, & Bodem, 2008; Flett et al., 1996; Flett, Velyvis, & Hewitt, 2001, as cited by Hewitt & Flett, 2002; R. W. Hill, Zrull, & Turlington, 1997; Sherry, Law, Hewitt, Flett, & Besser, 2008; Wyatt & Gilbert, 1997). In a sample of students, socially prescribed perfectionism was associated with negative social behaviors towards the self (such as self-criticism) and towards others (such as lack of recognition) during social interactions, and socially prescribed perfectionists reported more frequent negative social interactions (Flett, Hewitt, Garshowitz, & Martin, 1997). By engaging in negative social behaviors during interactions with others, socially prescribed perfectionists may stimulate negative responses from interaction partners, in turn reinforcing perfectionists' negative perception of others, which then, subsequently, reinforces perfectionists' negative social behavior (Coyne, 1967; Flett et al., 1997).

Evidence as to the impact of other-oriented perfectionism is less extensive. Nevertheless, individuals with high levels of other-oriented perfectionism appear to have a positive self-perception in interpersonal contexts, but they also appear to perceive and relate to others in a negative fashion. In student samples, other-oriented perfectionism has been related to higher levels of social skill appraisal and assertiveness but also to higher levels of other-blame, authoritarianism, dominance, arrogance, vindictiveness, narcissism, and antisocial and histrionic personality characteristics, and to lower levels of agreeableness (Flett et al., 1996; Hewitt & Flett, 1991; R. W. Hill, Zrull, & Turlington, 1997). Similarly, individuals with high levels of self-oriented perfectionism appear to have a positive self-perception in interpersonal contexts, but they also appear to perceive and relate to others in a negative fashion. In student samples, self-oriented perfectionism has been related to higher levels social skill appraisal and assertiveness but also to higher levels of negative evaluations of social comparison, competitiveness, narcissism, and hostility (Flett, Hewitt, et al., 1994; Flett, Hewitt, & De Rosa, 1996; Hewitt & Flett, 1991; R. W. Hill, Zrull, & Turlington, 1997; Saboonchi & Lundh, 2003; Wyatt & Gilbert, 1997).

4.3.2. Perfectionism and relationships with others. Given the array of associations with unhelpful social-cognitive and interpersonal characteristics, perfectionism is unsurprisingly reported to have a negative impact on interpersonal relationships (e.g., D. Burns, 1980; Habke & Flynn, 2002). Individuals with high levels of unidimensional

perfectionism report significant problems in professional and academic relationships (Slaney & Ashby, 1996), while unhealthy perfectionists (see Chapter 2) report problems in home (Mitchelson, 2009) and therapeutic relationships (Shahar, Blatt, & Zuroff, 2007). In a sample of young persons, total perfectionism (as measured by the FMPS; Frost et al., 1990; see also Chapter 2) was associated with lower ratings of family cohesion (Aruguete, Yates, Edman, & Saunders, 2007).

The ambiguity of interpersonal contexts may be unhelpful to perfectionists because it is difficult for them to evaluate their performance (Mitchelson, 2009). In addition, engaging in perfectionistic activities can interfere with interpersonal relationships. In the work-family conflict literature, work interference with family refers to the extent that one's work role interferes with one's family role (Bedeian, Burke, & Moffett, 1988). In a sample of working adults with family obligations (adults who worked at least 20 hours a week and had a partner and/or dependent child at home), unhealthy perfectionists had higher levels of work interference with family than healthy perfectionists, in that engaging in behaviors for the work role interfered with engaging in behaviors for the home role (Mitchelson, 2009). Moreover, in a sample of undergraduate students, unhealthy perfectionists reported negative interpersonal behaviors towards others (e.g., hostility) whereas healthy perfectionists reported positive ones (Slaney, Pincus, Uliaszek, & Wang, 2006).

Individuals with high levels of perfectionistic concerns, compared to high levels of perfectionistic strivings, rate themselves as having higher levels of social stress and relationship dissatisfaction, and as being liked by their peers less (Gilman & Ashby, 2003; Shea, Slaney, & Rice, 2006). In a sample of children with obsessive-compulsive disorder, perfectionistic concerns were associated with self-ratings of negative peer relationships, even after controlling for obsessive-compulsive disorder symptoms (Ye, Rice, & Storch, 2008). Furthermore, individuals with high levels of perfectionistic concerns are unlikely to use social support to cope with stressors. In a sample of students, perfectionistic concerns were related to higher levels of stress, avoidant coping, and lower levels of perceived support, all of which mediated the relationship between perfectionistic concerns and higher levels of depression (Dunkley et al., 2000). In a sample of students who completed diaries for seven days, perfectionistic concerns predicted higher levels of stress and avoidant coping, and lower levels of perceived social support, all of which mediated the relationships between perfectionistic concerns and higher levels of negative affect and lower levels of positive affect (Dunkley et al., 2003).

Although socially prescribed perfectionism is rooted in contingent self-worth based on the approval of others, "it is also associated with behaviours that are likely to undermine those positive inter-personal relationships which may aid in bringing about such approval" (A. P. Hill et al., 2011, p. 241). Socially prescribed perfectionists report higher levels of destructive relationship responses (e.g., insensitivity towards, and obsessive preoccupation with, their partner), dyadic maladjustment, negative social interactions, and marital dissatisfaction (Dimitrovsky et al., 2002; Flett et al., 1997; Flett, Hewitt, Shapiro, & Raymann, 2001). Socially prescribed perfectionism has also been associated with higher levels of martial maladjustment, even after control for neuroticism and depression (Haring, Hewitt, & Flett, 2003). These perfectionists perceive a discrepancy between their social self-efficacy and others' expectations. In an experiment in which students anticipated being introduced to a stranger (Laurenti, Bruch, & Haase, 2008), socially prescribed perfectionism was associated with a larger discrepancy between participants' ratings of the strangers' expectations of them, and participants' ratings of their own self-efficacy. Moreover, socially prescribed perfectionism moderated the relationship between social anxiety and discrepancy: anxious participants, with higher levels of socially prescribed perfectionism, rated a larger discrepancy between the strangers' standards and their own self-efficacy, compared to anxious participants with lower levels of socially prescribed perfectionism.

Perfectionism appears to also have a negative impact on interpersonal relationships from the perspective of interaction partners, not just from the perspective of the perfectionists themselves. Peers perceive healthy and unhealthy perfectionists differently. In a sample of school children, peers rated healthy and unhealthy perfectionists as more prosocial and less disruptive than nonperfectionists, but they liked healthy perfectionists more than unhealthy perfectionists (Gilman, Adams, & Nounopoulos, 2011). In a sample of romantic partners, if one partner imposed perfectionistic concerns onto the other, the relationship was more likely to have discontinued three months later (Lopez, Fons-Scheyd, Morúa, & Chaliman, 2006). If one partner imposed perfectionistic concerns and strivings onto the other, however, the relationship was more likely to have continued three months later, but the target partner reported higher levels of distress (Lopez et al., 2006). In a sample of engaged couples, different profiles of perfectionism were associated with differing levels of relationship functioning: two unhealthy perfectionists, or an unhealthy and a healthy perfectionist, were the least functional; two healthy perfectionists, or a healthy perfectionist and a nonperfectionist, were the most functional (Ashby, Kutchins, & Rice, 2008).

Both self-oriented perfectionism and socially prescribed perfectionism have been related to lower levels of self-reported marital satisfaction (Dimitrovsky et al., 2002). However, socially prescribed perfectionism and other-oriented perfectionism appear to negatively affect the satisfaction of perfectionists' partners more than self-oriented perfectionism. In a sample of heterosexual married or cohabiting couples, the male's socially prescribed perfectionism was associated with lower levels of his sexual satisfaction and his partner's sexual satisfaction (Habke et al., 1999). The female's socially prescribed perfectionism was associated with lower levels of her sexual satisfaction, and the female's other-oriented perfectionism was associated with lower levels of her sexual satisfaction and her partner's sexual satisfaction (Habke et al., 1999). In a sample of pain patients and their spouses, one partner's socially prescribed perfectionism or other-oriented perfectionism had a negative affect on the relationship (Hewitt, Flett, & Mikail, 1995). The spouse's socially prescribed perfectionism was related to lower levels of dyadic and family adjustment, as rated by the spouse. The spouse's other-oriented perfectionism was related to lower levels of relationship adjustment and spousal support, as rated by the patient. In contrast, the patient's self-oriented perfectionism was related to higher levels of family adjustment (as rated by the spouse) whereas the spouse's self-oriented perfectionism was related to lower levels of family adjustment (as rated by the patient; Hewitt, Flett, & Mikail, 1995).

4.3.3. Perfectionism and teams. As discussed above, perfectionism is associated with negative intragroup and interpersonal relationships. Still, positive intragroup and interpersonal relationships in a team-work context should be important to perfectionistic students and employees because his or her performance is interdependent with that of the team. Hence, fostering cohesive relationships is a means of achieving the team's goals, thus bolstering individual performance (Mullen & Cooper, 1994). Moreover, perfectionists not only want to achieve perfection but they also want others to perceive them as achieving perfection (Hewitt, Flett, Sherry, et al., 2003). Students and employees can only see themselves, and be seen by others, as perfect if their performance and their team's performance is perfect. Perfectionistic team members may therefore perceive and foster a cohesive relationship in order to bolster the team's, and their own, perfectionist identity (cf. Hogg, 1992; Tajfel & Turner, 1979, 1986).

However, this may only apply to self-oriented and other-oriented perfectionistic team members. Socially prescribed perfectionists perceive themselves as unable to live up to exceedingly high standards of performance (cf. Hewitt & Flett, 1991) and may therefore feel threatened if their team were able to live up to exceedingly high standards of performance.

Notwithstanding, even for the self-oriented and other-oriented perfectionists, the team living up to standards and being perfect may still present a double-edged sword. If these perfectionists perceive fellow team members as also being perfect, they may feel threatened because perfectionism is associated with competitive and narcissistic characteristics (e.g., R. W. Hill, Zrull, & Turlington, 1997), and perceived identity threats have been shown to trigger interpersonally harmful behavior (Aquino & Douglas, 2003).

In addition to social identity, cohesion may also be important to perfectionistic team members because, when evaluation standards are ambiguous, individuals are likely to engage in social comparison (Festinger, 1954). Team members perceive themselves to be more homogeneous in teams with higher levels of cohesion whereas team members perceive themselves to be more dissimilar in teams with lower levels of cohesion (e.g., Carron et al., 2002). Perceived self-target similarity, in turn, influences social comparison. When individuals perceive themselves to be similar to the comparison target, they are likely to engage in assimilative social comparison in that they believe that the target's performance is indicative of their own potential performance (Bunnk, Zurriaga, Peiro, Nauta, & Gosalvez, 2005). However, when individuals perceive themselves to be dissimilar to the comparison target, they are likely to engage in contrast social comparison in that they do not believe that the target's performance is indicative of their own potential performance. Hence, assimilative social comparison is more likely in teams with higher levels of cohesion whereas contrast social comparison is more likely in teams with lower levels of cohesion.

Assimilative social comparison may be beneficial when comparing with a superior target (i.e., upward comparison) as this implies that the perceiver can improve their performance (Lockwood, Jordan, & Kunda, 2002). Conversely, assimilative social comparison may be detrimental when comparing with an inferior target (i.e., downward comparison) as this implies that the perceiver's performance might deteriorate. The opposite pattern may be displayed in contrast social comparison (e.g., upward comparison may be detrimental as this implies that the perceiver cannot improve their performance). Correspondingly, in a study with student and employee teams, team members were more likely to engage in harmful behaviors towards other members in upward contrast social comparison, that is, when the dissimilar target's performance was superior (Lam, Van der Vegt, Walter, Huang, 2011).

Consequently, self-oriented and other-oriented perfectionistic team members, who believe that they are able to achieve high standards (Hewitt & Flett, 2002), may be more likely to engage in upward social comparison, and will therefore benefit from higher levels of

cohesion as they can raise aspirations with assimilative social comparison (cf. Bunnk et al., 2005). Conversely, socially prescribed perfectionistic team members, who believe that they are unable to achieve high standards (Hewitt & Flett, 2002), may be more likely to engage in downward social comparison, and will therefore benefit from lower levels of cohesion (perhaps even disintegration, the opposite of cohesion; Griffith & Vaitkus, 1999) as they can evaluate themselves positively with contrast social comparison (cf. Bunnk et al., 2005).

These two cycles: self-oriented perfectionism (or other-oriented perfectionism) to cohesion to upward assimilative comparison, versus socially prescribed perfectionism to disintegration to downward contrast comparison, may foster positive and negative intragroup spirals, respectively. In terms of self-oriented perfectionism and other-oriented perfectionism, upward comparison may trigger positive evaluations of the target team member: The target's superior performance not only benefits the team (Stapel & Koomen, 2005) but also suggests improved future performance for the perfectionist individually, both of which should further bolster cohesion. In terms of socially prescribed perfectionism, by favoring disintegration (in order to engage in downward contrast social comparison) perfectionists may be less likely to engage in positive intragroup behaviors. Such behavior might spread disintegration throughout the team and further decrease cohesion: Merely observing interpersonally harmful behaviors lowers intentions about behaving in a positive fashion (Felps, Mitchell, & Byington, 2006), and also acts as a social cue that such behavior is appropriate (Robinson & O'Leary-Kelly, 1998). Therefore, by engaging in interpersonally harmful behaviors directed towards the comparison target, the perfectionist might trigger an increase in interpersonally harmful behaviors across the team (cf. Anderson & Pearson, 1999).

Evidence from samples of students and employees supports the link between socially prescribed perfectionism (and perfectionistic concerns) and negative intragroup relationships. In a sample of social workers, unidimensional perfectionism was associated with poor delegation (Spence & Robbins, 1992). Similarly, in a sample of manufacturers, unidimensional perfectionism was associated with higher levels of negative perceptions and evaluations of co-workers (Porter, 2001). In a sample of adolescent athletes, lower levels of perfectionistic concerns were associated with positive perceptions of team relationships whereas higher levels of perfectionistic concerns were associated with negative perceptions of team relationships (Ommundsen, Roberts, Lemyre, & Miller, 2005).

Evidence suggests that perfectionism may be associated with intragroup problems and, in turn, higher levels of stress. Social integration may mediate the relationship between perfectionism and unhelpful outcomes (Rice, Leever, Christopher, & Porter, 2006). According to the social disconnection model, socially prescribed perfectionism and other-oriented perfectionism should be unhelpful to interpersonal relationships to the extent that they precipitate withdrawal from the social environment, leading to depression (Sherry et al., 2008). Evidence partially corroborates the model as perceived social support has been shown to mediate the relationship between socially prescribed perfectionism and depression (Sherry et al., 2008). Similarly, in a sample of students, at high levels of loneliness, high levels of self-oriented perfectionism were associated with depressive symptoms, high levels of other-oriented perfectionism were associated with anxious symptoms, and high levels of socially prescribed perfectionism were associated with both depressive and anxious symptoms (E. C. Chang et al., 2008).

Positive intragroup relationships, in contrast, may buffer the negative consequences of perfectionism. In a sample of students, a secure attachment orientation buffered some of the unhelpful consequences of perfectionistic concerns (Rice & Lopez, 2004). In a sample of psychiatric patients, time spent engaging in social interactions buffered the effect of perfectionistic concerns on low levels of therapeutic improvement (Shahar et al., 2007). In a sample of patients undergoing group treatment, the impact of perfectionism on team work actually interfered with therapeutic outcome: Intragroup problems mediated the relationship between socially prescribed perfectionism and depression (Hewitt, Flynn, Mikail, & Flett, 2001, as cited in Flett & Hewitt, 2002). Moreover, in a sample of high achieving university honors students, social connection partially mediated the relationships between perfectionistic concerns and depression, hopelessness, and academic adjustment (Rice, Bair, Castro, Cohen, & Hood, 2003). Here, perfectionistic concerns were also associated with higher levels of stress and depression, and stress fully mediated the relationships between perfectionistic concerns and hopelessness and academic integration (Rice et al., 2003).

4.3.4. Critical evaluation. A strength of research on the impact of perfectionism on intragroup and interpersonal relationships is that studies have examined the views of perfectionists and also their interaction partners, opposed to only examining the views of the perfectionist, providing more objective and comprehensive evidence (Ashby et al., 2008; Bieling et al., 2004, 2003; Gilman et al., 2011; Habke et al., 1999). Also, some studies have examined longitudinal effects (e.g., Lopez et al., 2006), providing tentative evidence as to the

direction of causality. Still, to the best of my knowledge, no study has examined the impact of the three forms of perfectionism on intragroup relationships in academia or work and, in particular, the impact of the three forms of perfectionism on cohesion in a team-work context.

Social support is more prevalent in teams with higher levels of cohesion (Branscombe et al., 1999; Haslam et al., 2005; Hogg, 1992), and, correspondingly, employees in teams with higher levels of cohesion have been shown to have lower levels of stress (e.g., Bliese & Britt, 2001; Bliese & Halverson, 1996, 1998; Griffith, 2002; Lasalvia et al., 2009). Socially prescribed perfectionism and other-oriented perfectionism are associated with negative interpersonal characteristics, and these perfectionists are also unlikely to use social support (e.g., Dimitrovsky et al., 2002). Hence, socially prescribed perfectionism and other-oriented perfectionism should be associated with lower levels of cohesion. In addition, disintegration, the opposite of cohesion, is associated with higher levels of stress (Griffith & Vaitkus, 1999). Socially prescribed perfectionism and other-oriented perfectionism may be so detrimental to intragroup relationships that they lead to disintegration and higher levels of stress. However, compared to the other two forms of perfectionism, self-oriented perfectionism is associated with positive impersonal characteristics (e.g., Hewitt & Flett, 1991), and self-oriented perfectionistic team members may foster cohesive team relationships in order to enhance the performance (cf. Mullen & Cooper, 1994), and the perfectionist identity, of the team (Hogg, 1992; Tajfel & Turner, 1979, 1986). Hence, self-oriented perfectionism may be associated with higher levels of cohesion and lower levels of stress.

Chapter 5

Advance Organizer: Studies 1-3

5.1. Does perfectionism longitudinally predict stress, burnout, and engagement?

Self-oriented and socially prescribed perfectionism[6] have been shown to be associated with an array of negative, as well as some positive, characteristics, processes, and outcomes (see Enns & Cox, 2002; Stoeber & Otto, 2006 for reviews). Academia and work are two life domains in which perfectionism is most prevalent (Slaney & Ashby, 1996; Stoeber & Stoeber, 2009). Similarly, stress, burnout, and engagement are central variables in students' and employees' psychological adjustment, and have been shown to impact students, employees, and organizations in numerous ways (e.g., Cooper et al., 2001; Salanova, Schaufeli, Martínez, & Bresó, 2010; Schaufeli et al., 1996; Shirom, 2002). Nevertheless, there is a lack of research with samples of students and employees on the longitudinal effects of perfectionism on stress, burnout, and engagement.

The literature shows that perfectionism is consistently associated with stress, burnout, and engagement (Appleton et al., 2009; Childs & Stoeber, 2010; Flett et al., 1995; A. P. Hill & Appleton, 2011; A. P. Hill, Hall, Appleton, & Kozub, 2010; A. P. Hill et al., 2008; A. P. Hill, Hall, Appleton, & Murray, 2010; Mitchelson & Burns, 1998; Stoeber & Childs, 2010; Stoeber & Rennert, 2008; Tashman et al., 2010; van Yperen et al., 2011; Zhang et al., 2007). In particular, self-oriented perfectionism has been shown to be associated with lower levels of burnout in athletes and employees, and with higher levels of engagement in employees. Similarly, perfectionistic strivings (of which self-oriented perfectionism is a facet; e.g., Stoeber & Otto, 2006; also see Chapter 2) have been shown to be associated with lower levels of burnout in students, lower levels of stress and burnout in employees, and higher levels of engagement in students. However, in a number of studies with employee samples, self-oriented perfectionism and perfectionistic strivings were not associated with either higher or lower levels of stress and burnout. In contrast to self-oriented perfectionism, socially

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[6] Because other-oriented perfectionism, the third form proposed by Hewitt and Flett (1991; also see Chapter 2), pertains to excessively high standards for others, it is not consistently associated with self-referent outcomes (see Enns & Cox, 2002; Stoeber & Otto, 2006 for overviews). Correspondingly, other-oriented perfectionism is defined as a peripheral dimension of perfectionism because it is only relevant to other-referent outcomes. Consequently, I included other-oriented perfectionism in Studies 4-6, in which I investigated the impact of perfectionism on intragroup relationship, but not in Studies 1-3, in which I investigated self-referent outcomes only.

prescribed perfectionism has been shown to be associated with higher levels of burnout in athletes, higher levels of stress and burnout in employees, and lower levels of engagement in students. Similarly, perfectionistic concerns (of which socially prescribed perfectionism is a facet; e.g., Stoeber & Otto, 2006; also see Chapter 2) has been shown to be associated with higher levels of burnout in students, higher levels of stress and burnout in employees, and lower levels of engagement in employees.

All of the above studies that have investigated the two forms of perfectionism and stress, burnout, and engagement were cross-sectional meaning that they only provide information on the co-occurrence of perfectionism and stress, burnout, and engagement but not information on whether perfectionism predicts changes in stress, burnout, and engagement. Only longitudinal studies can provide such information (Taris, 2000). Hence, the aim of Studies 1-3 was to investigate whether perfectionism longitudinally predicts stress, burnout, and engagement.

5.1.1. Study 1. The literature shows that the two forms of perfectionism are consistently associated with two of the Big Five traits (e.g., Dunkley & Kyparissis, 2008; Enns et al., 2005; Hewitt & Flett, 2004; R. W. Hill, McIntire, & Bacharach, 1997; Rice et al., 2007; Sherry et al., 2007; Stoeber et al., 2009). Self-oriented perfectionism (and perfectionistic strivings) have been shown to be consistently associated with conscientiousness, and socially prescribed perfectionism (and perfectionistic concerns) with neuroticism. In turn, conscientiousness and neuroticism appear to be the most important dimensions of the Big Five when investigating burnout and engagement (De Vries & Van Heck, 2002; Goddard et al., 2004; Kim et al., 2009; Kim et al., 2007; Zellars et al., 2000). In particular, previous studies have shown that neuroticism is associated with higher levels of burnout and lower levels of engagement whereas conscientiousness is associated with lower levels of burnout and higher levels of engagement. Nevertheless, lower-order traits (i.e., perfectionism) may be a more useful predictor of outcome variables than higher-order traits (i.e., the Big Five; cf. Saucier & Goldberg, 2003; also see M. A. Clark et al., 2010).

The aim of Study 1 was to investigate whether perfectionism longitudinally predicts burnout and engagement. In particular, I had three aims: first, to examine whether perfectionism longitudinally predicts increases in burnout and engagement; second, to examine the incremental validity of predicting burnout and engagement with perfectionism over the Big Five (Costa & McCrae, 1992); and third, to examine whether the relationships between perfectionism and burnout and engagement were unidirectional or bidirectional. To

this end, a sample of undergraduate students completed questionnaires measuring perfectionism, the Big Five, burnout, and engagement twice over four months.

5.1.2. Study 2. The aim of Study 2 was to expand on Study 1 by investigating whether perfectionism longitudinally predicts stress and burnout in employees. To this end, a sample of employees completed questionnaires measuring perfectionism, stress, and burnout twice over six months.

5.1.3. Study 3. The aim of Study 3 was to expand on Study 2 by investigating whether perfectionism longitudinally predicts stress and burnout using a larger sample of employees working in a different setting, and by investigating positive work-related outcomes, specifically engagement. To this end, a sample of teachers completed questionnaires measuring perfectionism, stress, burnout, and engagement twice over three months.

Chapter 6

Study 1: Perfectionism Longitudinally Predicting Burnout but not Engagement Beyond the Big Five

6.1. Aims and Hypotheses

The aim of Study 1 was to investigate whether perfectionism longitudinally predicts burnout and engagement (see Chapter 5: Advance Organizer: Studies 1-3 for details). I tested six hypotheses:

(H1) Self-oriented perfectionism is associated with higher levels of engagement.

(H2) Self-oriented perfectionism longitudinally predicts increased levels of engagement.

(H3) Self-oriented perfectionism longitudinally predicts increased levels of engagement even after controlling for conscientiousness.

(H4) Socially prescribed perfectionism is associated with higher levels of burnout.

(H5) Socially prescribed perfectionism longitudinally predicts increased levels of burnout.

(H6) Socially prescribed perfectionism longitudinally predicted increased levels of burnout even after controlling for neuroticism.

6.2. Method

6.2.1. Participants. A sample of $N = 251$ undergraduate psychology students was recruited from the University of Kent. After excluding students who did not complete the follow-up questionnaire (see 6.2.4. Preliminary analyses), the final longitudinal sample was $N = 76$ students (13 male, 63 female). Mean age of students was 20.2 years ($SD = 5.7$; range = 18-49 years).

6.2.2. Procedure. Students were recruited via the School of Psychology's research participation website. Students took part twice (Time 1 [T1]: October, 2009; Time 2 [T2]: February, 2010). For participating, students received either course credits or a raffle ticket and, at the end of the study, two randomly selected students were awarded a voucher worth £50 (approximately US $75). The study was approved by the relevant ethics committee and followed the British Psychological Society's code of conduct and ethical guidelines (British Psychological Society, 2005).

6.2.3. Measures.

6.2.3.1. Perfectionism (T1 and T2). To measure perfectionism, I used the 30 items of the HMPS (Hewitt & Flett, 1991; see Chapter 2 for details; also see Appendix A for the questionnaire items for Study 1) that capture self-oriented perfectionism and socially prescribed perfectionism. Students were asked to respond to the items in regards to studying in order to capture how perfectionistic students were about their studies. Students responded to the items on a 7-point scale from 1 (*strongly disagree*) to 7 (*strongly agree*).

6.2.3.2. The Big Five (T1). To measure conscientiousness and neuroticism, I used the 24 items of the NEO Five-Factor Inventory Short (NEO-FFI S; Costa & McCrae, 1992). These subscales measure individual differences in conscientiousness (12 items; e.g., "I try to perform all the tasks assigned to me conscientiously") and neuroticism (12 items; e.g., "I often feel tense and jittery"). Students responded to the items on a 7-point scale from 1 (*strongly disagree*) to 7 (*strongly agree*). The NEO-FFI S is a widely used measure of personality and has demonstrated reliability and validity in numerous studies (see Kotov, Gamez, Schmidt, & Watson, 2010, for a review).

6.2.3.3. Burnout (T1 and T2). To measure burnout, I used the 9 items of the Maslach Burnout Inventory-Student Survey-Revised (MBI-SS-R; Schaufeli & Salanova, 2007). I measured total burnout and collapsed across the core facets of exhaustion (5 items; e.g., "I feel emotionally drained by my studies") and cynicism (4 items; e.g., "I have become more cynical about the potential usefulness of my studies"). I did not measure the third facet, inefficacy, because I wanted to limit the burden of completing the questionnaire as students were asked to complete it twice and because inefficacy is not a core facet of burnout and has been shown to be the least reliable of the three facets (see González-Romá et al., 2006; Hallberg & Sverke, 2004; Schaufeli & Enzmann, 1998). Students responded to the items on a 7-point scale from 1 (*never*) to 7 (*always*). The MBI-SS-R is a version of the widely used Maslach Burnout Inventory that has been modified to measure student burnout, and it has demonstrated reliability and validity in numerous studies (see Schaufeli & Salanova, 2007).

6.2.3.4. Engagement (T1 and T2). To measure engagement, I used the 11 items of the Utrecht Work Engagement Scale-Student (UWES-S; Schaufeli, Salanova, et al., 2002). Like burnout, I measured total engagement and collapsed across the core facets of vigor (6 items; e.g., "I feel strong and vigorous when I'm studying or going to class") and dedication (5 items; e.g., "To me, my studies are challenging"). Like burnout, I did not measure the third facet of engagement, absorption, because I wanted to limit the burden of completing the questionnaire

and because absorption is not a core facet of engagement and has been shown to be only peripherally related to engagement (see González-Romá et al., 2006; Schaufeli & Salanova, 2007). Students responded to the items on a 7-point scale from 1 (*never*) to 7 (*always*). The UWES-S is a widely used measure of student engagement and has demonstrated reliability and validity in numerous studies (see Schaufeli, Salanova, et al., 2002).

6.2.4. Preliminary analyses.

6.2.4.1. Descriptive statistics. For all scales, mean scores were computed by averaging responses across items. Table 1 shows the descriptive statistics and Cronbach's alphas. All alphas were above the .70 recommended for widely used scales (Nunnally, 1967).

6.2.4.2. Attrition. One hundred and seventy-five students did not complete the T2 questionnaire. To examine possible differences between students who completed both questionnaires and students who only completed the T1 questionnaire, I computed a MANOVA with complete (non-completers vs. completers) as the between-participants factor and the 6 T1 variables (T1 self-oriented perfectionism, T1 socially prescribed perfectionism, T1 conscientiousness, T1 neuroticism, T1 burnout, T1 engagement) as the dependent variables. The test was nonsignificant: $F(6, 244) = 1.11$, *ns,* indicating that students who completed both questionnaires were not significantly different from students who only completed the T1 questionnaire.

6.2.4.3. Outliers. Following recommendations by Tabachnick and Fidell (2007), the 10 T1 and T2 variables (T1 self-oriented perfectionism, T2 self-oriented perfectionism, T1 socially prescribed perfectionism, T2 socially prescribed perfectionism, T1 conscientiousness, T1 neuroticism, T1 burnout, T2 burnout, T1 engagement, T2 engagement) were screened for multivariate outliers. No student showed a Mahalanobis distance larger than the critical value of $\chi^2(10) = 29.59$, $p < .001$ meaning that none were excluded from the analyses.

6.2.4.4. Gender. To examine possible gender differences in the data, I computed a Box's *M* test (see Tabachnick & Fidell, 2007). The effect of gender was nonsignificant, Box's $M = 71.52$, $F(55,1521) = 0.87$, *ns*. Therefore, data were collapsed across gender.

6.2.5. Analytic strategy. To investigate the relationships between the Big Five, perfectionism, burnout, and engagement, I computed four sets of analyses. First, I computed bivariate correlations between the variables. Second, I computed hierarchical multiple regressions to examine whether perfectionism longitudinally predicts engagement. Two models were tested, each comprised of three steps. In Model 1, T1 engagement was entered in Step 1, T1 conscientiousness was entered in Step 2, and T1 self-oriented perfectionism was

entered in Step 3. In Model 2, T1 engagement was again entered in Step 1, T1 centered perfectionism (T1 self-oriented perfectionism, T1 socially prescribed perfectionism) was entered in Step 2, and the perfectionism interaction term (T1 self-oriented perfectionism × T1 socially perfectionism) was entered in Step 3.

Third, I computed hierarchical multiple regressions to examine whether perfectionism longitudinally predicts burnout. Two models were tested, each comprised of three steps. In Model 1, T1 burnout was entered in Step 1, T1 neuroticism was entered in Step 2, and T1 socially prescribed perfectionism was entered in Step 3. In Model 2, T1 burnout was again entered in Step 1, T1 centered perfectionism (T1 self-oriented perfectionism, T1 socially prescribed perfectionism) was entered in Step 2, and the perfectionism interaction term (T1 self-oriented perfectionism × T1 socially perfectionism) was entered in Step 3.

Fourth, I computed hierarchical multiple regressions to examine whether engagement longitudinally predicts self-oriented perfectionism, and whether burnout longitudinally predicts socially prescribed perfectionism. The model was comprised of two steps: T1 self-oriented perfectionism or T1 socially prescribed perfectionism was entered in Step 1, and T1 engagement or T1 burnout was entered in Step 2.

6.3. Results

6.3.1. Correlations. All significant correlations were in the expected directions (see Table 1). T1 self-oriented perfectionism showed a positive correlation with T2 self-oriented perfectionism, and T1 and T2 self-oriented perfectionism showed positive correlations with T1 and T2 socially prescribed perfectionism, T1 conscientiousness, and T1 and T2 engagement. Students with higher levels of self-oriented perfectionism at T1 had higher levels of self-oriented perfectionism at T2 than students with lower levels of self-oriented perfectionism at T1. Students with higher levels of self-oriented perfectionism at T1 or T2 had higher levels of socially prescribed perfectionism at T1 and T2, conscientiousness at T1, and engagement at T1 and T2 than students with lower levels of self-oriented perfectionism at T1. In comparison, T1 socially prescribed perfectionism showed a positive correlation with T2 socially prescribed perfectionism, and T1 and T2 socially prescribed perfectionism showed positive correlations with T1 neuroticism and T1 and T2 burnout. Like self-oriented perfectionism, students with higher levels of socially prescribed perfectionism at T1 had higher levels of socially prescribed perfectionism at T2 than students with lower levels of socially prescribed perfectionism at T1. Mirroring self-oriented perfectionism, students with higher levels of

socially prescribed perfectionism at T1 or T2 had higher levels of neuroticism at T1 and burnout at T1 and T2 than students with lower levels of socially prescribed perfectionism at T1.

T1 conscientiousness showed negative correlations with T1 neuroticism and T1 burnout, and positive correlations with T1 and T2 engagement. Students with higher levels of conscientiousness at T1 had lower levels of neuroticism and burnout at T1 and higher levels of engagement at T1 and T2. In comparison, T1 neuroticism showed positive correlations with T1 and T2 burnout, and negative correlations with T1 and T2 engagement. Students with higher levels of neuroticism at T1 had higher levels of burnout at T1 and T2, and lower levels of engagement at T1 and T2.

Regarding burnout and engagement, T1 burnout and T1 engagement showed positive correlations with T2 burnout and T2 engagement, respectively. Students with higher levels of burnout at T1 had higher levels of burnout at T2, and students with higher levels of engagement at T1 had higher levels of engagement at T2. T1 and T2 burnout showed negative correlations with T1 and T2 engagement. Students with higher levels of burnout at T1 or T2 had lower levels of engagement at T1 and T2.

Table 1

Correlations and Descriptive Statistics

	1	2	3	4	5	6	7	8	9	10
T1 variables										
1. Self-oriented perfectionism										
2. Socially prescribed perfectionism	.46***									
3. Conscientiousness	.55***	.17								
4. Neuroticism	–.06	.32**	–.28*							
5. Burnout	–.05	.27*	–.52***	.47***						
6. Engagement	.51***	.12	.60***	–.30**	–.32**					
T2 variables										
7. Self-oriented perfectionism	.82***	.28*	.51***	–.03	.05	.41***				
8. Socially prescribed perfectionism	.35**	.64***	.02	.20	.33**	.05	.35**			
9. Burnout	.05	.35**	–.13	.35**	.73***	–.40***	.09	.33**		
10. Engagement	.45***	.13	.39***	–.23*	–.29**	.64***	.44***	–.01	–.38***	
M	4.48	3.61	4.77	4.23	2.84	4.24	4.58	3.76	3.19	3.88
SD	1.04	0.89	0.88	1.11	1.20	1.08	1.09	0.90	1.10	1.05
α	.84	.86	.90	.85	.86	.89	.92	.85	.84	.88

Note. $N = 76$. All scores are mean scores and students responded to all items on a 7-point scale (see 6.2. Method).
$^{*}p < .05$. $^{**}p < .01$. $^{***}p < .001$.

6.3.2. Regressions predicting burnout and engagement. The T1 outcome variables significantly predicted the T2 outcome variables and T1 engagement and T1 burnout explained between 40% and 53% of the variance in their T2 counterparts (see Tables 2-3, Step 1 for details). As expected, students with higher levels of burnout or engagement at T1 had increased levels of burnout or engagement at T2, respectively. After controlling for baseline levels, T1 conscientiousness did not significantly predict further variance in T2 engagement (see Table 2, Model 1, Step 2 for details) and T1 neuroticism did not significantly predict further variance in T2 burnout (see Table 3, Model 1, Step 2 for details), against expectations. In comparison, self-oriented perfectionism did not predict further variance in T2 engagement after controlling for baseline levels, also against expectations (see Table 2, Model 1, Step 3 for details). However, T1 socially prescribed perfectionism did significantly predict further variance in T2 burnout after controlling for baseline burnout and neuroticism, as expected (see Table 3, Model 1, Step 3 for details). Students with higher levels of socially prescribed perfectionism at T1 had increased levels of burnout at T2. Nevertheless, the effect of T1 socially prescribed perfectionism on T2 burnout was no longer significant when T1 self-oriented perfectionism was also included in the model (see Table 3, Model 2, Step 2 for details).

Table 2

Regressions: Conscientiousness and Self-Oriented Perfectionism Predicting Engagement

Models, steps, and variables	T2 engagement	
	ΔR^2	β
Step 1: Baseline	.404***	
T1 engagement		.64***
Model 1		
Step 2: T1 Big Five	.000	
T1 conscientiousness		.02
Step 3: T1 perfectionism	.025	
T1 SOP		.20
Model 2		
Step 2: T1 perfectionism	.023	
T1 SOP		.16
T1 SPP		–.02
Step 3: Interaction terms	.002	
T1 SOP × T1 SPP		–.05

Note. $N = 76$. SOP = self-oriented perfectionism, SPP = socially prescribed perfectionism.
***$p < .001$.

Table 3

Regressions: Neuroticism and Socially Prescribed Perfectionism Predicting Burnout

Models, steps, and variables	T2 burnout	
	ΔR^2	β
Step 1: Baseline	.531***	
T1 burnout		.73***
Model 1		
Step 2: T1 Big Five	.000	
T1 neuroticism		.01
Step 3: T1 perfectionism	.027*	
T1 SPP		.18*
Model 2		
Step 2: T1 perfectionism	.026	
T1 SOP		–.02
T1 SPP		.17
Step 3: Interaction term	.040**	
T1 SOP × T1 SPP		–.22**

Note. $N = 76$. SOP = self-oriented perfectionism, SPP = socially prescribed perfectionism.
*$p < .05$. **$p < .01$. ***$p < .001$.

6.3.3. Interaction effects. The interaction term did not explain further variance in T2 engagement (see Table 2, Model 2, Step 3 for details). In contrast, the interaction term explained 4% of the variance in T2 burnout, and T1 self-oriented perfectionism × T1 socially prescribed perfectionism uniquely predicted T2 burnout after controlling for baseline levels (see Table 3, Model 2, Step 3 for details). In order to interpret the interaction, a regression graph for values of self-oriented and socially prescribed perfectionism one standard deviation above and below the mean was plotted and the slopes tested for significance after controlling for T1 burnout (see Aiken & West, 1991). T1 socially prescribed perfectionism only predicted increased levels of T2 burnout at lower levels of T1 self-oriented perfectionism ($\beta = 0.22$, $SE = 0.09$, $p < .01$) but not at higher levels of T1 self-oriented perfectionism ($\beta = -0.21$, $SE = 0.27$, *ns*; see Figure 1). Students with higher levels of socially prescribed perfectionism at T1 only had increased levels of burnout at T2 when they also had lower levels of self-oriented perfectionism at T1, but there was not a significant difference in burnout at T2 between students with higher or lower levels of socially prescribed perfectionism at T1 when students also had higher levels of self-oriented perfectionism at T1.

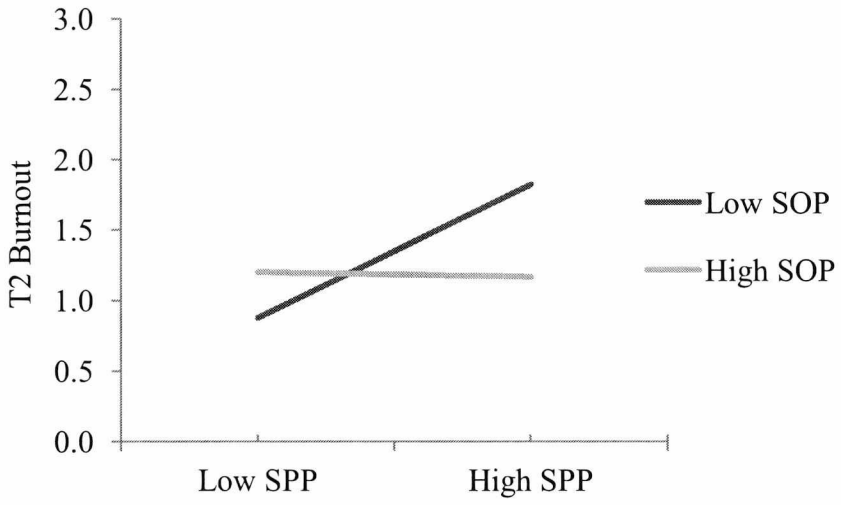

Figure 1. T1 self-oriented perfectionism × T1 socially prescribed perfectionism interaction predicting increased T2 burnout. SOP = self-oriented perfectionism, SPP = socially prescribed perfectionism.

6.3.4. Regressions predicting self-oriented perfectionism and socially prescribed perfectionism. The T1 outcome variables significantly predicted the T2 outcome variables and T1 self-oriented perfectionism and T1 socially prescribed perfectionism explained between 40% and 67% of the variance in their T2 counterparts (see Tables 4-5, Step 1 for details). As expected, students with higher levels of self-oriented perfectionism or socially prescribed perfectionism at T1 had increased levels of self-oriented perfectionism or socially prescribed perfectionism at T2, respectively. T1 engagement did not significantly explain further variance in T2 self-oriented perfectionism (see Table 6, Step 2 for details) and T1 burnout did not significantly explain further variance in T2 socially prescribed perfectionism (see Table 7, Step 2 for details) after controlling for baseline levels[7].

[7] I also tested the directions of relationships between socially prescribed perfectionism and burnout, and self-oriented perfectionism and engagement, with a cross-lagged structural equation model (Arbuckle, 2007; see Appendix A: Supplementary Analysis: Study 1). Although the model did not fit the data, the pattern of significant relationships was in line with the results of the regression analyses. In particular, T1 socially prescribed perfectionism significantly predicted T2 burnout after controlling for T1 burnout, whereas T1 burnout did not significantly predict T2 socially prescribed perfectionism after controlling for T1 socially prescribed perfectionism. Moreover, T1 self-oriented perfectionism did not significantly predict T2 engagement after controlling for T1 engagement, and T1 engagement did not significantly predict T2 self-oriented perfectionism after controlling for T1 self-oriented perfectionism.

Table 4

Regression: Engagement Predicting Self-Oriented Perfectionism

	T2 SOP	
Steps and variables	ΔR^2	β
Step 1: Baseline	.673***	
T1 SOP		.82***
Step 2: T1 engagement	.001	
T1 engagement		.03

Note. $N = 76$. SOP = self-oriented perfectionism.

***$p < .001$.

Table 5

Regression: Burnout Predicting Socially Prescribed Perfectionism

	T2 SPP	
Steps and variables	ΔR^2	β
Step 1: Baseline	.404***	
T1 SPP		.64***
Step 2: T1 burnout	.012	
T1 burnout		.12

Note. $N = 76$. SPP = socially prescribed perfectionism.

***$p < .001$.

6.4. Brief Discussion

The aim of the present study was to investigate whether perfectionism longitudinally predicts burnout and engagement. In particular, I had three aims: first, to examine whether perfectionism longitudinally predicts increases in burnout and engagement; second, to examine the incremental validity of predicting burnout and engagement with perfectionism over the Big Five (Costa & McCrae, 1992); and third, to examine whether the relationships between perfectionism and burnout and engagement were unidirectional or bidirectional.

Hypothesis 1, self-oriented perfectionism is associated with higher levels of engagement, was supported. Self-oriented perfectionism at T1 and T2 was positively associated with engagement at T1 and T2, and students with higher levels of self-oriented perfectionism had higher levels of engagement than students with lower levels of self-oriented perfectionism.

In contrast, Hypotheses 2 and 3, self-oriented perfectionism longitudinally predicts increased levels of engagement and self-oriented perfectionism longitudinally predicts increased levels of engagement even after controlling for conscientiousness, were not supported. Self-oriented perfectionism at T1 did not significantly predict increased levels of engagement at T2 after controlling for engagement at T1. Similarly, conscientiousness at T1 did not predict increased levels of engagement at T2 after controlling for engagement T1.

Hypothesis 4, socially prescribed perfectionism is associated with higher levels of burnout, was supported. Socially prescribed perfectionism at T1 and T2 was positively associated with burnout at T1 and T2, and students with higher levels of socially prescribed perfectionism had higher levels of burnout than students with lower levels of socially prescribed perfectionism.

In comparison, Hypotheses 5 and 6, socially prescribed perfectionism longitudinally predicts increased levels of burnout and socially prescribed perfectionism longitudinally predicts increased levels of burnout even after controlling for neuroticism, were both supported. Socially prescribed perfectionism at T1 predicted increased levels of burnout at T2 even after controlling for burnout and neuroticism at T1, and students with higher levels of socially prescribed perfectionism at T1 had increased levels of burnout at T2. However, the interaction effect revealed that socially prescribed perfectionism at T1 only predicted increased levels of burnout at T2 (after controlling for burnout at T1) when students also had low levels of self-oriented perfectionism at T1. When students had high levels of self-oriented perfectionism at T1, in contrast, there was not a significant difference in burnout at T2

between students with higher or lower levels of socially prescribed perfectionism at T1. In contrast to socially prescribed perfectionism, neuroticism at T1 did not significantly predict increased levels of burnout at T2 after controlling for burnout at T1.

The findings from Study 1 did not show that the relationships between perfectionism and burnout and engagement were bidirectional. Engagement at T1 did not significantly predict increased levels of self-oriented perfectionism at T2 after controlling for self-oriented perfectionism at T1. Similarly, burnout at T1 did not significantly predict increased levels of socially prescribed perfectionism at T2 after controlling for socially prescribed perfectionism at T1. In addition, self-oriented perfectionism was associated with conscientiousness (but not neuroticism) and socially prescribed perfectionism was associated with neuroticism (but not conscientiousness) replicating previous findings (e.g., Dunkley & Kyparissis, 2008; Enns et al., 2005; Hewitt & Flett, 2004; R. W. Hill, McIntire, & Bacharach, 1997; Rice et al., 2007; Sherry et al., 2007; Stoeber et al., 2009).

The findings from Study 1 make a significant contribution to the research literature on perfectionism, the Big Five, burnout, and engagement. The present findings extend previous cross-sectional studies which have shown socially prescribed perfectionism to be associated with burnout (e.g., Appleton et al., 2009; Childs & Stoeber, 2010) and they are the first to indicate that socially prescribed perfectionism is a personality characteristic that contributes to the development of burnout in students. Socially prescribed perfectionism in students was not only associated with higher levels of burnout, it also predicted increased levels of burnout. Moreover, socially prescribed perfectionism predicted increased levels of burnout even after controlling for baselines levels of neuroticism. However, socially prescribed perfectionism only predicted increased levels of burnout when students also had lower levels of self-oriented perfectionism. When students had higher levels of both socially prescribed and self-oriented perfectionism, students did not have increased levels of burnout. Unlike socially prescribed perfectionism, however, self-oriented perfectionism did not longitudinally predict increased levels of engagement but it was associated with higher levels of engagement.

Study 1 had a number of limitations, however. First, the findings regarding burnout were restricted to two facets (exhaustion and cynicism) and the findings regarding engagement were restricted to two facets (vigor and dedication). I did not measure the third facet of burnout (inefficacy) or engagement (absorption) in order to limit the burden of completing the questionnaire as students were asked to complete it twice. In addition, research has shown that inefficacy is not a core facet of burnout and that is the least reliable of the three facets, and

research has also shown that absorption is not a core facet of engagement and is only peripherally related to engagement (see González-Romá et al., 2006; Hallberg & Sverke, 2004; Schaufeli & Enzmann, 1998; Schaufeli & Salanova, 2007). Second, the longitudinal sample comprised only 76 students and with this was rather small. Consequently, the study may have been underpowered (Maxwell, 2004), that is, it may have had insufficient statistical power to detect further effects of perfectionism such as effects on engagement. Finally, the sample comprised only undergraduate students. Therefore, it is unclear if the findings are specific to perfectionism in academia or if they generalize to other areas of life, such as perfectionism at work.

To address these limitations, I conducted Study 2 with a sample of employees to examine whether the findings of socially prescribed perfectionism longitudinally predicting burnout in students could be replicated and extended to another life domain in which perfectionism is prevalent (e.g., Slaney & Ashby, 1996; Stoeber & Stoeber, 2009). Because conscientiousness and neuroticism did not significantly longitudinally predict engagement and burnout, and because they are not central variables in the present research, I did not include them in Study 2. Because burnout is an outcome of stress (see Chapter 3), I also included a measure of role stress to examine whether perfectionism longitudinally predicts stress.

Chapter 7

Study 2: Perfectionism Longitudinally Predicting Stress and Burnout in Employees

7.1. Aims and Hypotheses

The aim of the present study was to expand on Study 1 by investigating whether perfectionism longitudinally predicts stress and burnout in employees. To this end, a sample of employees completed questionnaires measuring perfectionism, stress, and burnout twice over six months. I tested four hypotheses:

(H1) Self-oriented perfectionism is associated with lower levels of stress and burnout.

(H2) Self-oriented perfectionism longitudinally predicts decreased levels of stress and burnout.

(H3) Socially prescribed perfectionism is associated with higher levels of stress and burnout.

(H4) Socially prescribed perfectionism longitudinally predicts increased levels of stress and burnout.

7.2. Method

7.2.1. Participants. A sample of $N = 116$ administrative and managerial employees was recruited from the local NHS Primary Care Trust. After excluding employees who did not complete the follow-up questionnaire and outliers (see 7.2.4. Preliminary analyses), the final longitudinal sample was $N = 69$ employees (14 male, 55 female). Mean age of employees was 41 years ($SD = 11.4$; range = 19-61 years). Mean time employees had worked in full-time employment was 18.3 years ($SD = 12.2$; range = 0.2-48 years) and mean time employees had been in their current job was 2.6 years ($SD = 4.5$; range = 0.1-28 years). Employees' job types were administrative assistant (7%), administrator (13%), senior administrator (16%), team coordinator (16%), team leader (5%), middle management (19%), and senior management (24%). Employees' highest level of completed education was middle school (8%), high school (10%), further education (16%), and university degree (66%).

7.2.2. Procedure. Employees were recruited via an advertisement on the staff electronic newsletter and the staff intranet site. The advertisement briefed employees about the study and, if they wanted to take part, asked them to read the information sheet and then to click on the study link to complete the informed consent from and questionnaire. Both consent form and questionnaire were presented on the organization's secure online questionnaire management system. Employees took part twice (Time 1 [T1]: August, 2009; Time 2 [T2]:

February, 2010). The study was approved by the relevant ethics committees and followed the British Psychological Society's code of conduct and ethical guidelines (British Psychological Society, 2005).

7.2.3. Measures.

7.2.3.1. Perfectionism (T1). To measure perfectionism, I used the 30 items of the HMPS (Hewitt & Flett, 1991; see Chapter 2 for details; also see Appendix A for the questionnaire items for Study 2) that capture self-oriented perfectionism and socially prescribed perfectionism. Employees were asked to respond to the items in regards to working in order to capture how perfectionistic employees were about their work. Because of the constraints of the organization's online questionnaire management system, I could not implement the original 7-point answer scale of the MPS. Instead, employees responded to the items on a scale from 1 (*strongly disagree*) to 5 (*strongly agree*).

7.2.3.2. Stress (T1 and T2). To measure stress, I used the 14-item Role Stress Scale (RSS; Rizzo et al., 1970). I chose to follow past research that measures total role stress (e.g., Barsky, Thoresen, Warren, & Kaplan, 2004; Gray-Stanley & Muramatsu, 2011; Tracy & Johnson, 1981; Thomas & Lankau, 2009) in order to reduce the risk of study-wise inflation of Type I error, without relying on the controversial Bonferroni correction which increases the risk of Type II error (see Nakagawa, 2004; Perneger, 1998). Hence, I measured total stress and collapsed over role conflict (8 items; e.g., "I receive incompatible requests from two or more people") and role ambiguity (6 items; e.g., "Clear, planned goals and objectives exist for my job" reverse coded). Employees responded to the items on a scale from 1 (*strongly disagree*) to 5 (*strongly agree*). The RSS is a widely used measure of work stress and has demonstrated reliability and validity in numerous studies (e.g., Barsky et al., 2004; Thomas & Lankau, 2009).

7.2.3.3. Burnout (T1 and T2). To measure burnout, I used the 16-item Maslach Burnout Inventory-General Survey (MBI-GS; Schaufeli et al., 1996) that captures exhaustion (5 items; e.g., "I feel emotionally drained from my work"), cynicism (5 items; e.g., "I doubt the significance of my work"), and inefficacy (6 items; e.g., "I can effectively solve the problems that arise in my work" reverse coded). Employees responded to the items on a scale from 1 (*never*) to 5 (*always*). The MBI-GS is a widely used measure of burnout across occupational groups and has demonstrated reliability and validity in numerous studies (see Schaufeli et al., 1996, for a review).

7.2.4. Preliminary analyses.

7.2.4.1. Descriptive statistics. For all scales, mean scores were computed by averaging responses across items. Table 1 shows the descriptive statistics and Cronbach's alphas. All alphas were above the .70 recommended for widely used scales (Nunnally, 1967) except for T1 inefficacy which was marginally acceptable (.68).

7.2.4.2. Attrition. Overall, 46 employees did not complete the T2 questionnaire. To examine possible differences between employees who completed both questionnaires and employees who only completed the T1 questionnaire, I computed a MANOVA with complete (non-completers vs. completers) as the between-participants factor and the 6 T1 variables (T1 self-oriented perfectionism, T1 socially prescribed perfectionism, T1 role stress, T1 exhaustion, T1 cynicism, T1 inefficacy) as the dependent variables. The test was nonsignificant: $F(6, 109) = 1.54$, *ns,* indicating that employees who completed both questionnaires were not significantly different from employees who only completed the T1 questionnaire.

7.2.4.3. Outliers. Following recommendations by Tabachnick and Fidell (2007), the 10 T1 and T2 variables (T1 self-oriented perfectionism, T1 socially prescribed perfectionism, T1 role stress, T2 role stress, T1 exhaustion, T2 exhaustion, T1 cynicism, T2 cynicism, T1 inefficacy, T2 inefficacy) were screened for multivariate outliers. One employee showed a Mahalanobis distance larger than the critical value of $\chi^2(10) = 29.59$, $p < .001$, and was excluded from the analyses.

7.2.4.4. Gender. To examine possible gender differences in the data, I computed a Box's *M* test (see Tabachnick & Fidell, 2007). The effect of gender was nonsignificant, Box's $M = 90.41$, $F(55,1861) = 1.14$, *ns*. Therefore, data were collapsed across gender.

7.2.5. Analytic strategy. To examine the relationships between perfectionism, stress, and burnout, I computed two sets of analyses. First, I computed bivariate correlations between the variables. Second, I computed hierarchical multiple regressions with perfectionism longitudinally predicting stress and burnout. Three models were tested. Model 1 consisted of two steps: the T1 outcome variable was entered in Step 1 (T1 role stress, T1 exhaustion, T1 cynicism, or T1 inefficacy) and centered T1 perfectionism was entered in Step 2 (T1 self-oriented perfectionism). Model 2 also consisted of two steps: the T1 outcome variable was entered in Step 1 (T1 role stress, T1 exhaustion, T1 cynicism, or T1 inefficacy) and centered T1 perfectionism was entered in Step 2 (T1 socially prescribed perfectionism). Model 3 consisted of three steps: the T1 outcome variable was entered in Step 1 (T1 role stress, T1

exhaustion, T1 cynicism, or T1 inefficacy), centered T1 perfectionism was entered in Step 2 (T1 self-oriented perfectionism, T1 socially prescribed perfectionism), and the T1 perfectionism interaction term was entered in Step 3 (T1 self-oriented perfectionism × T1 socially prescribed perfectionism).

7.3. Results

7.3.1. Correlations. All of the significant correlations were in the expected directions (see Table 1). T1 self-oriented perfectionism showed a positive correlation with T1 socially prescribed perfectionism and a negative correlation with T1 inefficacy, as expected. Against expectations, however, T1 self-oriented perfectionism did not show any other significant negative correlations with T1 and T2 role stress, or the remaining facets of T1 and T2 burnout. Employees with higher levels of self-oriented perfectionism at T1 had higher levels of socially prescribed perfectionism at T1 and lower levels of inefficacy at T1 than employees with lower levels of self-oriented perfectionism at T1. In contrast, T1 socially prescribed perfectionism showed positive correlations with T1 and T2 role stress, T1 and T2 exhaustion, T1 and T2 cynicism, and T2 inefficacy. Employees with higher levels of socially prescribed perfectionism at T1 had higher levels of stress, exhaustion, and cynicism at T1 and T2, and higher levels of inefficacy at T2, than employees with lower levels of socially prescribed perfectionism at T1.

T1 role stress showed a positive correlation with T2 role stress: Employees with higher levels of stress at T1 had higher levels of stress at T2 than employees with lower levels of stress at T1. Both T1 and T2 role stress showed positive correlations with T1 and T2 exhaustion, T1 and T2 cynicism, and T1 and T2 inefficacy: Employees with higher levels of stress at T1 and T2 had higher levels of burnout at T1 and T2 than employees with lower levels of stress T1 and T2. In comparison, T1 exhaustion, T1 cynicism, and T1 inefficacy showed positive correlations with their T2 counterparts: Employees with higher levels of exhaustion, cynicism, or inefficacy at T1 had higher levels of that facet at T2 than employees with lower levels at T1. Moreover, T1 and T2 exhaustion showed positive correlations with T1 and T2 cynicism and T1 and T2 inefficacy, T1 cynicism showed positive correlations with T1 and T2 inefficacy, and T2 cynicism showed a positive correlation with T2 inefficacy. Employees with higher levels of one facet of burnout at T1 or T2 tended to also have higher levels of the other facets of burnout at T1 and T2.

Table 1

Correlations and Descriptive Statistics

	1	2	3	4	5	6	7	8	9	10
Perfectionism										
1. T1 SOP										
2. T1 SPP	.26*									
Stress										
3. T1 role stress	–.10	.41***								
4. T2 role stress	.06	.47***	.64***							
Burnout										
5. T1 exhaustion	–.01	.51***	.65***	.58***						
6. T1 cynicism	–.19	.29*	.54***	.48***	.77***					
7. T1 inefficacy	–.28*	.14	.38***	.33**	.25*	.26*				
8. T2 exhaustion	.08	.52***	.53***	.67***	.78***	.55***	.32**			
9. T2 cynicism	.07	.31**	.44***	.58***	.59***	.66***	.22	.69***		
10. T2 inefficacy	–.02	.33**	.43***	.56***	.55***	.48***	.45***	.55***	.62***	
M	3.62	2.82	2.90	2.69	2.89	2.40	1.82	2.75	2.41	2.00
SD	0.67	0.70	0.62	0.64	1.16	1.11	0.58	1.01	1.08	0.51
α	.88	.87	.80	.85	.94	.88	.81	.91	.95	.68

Note. $N = 69$. All scores are mean scores and employees responded to all items on a 5-point scale (see 7.2. Method).

SOP = self-oriented perfectionism, SPP = socially prescribed perfectionism.

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

7.3.2. Regressions. The T1 outcome variables significantly predicted the T2 outcome variables and T1 role stress and the facets of T1 burnout explained between 20% and 62% of the variance in their T2 counterparts (see Table 2, Step 1 for details). As expected, employees with higher levels of stress, exhaustion, cynicism, or inefficacy at T1 had increased levels of stress, exhaustion, cynicism, or inefficacy at T2, respectively. After controlling for baseline levels, T1 perfectionism predicted between 4-8% of the variance in T2 role stress, T2 cynicism, and T2 inefficacy; T1 perfectionism did not, however, predict further variance in T2 exhaustion (see Table 2, Models 1-3, Step 2 for details). Regarding the individual predictor variables, T1 self-oriented perfectionism uniquely predicted T2 cynicism with a positive coefficient: Against expectations, employees with higher levels of self-oriented perfectionism at T1 had increased levels of cynicism at T2 (see Table 2, Model 1, Step 2). When T1 socially prescribed perfectionism was also added to the model, T1 self-oriented perfectionism was no longer a significant predictor of T2 cynicism, however (Step 2: $\Delta R^2 = .043$, $p = .08$; T1 self-oriented perfectionism: $\beta = .18$, $p = .07$; also see Table 2, Model 3, Step 2).

In comparison, T1 socially prescribed perfectionism uniquely predicted T2 role stress and T2 inefficacy with positive coefficients: As expected, employees with higher levels of socially prescribed perfectionism at T1 had increased levels of role stress and inefficacy at T2 (see Table 2, Model 2, Step 2). T1 socially prescribed perfectionism was still a significant predictor of T2 role stress and T2 inefficacy when T1 self-oriented perfectionism was also added to the Model (see Table 2, Model 3, Step 2). Finally, the interaction term did not significantly predict any of the variance in any of the T2 outcome variables (see Table 2, Model 3, Step 3 for details).

Table 2

Regressions: Perfectionism Predicting Stress and Burnout

Steps and variables	T2 role stress		T2 exhaustion		T2 cynicism		T2 inefficacy	
	ΔR^2	β	ΔR^2	β	ΔR^2	β	ΔR^2	β
Step 1: Baseline	.413***		.619***		.441***		.200***	
T1 outcome variable		.64***		.79***		.66***		.45***
Model 1								
Step 2: T1 perfectionism	.015		.007		.038*		.015	
T1 SOP		.12		.08		.20*		.13
Model 2								
Step 2: T1 perfectionism	.050*		.018		.017		.074*	
T1 SPP		.25*		.16		.13		.27*
Model 3								
Step 2: T1 perfectionism	.052*		.020		.043		.075*	
T1 SOP		.05		.05		.18		.03
T1 SPP		.23*		.14		.07		.27*
Step 3: Interaction term	.024		.002		.001		.004	
T1 SOP × T1 SPP		–.16		–.05		.03		–.06

Note. $N = 69$. SOP = self-oriented perfectionism, SPP = socially prescribed perfectionism.

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

7.4. Brief Discussion

The aim of the present study was to expand on Study 1 by investigating whether perfectionism longitudinally predicts stress and burnout in employees.

Hypothesis 1, self-oriented perfectionism is associated with lower levels of stress and burnout, was not supported. Although self-oriented perfectionism at T1 was significantly associated with inefficacy at T1, and employees with higher levels of self-oriented perfectionism at T1 had lower levels of inefficacy at T1 than employees with lower levels of self-oriented perfectionism at T1, self-oriented perfectionism at T1 was not significantly negatively associated with stress or any other facets of burnout at T1 or T2.

In comparison, Hypothesis 2, self-oriented perfectionism longitudinal predicts decreased levels of stress and burnout, was not supported. Self-oriented perfectionism at T1 did not significantly predict stress at T2, and only significantly predicted on facet of burnout at T2, after controlling for baseline levels. However, self-oriented perfectionism at T1 longitudinally predicted increased (not decreased) levels of cynicism at T2 after controlling for cynicism at T1 and, against expectations, employees with higher levels of self-oriented perfectionism at T1 had increased levels of cynicism at T2.

Hypothesis 3, socially prescribed perfectionism is associated with higher levels of stress and burnout, was supported. Unlike self-oriented perfectionism, socially prescribed perfectionism at T1 was significantly associated with stress, exhaustion, and cynicism at T1 and T2 and inefficacy at T2. Employees with higher levels of socially prescribed perfectionism at T1 had higher levels of stress and burnout at T1 and T2 than employees with lower levels of socially prescribed perfectionism at T1.

In comparison, Hypothesis 4, socially prescribed perfectionism longitudinally predicts incrased levels of stress and burnout, was partially supported. Socially prescribed perfectionism at T1 longitudinally predicted increased levels of stress and inefficacy at T2 after controlling for stress and inefficacy at T1, and employees with higher levels of socially prescribed perfectionism at T1 had increased levels of stress and inefficacy at T2.

The findings from Study 2 make a significant contribution to the research literature on perfectionism, stress, and burnout. The present findings extend previous cross-sectional studies which have shown socially prescribed perfectionism to be associated with higher levels of stress and burnout (e.g., Appleton et al., 2009; Childs & Stoeber, 2010; Flett et al., 1995). The present findings are the first to indicate that socially prescribed perfectionism is a personality characteristic that contributes to the development of stress and burnout in

employees. Socially prescribed perfectionism in employees was not only associated with higher levels of stress and inefficacy, it also predicted increased levels of stress and inefficacy. In addition, the present findings also extend previous cross-sectional studies which have shown self-oriented perfectionism to be associated with burnout (e.g., Appleton et al., 2009; Childs & Stoeber, 2010). The present findings are the first to indicate that self-oriented perfectionism is a personality characteristic that contributes to the development of burnout in employees. Although self-oriented perfectionism was associated with lower levels of inefficacy, in line with previous findings showing self-oriented perfectionism to be associated with lower levels of burnout, self-oriented perfectionism did not predict decreased levels of stress or burnout in the present study. Instead, self-oriented perfectionism predicted increased levels of cynicism.

Study 2 has a number of limitations, however. First, the present findings are restricted to role stress and burnout and therefore do not capture the impact of perfectionism on positive work-related outcomes, such as engagement (Bakker et al., 2008; Childs & Stoeber, 2010). Second, the reliability (Cronbach's alpha) of the inefficacy scores at T2 was lower than desirable. Moreover, and more importantly, the measure I used to assess inefficacy has been criticized because it is only comprised of reverse-scored items and thus captures efficacy (indicating high levels of engagement, not low levels of burnout) rather than inefficacy (see Schaufeli & Salanova, 2007, for details). Third, the longitudinal sample comprised only 69 employees and with this was rather small. Consequently the study may have been underpowered (Maxwell, 2004), that is, it may have had insufficient statistical power to detect further effects of perfectionism such as effects on exhaustion. Finally, the sample comprised only employees working in health care provision. Therefore, it is unclear if the findings are specific to this work setting or if they generalize to other areas of work.

To address these limitations, I conducted Study 3 with a larger sample of employees working in the educational setting (teachers) using a revised inefficacy scale comprised of items capturing inefficacy proper (rather reversed-scored efficacy) to examine whether the findings of Study 2 could be replicated and extended in a larger longitudinal sample of employees working in a different setting. I also included a measure of engagement to examine whether perfectionism longitudinally predicts changes in positive, as well as negative, outcomes in the workplace.

Perfectionism should predict changes in engagement. In particular, self-oriented and socially prescribed perfectionists may feel energized, invested, and absorbed in their work because attaining high standards in their work is incredibly important to their sense of self and self-worth (e.g., Hall, 2006). However, failing in their work poses a significant risk to self-oriented perfectionists' and socially prescribed perfectionists' self-worth, and to socially prescribed perfectionists' relationships with significant others (see Chapter 3). Consequently, perfectionists may be less likely than non-perfectionists to be engaged in their work as they are keen to avoid failure. In samples of undergraduate students, perfectionistic concerns were associated with lower levels of engagement whereas perfectionistic strivings were associated with higher levels of engagement (Stoeber & Childs, 2010; Zhang et al., 2007). Similarly, in a sample of employees, socially prescribed perfectionism was associated with lower levels of engagement whereas self-oriented perfectionism was associated with higher levels of engagement (Childs & Stoeber, 2010). However, the cross-sectional effects of perfectionistic strivings and self-oriented perfectionism on higher levels of engagement may not persist over time. These perfectionists may become too engaged in their work as they tenaciously strive to attain high standards and validate self-worth, meaning that they might fail to conserve resources in the long-term, potentially leading to lower levels of engagement (cf. Halbesleben, Harvey, & Bolino, 2009).

Chapter 8

Study 3: Perfectionism Longitudinally Predicting Stress and Burnout but not Engagement in Teachers

8.1. Aims and Hypotheses

The aim of the present study was to expand on Study 2 by investigating whether perfectionism longitudinally predicts stress and burnout using a larger sample of employees working in a different setting, and by investigating positive work-related outcomes, specifically engagement. To this end, a sample of teachers completed questionnaires measuring perfectionism, stress, burnout, and engagement twice over three months. I tested eight hypotheses:

(H1) Self-oriented perfectionism is associated with lower levels of stress and burnout.

(H2) Self-oriented perfectionism is associated with higher levels of engagement.

(H3) Self-oriented perfectionism longitudinally predicts decreased levels of stress and burnout.

(H4) Self-oriented perfectionism longitudinally predicts increased levels of engagement.

(H5) Socially prescribed perfectionism is associated with higher levels of stress and burnout.

(H6) Socially prescribed perfectionism is associated with lower levels of engagement

(H7) Socially prescribed perfectionism longitudinally predicts increased levels of stress and burnout.

(H8) Socially prescribed perfectionism longitudinally predicts decreased levels of engagement.

8.2. Method

8.2.1. Participants. A sample of 349 teachers was recruited via the Teacher Support Network, an independent charity that provides information, advice, and support to teachers. Of these, 56% returned data for both measurement points that were not multivariate outliers (see 8.2.4. Preliminary analyses). Hence, the final longitudinal sample comprised $N = 195$ teachers (38 male, 159 female). Mean age of teachers was 44.5 years ($SD = 10.2$; range = 22-63 years). Mean time teachers had been teaching was 15.5 years ($SD = 10.6$; range = 0.3-40.3 years) and mean time teachers had been in their current job was 6.5 years ($SD = 6.0$; range = 0.1-33.0 years). Teachers' job types were teaching assistant (1%), supply teacher (3%), teacher (61%),

subject coordinator (3%), department head (15%), deputy head teacher (7%), head teacher (5%), and 5% were unclassified. All teachers had a university degree.

8.2.2. Procedure. Teachers were recruited via an advertisement on the electronic newsletter and website. Teachers took part twice: teachers were asked to complete the questionnaire in November 2009 (Time 1 [T1]) and, if they completed the T1 questionnaire, were asked to complete a second questionnaire three months later (Time 2 [T2]). Teachers who completed both questionnaires were entered into a raffle with prizes of one £100 voucher (approximately US $160), one £50 voucher (US $80), and two £25 vouchers (US $40). The study was approved by the relevant ethics committee and followed the British Psychological Society's code of conduct and ethical guidelines (British Psychological Society, 2005). Both consent form and questionnaire were presented on our University's secure online questionnaire management system.

8.2.3. Measures.

8.2.3.1. Perfectionism (T1), stress (T1 and T2), and burnout (T1 and T2). To measure perfectionism, stress, and burnout, I used the same items as in Study 2, except now I used an inefficacy subscale to measure the inefficacy component of burnout (4 items; e.g., "In my opinion, I'm inefficient in my job;" Schaufeli & Salanova, 2007; also see Appendix A for the questionnaire items for Study 3). In Study 2, I measured inefficacy with a subscale comprised of only reverse-scored items, and this subscale has been criticized as it captures efficacy (indicating high levels of engagement, not low levels of burnout) rather than inefficacy (see Schaufeli & Salanova, 2007, for details). Moreover, the Cronbach's alpha of this subscale was only marginally acceptable at T2 in Study 2 (.68) whereas the Cronbach's alpha of the revised subscale was now acceptable at both T1 and T2 in the present study (T1 = .91, T2 = .85). Teachers were asked to respond to the perfectionism items in regards to teaching in order to capture how perfectionistic teachers were about their work. Teachers responded to the perfectionism and stress items on a scale from 1 (*strongly disagree*) to 7 (*strongly agree*), and to the burnout items on a scale from 1 (*never*) to 7 (*always*).

8.2.3.2. Engagement (T1 and T2). To measure engagement, I used the 17-item Utrecht Work Engagement Scale (UWES; Schaufeli, Salanova, et al., 2002). I measured total engagement and collapsed over vigor (6 items; e.g., "When I get up in the morning, I feel like going to work"), dedication (5 items; e.g., "I find the work that I do full of meaning and purpose"), and absorption (6 items; e.g., "When I am working, I forget everything else around me"). I chose to measure total engagement because the pattern of significant results in the

regression analyses was the same whether total engagement, or the three individual facets, were used; hence, I chose total engagement for parsimony. Teachers responded to the items on a scale from 1 (*never*) to 7 (*always*). The UWES is a widely used measure of engagement across occupational groups and has demonstrated reliability and validity in numerous studies (see Schaufeli & Salanova, 2007).

8.2.4. Preliminary analyses.

8.2.4.1. Descriptive statistics. For all scales, mean scores were computed by averaging responses across items. Table 1 shows the descriptive statistics and Cronbach's alphas. All alphas were above the .70 recommended for widely used scales (Nunnally, 1967).

8.2.4.2. Attrition. Overall, 152 teachers did not complete the T2 questionnaire. To examine possible differences between teachers who completed both questionnaires and teachers who only completed the T1 questionnaire, I computed a MANOVA with complete (non-completers vs. completers) as the between-participants factor and the 7 T1 variables (T1 self-oriented perfectionism, T1 socially prescribed perfectionism, T1 role stress, T1 exhaustion, T1 cynicism, T1 inefficacy, T1 engagement) as the dependent variables. The test was nonsignificant: $F(7, 341) = 0.81$, *ns,* indicating that teachers who completed both questionnaires were not significantly different from teachers who only completed the T1 questionnaire.

8.2.4.3. Outliers. Following recommendations by Tabachnick and Fidell (2007), the T1 and T2 variables (T1 self-oriented perfectionism, T1 socially prescribed perfectionism, T1 role stress, T2 role stress, T1 exhaustion, T2 exhaustion, T1 cynicism, T2 cynicism, T1 inefficacy, T2 inefficacy, T1 engagement, T2 engagement) were screened for multivariate outliers. Data from two teachers showed a Mahalanobis distance larger than the critical value of $\chi^2(12) = 32.91$, $p < .001$ and were excluded from the analyses.

8.2.4.4. Gender. To examine possible gender differences in the data, I computed a Box's *M* test (see Tabachnick & Fidell, 2007). The effect of gender was nonsignificant, Box's $M = 107.79$, $F(78,14751) = 1.21$, *ns*. Therefore, data were collapsed across gender.

8.2.5. Analytic strategy. To examine the relationships between perfectionism, stress, burnout, and engagement, I computed two sets of analyses. First, I computed bivariate correlations between the variables. Second, I computed hierarchical multiple regressions with T1 perfectionism longitudinally predicting T2 stress, T2 burnout, and T2 engagement. Three models were tested. Model 1 consisted of two steps: the T1 outcome variable was entered in Step 1 (T1 role stress, T1 exhaustion, T1 cynicism, T1 inefficacy, or T1 engagement) and

centered T1 perfectionism was entered in Step 2 (T1 self-oriented perfectionism). Model 2 also consisted of two steps: the T1 outcome variable was entered in Step 1 (T1 role stress, T1 exhaustion, T1 cynicism, T1 inefficacy, or T1 engagement) and centered T1 perfectionism was entered in Step 2 (T1 socially prescribed perfectionism). Model 3 consisted of three steps: the T1 outcome variable was entered in Step 1 (T1 role stress, T1 exhaustion, T1 cynicism, T1 inefficacy, or T1 engagement), centered T1 perfectionism was entered in Step 2 (T1 self-oriented perfectionism, T1 socially prescribed perfectionism), and the T1 perfectionism interaction term were entered in step 3 (T1 self-oriented perfectionism × T1 socially prescribed perfectionism).

8.3. Results

8.3.1. Correlations. Most of the significant correlations were in the expected directions (see Table 1). As expected, T1 self-oriented perfectionism showed a positive correlation with T1 socially prescribed perfectionism but, against expectations, T1 self-oriented perfectionism did not show significant positive correlations with T1 and T2 engagement. In addition, T1 self-oriented perfectionism showed positive correlations with T1 and T2 role stress and T1 and T2 exhaustion, against expectations. Teachers with higher levels of self-oriented perfectionism at T1 had higher levels of socially prescribed perfectionism at T1, and higher levels of role stress and exhaustion at T1 and T2, than teachers with lower levels of self-oriented perfectionism at T1.

In contrast to T1 self-oriented perfectionism, the correlations with T1 socially prescribed perfectionism were all in line with expectations. T1 socially prescribed perfectionism showed positive correlations with T1 and T2 role stress, T1 and T2 exhaustion, T1 and T2 cynicism, and T1 and T2 inefficacy, and negative correlations with T1 and T2 engagement. Teachers with higher levels of socially prescribed perfectionism at T1 had higher levels of stress and burnout at T1 and T2, and lower levels of engagement at T1 and T2, than teachers with lower levels of socially prescribed perfectionism at T1.

Also in line with expectations, T1 role stress, T1 exhaustion, T1 cynicism, T1 inefficacy, and T1 engagement showed positive correlations with their T2 counterparts: Teachers with higher levels of stress, burnout, or engagement at T1 had higher levels of stress, burnout, or engagement at T2 than teachers with lower levels of stress, burnout, or engagement at T1. Moreover, T1 and T2 role stress showed positive correlations with the facets of T1 and T2 burnout, and T1 and T2 role stress and the facets of T1 and T2 burnout

showed negative correlations with T1 and T2 engagement. Teachers with higher levels of stress at T1 or T2 had higher levels of burnout at T1 and T2, and teachers with higher levels of stress or burnout at T1 or T2 had lower levels of engagement at T1 and T2.

Table 1
Correlations and Descriptive Statistics

	1	2	3	4	5	6	7	8	9	10	11	12
Perfectionism												
1. T1 SOP												
2. T1 SPP	.48***											
Stress												
3. T1 role stress	.17*	.50***										
4. T2 role stress	.20**	.46***	.70***									
Burnout												
5. T1 exhaustion	.23***	.50***	.63***	.56***								
6. T1 cynicism	–.00	.40***	.45***	.42***	.59***							
7. T1 inefficacy	.10	.51***	.52***	.41***	.50***	.54***						
8. T2 exhaustion	.22***	.43***	.43***	.59***	.67***	.50***	.42***					
9. T2 cynicism	.01	.39***	.44***	.55***	.50***	.75***	.48***	.64***				
10. T2 inefficacy	.08	.45***	.41***	.49***	.37***	.46***	.70***	.42***	.57***			
Engagement												
11. T1 engagement	.08	–.38***	–.35***	–.33***	–.39***	–.63***	–.47***	–.34***	–.56***	–.45***		
12. T2 engagement	.08	–.30***	–.37***	–.43***	–.39***	–.61***	–.46***	–.41***	–.66***	–.54***	.79***	
M	5.04	4.53	4.74	4.53	5.70	4.52	3.43	5.51	4.78	3.35	4.73	4.61
SD	1.07	0.96	1.00	1.01	1.40	1.72	1.64	1.42	1.65	1.60	1.10	0.98
α	.92	.87	.84	.87	.91	.86	.91	.93	.88	.85	.90	.89

N = 195. All scores are mean scores and teachers responded to all items on a 7-point scale (see 8.2. Method). SOP = self-oriented perfectionism, SPP = socially prescribed perfectionism.
*p < .05. **p < .01. ***p < .001.

8.3.2. Regressions. The T1 outcome variables significantly predicted the T2 outcome variables and T1 role stress, the facets of T1 burnout, and T1 engagement explained between 45% and 63% of the variance in their T2 counterparts (see Table 2, Step 1 for details). As expected, teachers with higher levels of stress, exhaustion, cynicism, inefficacy, or engagement at T1 had increased levels of stress, exhaustion, cynicism, inefficacy, or engagement at T2, respectively.

After controlling for baseline levels, T1 self-oriented perfectionism did not significantly predict further variance in any of the T2 outcome variables (see Table 2, Models 1 and 3, Step 2 for details). In contrast, T1 socially prescribed perfectionism predicted between 1% and 2% of the variance in T2 role stress and T2 burnout (see Table 2, Model 2, Step 2). T1 socially prescribed perfectionism uniquely predicted T2 role stress, T2 exhaustion, T2 cynicism, and T2 inefficacy with positive coefficients: As expected, teachers with higher levels of socially prescribed perfectionism at T1 had increased levels of stress and burnout at T2. However, when T1 self-oriented perfectionism was also added to the model, T1 socially prescribed perfectionism no longer significantly predicted T2 role stress (Step 2: $\Delta R^2 = .017$, $p = .04$; T1 socially prescribed perfectionism: $\beta = .13$, $p = .06$), T2 exhaustion (Step 2: $\Delta R^2 = .013$, $p = .18$; T1 socially prescribed perfectionism: $\beta = .11$, $p = .10$), T2 cynicism (Step 2: $\Delta R^2 = .013$, $p = .06$; T1 socially prescribed perfectionism: $\beta = .14$, $p = .02$), or T2 inefficacy (Step 2: $\Delta R^2 = .014$, $p = .07$; T1 socially prescribed perfectionism: $\beta = .16$, $p = .02$; also see Table 2, Model 3, Step 2).

Against expectations, finally, neither T1 self-oriented perfectionism nor T1 socially prescribed perfectionism significantly predicted further variance in T2 engagement (see Table 2, Models 1-3, Step 2 for details). In addition, the perfectionism interaction effects did not explain further variance in any of the outcome variables (see Table 2, Model 3, Step 3 for details).

Table 2

Regressions: Perfectionism Longitudinally Predicting Stress, Burnout, and Engagement

Models, steps, and variables	T2 role stress		T2 exhaustion		T2 cynicism		T2 inefficacy		T2 engagement	
	ΔR^2	β	ΔR^2	β	ΔR^2	β	ΔR^2	β	ΔR^2	β
Step 1: Baseline	.482***		.451***		.568***		.490***		.630***	
T1 outcome variable		.70***		.67***		0.75***		.70***		.79***
Model 1										
Step 2: T1 perfectionism	.007		.005		.000		.000		.000	
T1 SOP		.09		.07		.01		.02		.02
Model 2										
Step 2: T1 perfectionism	.016*		.012*		.010**		.012*		.000	
T1 SPP		.15*		.13*		.11*		.13*		.01
Model 3										
Step 2: T1 perfectionism	.017*		.013		.013		.014		.000	
T1 SOP		.03		.03		–.06		–.05		.02
T1 SPP		.13		.11		.14*		.16*		–.01
Step 3: Interaction terms	.001		.002		.000		.003		.000	
T1 SOP × T1 SPP		–.03		–.04		.02		–.06		.02

Note. N = 195. SOP = self-oriented perfectionism, SPP = socially prescribed perfectionism.
*$p < .05$. **$p < .01$. ***$p < .001$.

8.4. Brief Discussion

The aim of the present study was to expand on Study 2 by investigating whether perfectionism longitudinally predicts stress and burnout using a larger sample of employees working in a different setting, and by investigating positive work-related outcomes, specifically engagement.

Hypothesis 1, self-oriented perfectionism is associated with lower levels of stress and burnout, was not supported. Self-oriented perfectionism at T1 was positively (not negatively) associated with stress and exhaustion at T1 and T2, and, against expectations, employees with higher levels of self-oriented perfectionism at T1 had higher levels of stress and exhaustion at T1 and T2 than employees with lower levels of self-oriented perfectionism at T1. In comparison, Hypothesis 2, self-oriented perfectionism is associated with higher levels of engagement, was not supported. Self-oriented perfectionism was not significantly associated with engagement at T1 or T2. Like Hypotheses 1 and 2, Hypotheses 3 and 4, self-oriented perfectionism longitudinally predicts decreased levels of stress and burnout and increased levels of engagement, were not supported. Self-oriented perfectionism at T1 did not significantly predict stress, any of the facets of burnout, or engagement at T2 after controlling for baseline levels.

Unlike self-oriented perfectionism, the hypotheses pertaining to socially prescribed perfectionism were mostly supported. Hypotheses 5 and 6, socially prescribed perfectionism is associated with higher levels of stress and burnout and lower levels of engagement, were supported. Socially prescribed perfectionism perfectionism at T1 was significantly associated with stress, exhaustion, cynicism, inefficacy, and engagement at T1 and T2. Employees with higher levels of socially prescribed perfectionism at T1 had higher levels of stress and burnout at T1 and T2 and lower levels of engagement at T1 and T2 than employees with lower levels of socially prescribed perfectionism at T1. In comparison, Hypothesis 7, socially prescribed perfectionism longitudinally predicts increased levels of stress and burnout, was supported. Socially prescribed perfectionism at T1 longitudinally predicted increased levels of stress, exhaustion, cynicism, and inefficacy at T2 after controlling for stress, exhaustion, cynicism, and inefficacy at T1, respectively. Employees with higher levels of socially prescribed perfectionism at T1 had increased levels of stress and burnout at T2. However, Hypothesis 8, socially prescribed perfectionism longitudinally predicts increased levels of engagement, was not supported. Despite showing significant negative correlations with engagement at T1 and

T2, socially prescribed perfectionism did not predict increased levels of engagement at T2 after controlling for engagement at T1.

The findings from Study 3 make a significant contribution to the research literature on perfectionism, stress, burnout, and engagement. The present findings extend previous cross-sectional studies which have shown socially prescribed perfectionism to be associated with stress and burnout (e.g., Appleton et al., 2009; Childs & Stoeber, 2010; Flett et al., 1995). The present findings are the first to indicate that socially prescribed perfectionism is a personality characteristic that contributes to the development of stress and burnout in teachers. Socially prescribed perfectionism in teachers was not only associated with higher levels of stress and burnout, it also predicted increased levels of stress and burnout. In Study 2, socially prescribed perfectionism predicted increased levels of stress and burnout, but the findings regarding burnout were restricted to only one facet: inefficacy. In present study, however, socially prescribed perfectionism not only predicted increased levels of stress and inefficacy, but it now predicted increased levels of exhaustion and cynicism also.

The present findings replicate previous cross-sectional studies which have shown self-oriented perfectionism to be associated with burnout (e.g., Appleton et al., 2009; Childs & Stoeber, 2010). Unlike these studies which have shown self-oriented perfectionism to be associated with lower levels of burnout, and unlike Study 2 which showed self-oriented perfectionism to be associated with lower levels of inefficacy, self-oriented perfectionism was associated with higher levels of stress and exhaustion in the present study. Moreover, self-oriented perfectionism did not predict changes in stress or burnout in the present study. In Study 2, in contrast, self-oriented perfectionism predicted increased levels of cynicism.

Study 3 had a number of limitations, however. First, the findings regarding burnout are restricted to exhaustion, cynicism, and inefficacy. Recent evidence suggests that burnout might be best represented with four factors, recommending that exhaustion, cynicism, inefficacy, and depersonalization are measured in samples of all types of employees (Salanova et al., 2005; Simbula & Guglielmi, 2010), and future research should assess all four components of burnout. Nevertheless, the measure of burnout I used in the present study had an important strength. I used a revised measure of inefficacy to overcome limitations of the measure used in Study 2 which has been criticized because it is only comprised of reverse-scored items and thus captures efficacy (indicating high levels of engagement, not low levels of burnout) rather than inefficacy (see Schaufeli & Salanova, 2007, for details). Moreover, the reliability (Cronbach's alpha) of the measure in Study 2 was less than desirable (T2 inefficacy

= .68) but the reliability of the revised measure in the present study was more acceptable (T2 inefficacy = .85). Second, the present study used a longitudinal design with two measurement points. Consequently, the study could not investigate longitudinal mediation effects, particularly if role stress mediates the effect of socially prescribed perfectionism on burnout. For this, longitudinal designs with three measurement points are required (see Cole & Maxwell, 2003). Thus, future studies on perfectionism, stress, burnout, and engagement would profit from employing three-wave longitudinal designs to investigate if increases in stress between Time 1 and Time 2 mediate the longitudinal effects of socially prescribed perfectionism at Time 1 on increases or decreases in employee burnout and engagement between Time 1 and Time 3. Finally, the present findings are restricted to intrapersonal outcomes of perfectionism, and future studies should investigate the interpersonal outcomes of perfectionism, such as cohesion. Nevertheless, the findings from Study 3 expand on the findings from Study 2 by showing that perfectionism longitudinally predicts stress and burnout in a larger sample of employees who work in a different setting, and the population of employees sampled in the present study, teachers, are at a particular high risk of stress (see Chapter 3).

The findings from Studies 1, 2, and 3 make a significant contribution to the research literature on perfectionism, stress, burnout, and engagement. Socially prescribed perfectionism consistently predicted increased levels of stress and aspects of burnout across studies. In Study 1, socially prescribed perfectionism longitudinally predicted increased levels of total burnout in a sample of students. In Study 2, socially prescribed perfectionism longitudinally predicted increased levels of stress and inefficacy in a sample of employees working in health care provision. And in Study 3, socially prescribed perfectionism longitudinally predicted increased levels of stress, exhaustion, cynicism, and inefficacy in a sample of teachers. In contrast to socially prescribed perfectionism, self-oriented perfectionism showed few significant results. In Study 1, self-oriented perfectionism was associated with higher levels of engagement. In Study 2, self-oriented perfectionism was associated with lower levels of inefficacy and it longitudinally predicted one facet of burnout: cynicism. However, self-oriented perfectionism predicted increased (not decreased) levels of cynicism, against expectations. And in Study 3, self-oriented perfectionism was associated with higher levels of stress and exhaustion. On balance then, the results from Studies 1-3 appear to be in line with the view that, although self-oriented perfectionism may energize achievement striving and be cross-sectionally associated

with some positive outcomes, it appears to be at best ambivalent and at worst associated with negative outcomes longitudinally (e.g., Hewitt & Flett, 2002).

Chapter 9

Advance Organizer: Studies 4-6

9.1. Is perfectionism associated with intragroup relationships?

Hewitt and Flett's (1991) model differentiates intrapersonal and interpersonal forms of perfectionism. Work teams are a salient interpersonal relationship in academia and at work (e.g., Cohen & Bailey, 1997; see Chapter 4), and working with other team members should be important to perfectionists. A perfectionist's performance is interdependent with that of their team, and a positive relationship within the team is a means of not only achieving the team's goals thus bolstering one's own performance, but it is also a means of forging one's identity as a perfectionist (cf. Hogg, 1992; Mullen & Cooper, 1994; Tajfel & Turner, 1979, 1986; also see Chapter 4). Nevertheless, no study has examined the effects of the three forms of perfectionism proposed by Hewitt and Flett (1991) on intragroup relationships in a team-work context in either students or employees.

The literature shows that the three forms of perfectionism are associated with numerous interpersonal characteristics, processes, and outcomes in students (Alden et al., 1994; Bieling & Alden, 1997; E. C. Chang et al., 2008; Flett et al., 1994; Flett et al., 1996; Flett, Hewitt, et al., 2001; Flett, Velyvis, & Hewitt, 2001, as cited by Hewitt & Flett, 2002; Hewitt & Flett, 1991; R. W. Hill, Zrull, & Turlington, 1997; Laurenti et al., 2008; Saboonchi & Lundh, 2003; Sherry et al., 2008; Wyatt & Gilbert, 1997). In particular, self-oriented perfectionism has been associated with higher levels social skill appraisal and assertiveness but also to higher levels of negative evaluations of social comparison, competitiveness, narcissism, and hostility. In comparison, other-oriented perfectionism has been associated with higher levels of social skill appraisal and assertiveness, but also to higher levels of other-blame, authoritarianism, dominance, narcissism, and antisocial and histrionic personality characteristics. Furthermore, socially prescribed perfectionism has been associated with higher levels of social disconnection, interpersonal distress, psychosocial adjustment problems, and interpersonal sensitivity. Moreover, in a sample of adolescent athletes, lower levels of perfectionistic concerns (of which socially prescribed perfectionism is a facet; e.g., Stoeber & Otto, 2006; also see Chapter 2) were associated with positive perceptions of team relationships whereas higher levels of perfectionistic concerns were associated with negative perceptions of team relationships (Ommundsen et al., 2005).

Two studies have investigated the impact of the three forms of perfectionism on both members of a married or cohabiting couple (Habke et al., 1999; Hewitt, Flett, & Mikail, 1995). Socially prescribed perfectionism and other-oriented perfectionism had a negative impact on oneself and on one's partner. One person's socially prescribed perfectionism was associated with lower levels of self- and partner-rated sexual satisfaction, and lower levels of self-rated dyadic and family adjustment. One person's other-oriented perfectionism, in comparison, was associated with lower levels of self- and partner-rated sexual satisfaction, and lower levels of partner-rated relationship adjustment and self-rated partner support. In contrast to the other two forms of perfectionism, self-oriented perfectionism showed a mixed pattern of findings: One person's self-oriented perfectionism was associated with higher levels of partner-rated family adjustment, and lower levels of partner-rated family adjustment. Still, the above evidence suggests that the three forms of perfectionism may have a significant impact on the intragroup relationships of students' and employees' work teams. Hence, the aim of Studies 4-6 was to investigate whether perfectionism is associated with students' and employees' intragroup relationships in a team-work context.

Drawing on the above evidence, I expected that socially prescribed perfectionism and other-oriented perfectionism would have a negative impact on intragroup relationships and that they would be associated with negative outcomes for both the individual perfectionist and for other members of the team. In particular, a team member's other-oriented perfectionism may be associated with the most negative intragroup relationships because the person imposes unattainable standards on team mates. In contrast, a team member's self-oriented perfectionism may be associated with either negative or positive (or both) outcomes, for both the perfectionist and for team mates, as suggested by previous findings (Hewitt, Flett, & Mikail, 1995). On balance, as evidence suggests self-oriented perfectionism is part of the positive side of perfectionism (e.g., Stoeber & Otto, 2006; also see Chapter 4), I expected that self-oriented perfectionism would have a positive impact on intragroup relationships and would be associated with positive outcomes.

9.1.1. Study 4. The aim of Study 4 was to investigate whether perfectionism is associated with dyadic relationships. In particular, I had three aims: first, to examine whether students' perfectionism is associated with the relationship quality with an interaction partner; second, to examine whether the interaction partner's perfectionism is associated with the relationship quality; and third, to examine the interaction effects of students' and partners' perfectionism on the relationship quality. To this end, a sample of undergraduate students

completed a questionnaire on perfectionism, read a vignette about working with a hypothetical student partner who was described as a self-oriented, socially prescribed, or other-oriented perfectionist, and then rated the relationship quality.

9.1.2. Study 5. The aim of Study 5 was to investigate perfectionism, cohesion, and engagement and, in doing so, to expand on Study 4 by investigating whether perfectionism is associated with real-world, opposed to hypothetical, intragroup relationships. In particular, I had two aims: first, to examine whether perfectionism is associated with cohesion; and second, to examine whether perfectionism and cohesion are associated with engagement. I decided to focus on engagement as it is a central variable in students' psychological adjustment and academic success (e.g., Salanova et al., 2010; J. P. Steele & Fullagar, 2009; Svanum & Bigatti, 2009). To this end, a sample of undergraduate students, working on team projects, completed a questionnaire on perfectionism, cohesion, and engagement.

9.1.3. Study 6. The aim of Study 6 was to investigate perfectionism, cohesion, and stress and, in doing so, to expand on Study 5 by investigating multilevel effects in employee teams. In particular, I had two aims: first, to investigate whether perfectionism is associated with cohesion; and second, to investigate whether perfectionism and cohesion are associated with stress. I decided to focus on stress, not engagement, as stress is a central variable in employees' psychological adjustment (e.g., Cooper et al., 2001). To this end, a sample of teams of employees completed a questionnaire on perfectionism, cohesion, and stress.

Chapter 10

Study 4: Students' Views of Perfectionistic Partners in Hypothetical Team-Work Scenarios

10.1. Aims and Hypotheses

The aim of the present study was to investigate whether perfectionism is associated with dyadic relationships (see Chapter 9: Advance Organizer: Studies 4-6 for details). I tested six hypotheses:

(H1) Students' self-oriented perfectionism is associated with higher levels of relationship quality.

(H2) Students' socially prescribed perfectionism is associated with lower levels of relationship quality.

(H3) Students' other-oriented perfectionism is associated with lower levels of relationship quality.

(H4) Partners' self-oriented perfectionism is associated with higher levels of relationship quality.

(H5) Partners' socially prescribed perfectionism is associated with lower levels of relationship quality.

(H6) Partners' other-oriented perfectionism is associated with lower levels of relationship quality.

10.2. Method

10.2.1. Participants and procedure. A sample of $N = 147$ second-year psychology undergraduate students (20 male, 127 female) was recruited from the University of Kent. Mean age of students was 20.5 years ($SD = 4.5$; range = 18-51 years). Students were recruited via the School of Psychology's research participation website. After completing the measure of perfectionism (see 10.2.2 Measures), students read a vignette about a hypothetical scenario in which they would be working on a research project with another student. Next, students rated how they would respond in that situation. Students were randomly assigned to one of three conditions: (a) their partner was described as being high in self-oriented perfectionism, (b) their partner was high in socially prescribed perfectionism, or (c) their partner was high in other-oriented perfectionism (for a detailed description of the vignettes, see 10.2.2. Measures). For participating, students received course credits. The study was approved by the relevant

ethics committee and followed the British Psychological Society's code of conduct and ethical guidelines (British Psychological Society, 2005).

10.2.2. Measures.

10.2.2.1. Perfectionism. To measure perfectionism, I used the 45-item HMPS (Hewitt & Flett, 1991; see Chapter 2; also see Appendix A for the questionnaire items for Study 4) which captures self-oriented perfectionism, socially prescribed perfectionism, and other-oriented perfectionism. Students were asked to respond to the items in regards to studying in order to capture how perfectionistic students were about their studies. Students responded to the items on a 7-point scale from 1 (*strongly disagree*) to 7 (*strongly agree*).

10.2.2.2. Condition. Students were randomly assigned to one of three conditions: (a) partner high self-oriented perfectionism, (b) partner high socially prescribed perfectionism, or (c) partner high other-oriented perfectionism. To manipulate partners' perfectionism, I created three vignettes about working on a hypothetical research project with another student.

The scenario described a situation that was comparable to assignments that students are given in the first and second years of undergraduate study. Hence, second-year students were recruited because they would be able to give realistic accounts of how they would behave. The vignette method is used to elicit participants' reactions to a specific event, situation, or person as it makes participants' cognitive reactions to the event, situation, or person more accessible (see Alexander & Becker, 1978; Grønhøj & Bech-Larsen, 2010). Moreover, systematically varying characteristics within vignettes, and then randomly allocating participants to receive different versions of the same basic vignette, provides a structured method of manipulating the event, situation, or person to which participants respond. Vignettes and students were sex-matched and each vignette began with the following introduction:

> Imagine that you are about to start a research project. The project is part of one of your psychology modules. The project is in an area of psychology you are interested in and will last one term. You have to work with another student: Jo[8]. He/She is a second-year psychology undergraduate, but you haven't met him/her personally yet. You have to work with Jo for several hours every week. Both you and Jo have to work on every stage of the project—recruitment, data collection, data analysis, and write-up.

[8] The name Jo was chosen as it is an abbreviation for both Joseph and Josephine.

However, you and Jo are assessed individually and have to hand in separate pieces of work.

Next, the partner was described as being either high in self-oriented perfectionism, high in socially prescribed perfectionism, or high in other-oriented perfectionism. I created the three descriptions of the partners by examining the questionnaire items, theoretical descriptions, and correlates of the three forms of perfectionism (Hewitt & Flett, 1991, 2002, 2004). Each description described the same perfectionistic characteristics of the partner, except that the source or target of these characteristics differed to reflect the corresponding form of perfectionism. For example, the first sentence stated that the partner had excessively high personal standards and expectations for their own academic performance (partner high self-oriented perfectionism), that the partner believed that significant others had excessively high standards and expectations for his or her academic performance (partner high socially prescribed perfectionism), or that the partner had excessively high personal standards and expectations for the academic performance of other people (partner high other-oriented perfectionism; see below). After I created a first draft of the vignettes, colleagues reviewed all vignettes to ascertain whether or not they accurately and realistically reflected the scenario and the three forms of perfectionism, and I then revised the vignettes accordingly. The final version of the descriptions of the three partners is presented below.

Partner high self-oriented perfectionism:
Jo has excessively high personal standards and expectations for his/her academic performance. Jo wants all of his/her course assignments, including his/her work on this research project, to be the very best. Jo hates to see an error in his/her work; if he/she does, he/she becomes angry and frustrated with himself/herself and is very disappointed in himself/herself. Jo wants to be a flawless student. Jo criticizes himself/herself a lot: to Jo, he/she either achieves a flawless grade for an assignment or he/she has failed completely. It's very hard for Jo to live up to his/her personal standards and, when he/she doesn't, he/she feels like he/she is incompetent at everything in life.

Partner high socially prescribed perfectionism:

Jo believes that his/her friends and family have excessively high standards and expectations for his/her academic performance. Jo believes that the people important to him/her want all of his/her course assignments, including his/her work on this research project, to be the very best. Jo hates to see an error in his/her work; if he/she does, he/she thinks that others will become angry and frustrated with him/her and will be very disappointed in him/her. Jo thinks others want him/her to be a flawless student. Jo feels criticized a lot: Jo thinks that, in the eyes of others, he/she either achieves a flawless grade for an assignment or he/she has failed completely. It's very hard for Jo to feel he/she lives up to others' standards and, when he/she doesn't, he/she thinks that others feel like he/she is incompetent at everything in life.

Partner high other-oriented perfectionism:

Jo has excessively high standards and expectations for the academic performance of other people. Jo wants other people's course assignments, including their work on this research project, to be the very best. Jo hates to see an error in other people's work; if he/she does, he/she becomes angry and frustrated with them and is very disappointed in them. Jo wants others to be flawless students. Jo criticizes other people a lot: to Jo, others either achieve a flawless grade for an assignment or they have failed completely. It's very hard for people to live up to Jo's standards and, when they don't, he/she feels like they are incompetent at everything in life.

10.2.2.3. Liking. To measure students' predictions of how much they would like their partner, students answered four questions: "I like Jo," "I am similar to Jo," "I want to work with Jo," and "Jo and I have a lot in common." Students responded to the items on a 7-point scale from 1 (*strongly disagree*) to 7 (*strongly agree*).

10.2.2.4. Working relationship. To measure students' predictions about the quality of the working relationship with their partner, I used 13 items of the Team-Member Exchange (TMX; Seers, 1989). The TMX captures the quality of working relationships between team members, and I collapsed across the two subscales: cohesiveness (3 items[9]; e.g., "[Jo and I] generally trust each other") and exchange (10 items; e.g., "I am flexible about switching jobs

[9] One item was excluded from this subscale as it was not applicable to a dyadic relationship (i.e., "The team has a strong sense of togetherness").

with [Jo]"). Students responded to the items on a 7-point scale from 1 (*strongly disagree*) to 7 (*strongly agree*). The TMX is a widely used measure of working relationship and has demonstrated reliability and validity in numerous studies (e.g., Dierdorff, Bell, & Belohlav, 2011; Kamdar & Van Dyne, 2007; Love & Forret, 2008; Seers, Petty, & Cashman, 1995; Tse, Dasborough, & Ashkanasy, 2008).

10.2.3. Preliminary analyses.

10.2.3.1. Descriptive statistics. For all scales, mean scores were computed by averaging responses across items. Table 1 shows the descriptive statistics and Cronbach's alphas. All alphas were above the .70 recommended for widely used scales (Nunnally, 1967).

10.2.3.2. Multivariate outliers. Following recommendations by Tabachnick and Fidell (2007), the 5 variables (student self-oriented perfectionism, student socially prescribed perfectionism, student other-oriented perfectionism, liking, working relationship) were screened for multivariate outliers. No student showed a Mahalanobis distance larger than the critical value of $\chi^2(5) = 20.52$, $p < .001$ meaning that none were excluded from the analyses.

10.2.3.3. Gender. To examine possible gender differences in the data, I computed a Box's *M* test (see Tabachnick & Fidell, 2007). The effect of gender was nonsignificant, Box's $M = 27.12$, $F(15,4365) = 1.63$, *ns*. I also computed a MANOVA with gender and condition (partner high self-oriented perfectionism vs. partner high socially prescribed perfectionism vs. partner high other-oriented perfectionism) as the between-participant factors and the 5 variables as dependent variables. The MANOVA showed a nonsignificant interaction effect between gender × condition, $F(10, 274) = 0.47$, *ns*. Therefore, data were collapsed across gender.

10.2.4. Analytic Strategy. To investigate the relationships between partners' perfectionism, students' perfectionism, and relationship quality, I computed three sets of analyses. First, I computed bivariate correlations between the variables. Second, in order to test for differences between the three conditions, I computed a MANOVA with condition (partner high self-oriented perfectionism vs. partner high socially prescribed perfectionism vs. partner high other-oriented perfectionism) as the between-participant factor and liking and working relationship as the dependent variables. Third, I computed hierarchical multiple regressions to examine whether condition and students' perfectionism explained variance in liking and working relationship. Consequently, the regressions comprised three steps. Condition was entered in Step 1 with partner high socially prescribed perfectionism and partner high other-oriented perfectionism as the two dummy coded variables, meaning that

partner high self-oriented perfectionism was the reference group as self-oriented perfectionism is the intrapersonal form of perfectionism whereas socially prescribed perfectionism and other-oriented perfectionism are the interpersonal forms. Centered students' perfectionism (student self-oriented perfectionism, student socially prescribed perfectionism, student other-oriented perfectionism) was entered in Step 2, and the students' perfectionism × condition interaction terms were entered in Step 3.

10.3. Results

10.3.1. Differences between conditions. The MANOVA with condition (partner high self-oriented perfectionism vs. partner high socially prescribed perfectionism vs. partner high other-oriented perfectionism) as the between-participant factor and liking and working relationship as the dependent variables was significant: $F(4, 286) = 7.75, p < .001$ suggesting that there were significant differences in liking and working relationship between conditions. In particular, post-hoc tests using Tukey Honestly Significant Difference (see Table 1) revealed two significant differences. First, students in the partner high other-oriented perfectionism condition had lower levels of liking for partners than students in the other two conditions: Students predicted that they would like partners who were described as being high in other-oriented perfectionism less than partners who were described as being high in either self-oriented perfectionism or socially prescribed perfectionism. Second, students in the partner high socially prescribed perfectionism condition had higher levels of working relationship than students in the other two conditions: Students predicted that they would have a higher quality of working relationship with partners who were described as being high in socially prescribed perfectionism than with partners who were described as being high in either self-oriented perfectionism or other-oriented perfectionism.

Table 1

Differences Between Conditions in Liking and Working Relationship

	Liking			Working relationship		
Condition	*M*	*SD*	t_{ab}	*M*	*SD*	t_{ab}
Partner high SPP	4.35_a	1.30	—	4.65_b	0.73	4.32***
Partner high OOP	3.13_b	1.22	4.96***	3.89_a	0.75	—
Partner high SOP	4.10_a	1.30	—	4.18_a	1.04	—

Note. $N = 147$, with $n = 49$ students in the partner high socially prescribed perfectionism condition, $n = 51$ in the partner high self-oriented perfectionism condition, and $n = 47$ in the partner high other-oriented perfectionism condition. SPP = socially prescribed perfectionism, OOP = other-oriented perfectionism, SOP = self-oriented perfectionism. Means with different subscripts differ at the $p < .05$ with the Tukey Honestly Significant Difference comparison. *** $p < .001$.

10.3.2. Correlations. The majority of the significant correlations were in the expected directions (see Table 2). Regarding condition, partner high socially prescribed perfectionism showed positive correlations with liking and working relationship, suggesting that students predicted a higher level of relationship quality with partners who were described as being high in socially prescribed perfectionism than with partners who were described as being high in the other two forms of perfectionism (for details, see 10.3.1. Differences between conditions). In contrast, partner high other-oriented perfectionism showed negative correlations with liking and working relationship, suggesting that students predicted a lower level of relationship quality with partners who were described as being high in other-oriented perfectionism than with partners who were described as being high in the other two forms of perfectionism (again, see 10.3.1. Differences between conditions). Against expectations, partner high other-oriented perfectionism also showed a positive correlation with students' other-oriented perfectionism, suggesting that students in the partner high other-oriented perfectionism condition had higher levels of other-oriented perfectionism than students in the other two conditions. Partner high self-oriented perfectionism did not show any significant correlations with either students' perfectionism or the dependent variables.

Regarding students' perfectionism, student self-oriented perfectionism showed positive correlations with student socially prescribed perfectionism, student other-oriented perfectionism, liking, and working relationship. Students with higher levels of self-oriented perfectionism had higher levels of socially prescribed perfectionism and other-oriented perfectionism, and they also predicted a higher quality of relationship with partners, compared to students with lower levels of self-oriented perfectionism. In comparison, student socially prescribed perfectionism showed positive correlations with student other-oriented perfectionism and liking. Students with higher levels of socially prescribed perfectionism had higher levels of other-oriented perfectionism and they also predicted that they would like partners more than students with lower levels of socially prescribed perfectionism. Student other-oriented perfectionism showed positive correlations with liking and working relationship. Students with higher levels of other-oriented perfectionism predicted a higher quality of relationship with partners than students with lower levels of other-oriented perfectionism. Finally, liking showed a positive correlation with working relationship: Students who predicted that they would like partners more also predicted a higher quality of working relationship with partners.

Table 2

Correlations and Descriptive Statistics

	1	2	3	4	5	6	7	8
Condition								
1. Partner high SPP								
2. Partner high OOP								
2. Partner high SOP								
Students' perfectionism								
4. Student SOP	.10	–.04	–.06					
5. Student SPP	.10	–.09	.05	.40***				
6. Student OOP	.04	–.18*	.14	.39***	.34***			
Relationship quality								
7. Liking	.25**	–.37***	.12	.40***	.43***	.36***		
8. Working relationship	.32***	–.27***	–.05	.31***	.16	.20***	.60***	
M	—	—	—	4.60	3.70	3.86	3.84	4.36
SD	—	—	—	1.02	0.76	0.65	1.18	0.91
α	—	—	—	.91	.83	.72	.83	.85

Note. $N = 147$, with $n = 51$ students in the partner high self-oriented perfectionism condition, $n = 49$ in the partner high socially prescribed perfectionism condition, and $n = 47$ in the partner high other-oriented perfectionism condition. All scores are mean scores and students responded to all items on a 7-point scale (see 10.2. Method). SOP = self-oriented perfectionism, SPP = socially prescribed perfectionism, OOP = other-oriented perfectionism. * $p < .05$. ** $p < .01$. *** $p < .001$.

10.3.3. Regressions. Partners' perfectionism explained between 12-15% of the variance in liking and working relationship (see Table 3, Step 1 for details; also see 10.3.1. Differences between conditions). Students' perfectionism explained between 11-23% of the variance in liking and working relationship, after controlling for condition (see Table 3, Step 2 for details). Student self-oriented perfectionism uniquely predicted both dependent variables with positive coefficients: Students with higher levels of self-oriented perfectionism predicted a higher level of relationship quality with partners than students with lower levels of self-oriented perfectionism. In comparison, student socially prescribed perfectionism uniquely predicted liking with a positive coefficient: Students with higher levels of socially prescribed perfectionism predicted that they would like partners more than students with lower levels of socially prescribed perfectionism. Furthermore, student other-oriented perfectionism predicted working relationship with a positive coefficient: Students with higher levels of other-oriented perfectionism predicted a higher quality of working relationship with partners than students with lower levels of other-oriented perfectionism.

Table 3

Regressions: Condition and Students' Perfectionism Predicting Liking and Working Relationship

	Liking		Working relationship	
Steps and variables	ΔR^2	β	ΔR^2	B
Step 1: Condition	.145***		.117***	
Partner High SPP		.09		.24**
Partner High OOP		–.33***		–.15
Step 2: Students' perfectionism	.230***		.111***	
Student self-oriented perfectionism		.22**		.22**
Student socially prescribed perfectionism		.28***		–.01
Student other-oriented perfectionism		.12		.19*
Step 3: Interaction terms	.060*		.067*	
Student self-oriented × partner high SPP		–.06		.02
Student socially presc. × partner high SPP		.00		–.15
Student other-oriented × partner high SPP		–.09		–.04
Student self-oriented × partner high OOP		–.34***		–.24*
Student socially presc. × partner high OOP		.09		–.06
Student other-oriented × partner high OOP		.08		–.09

Note. $N = 147$, with $n = 51$ students in the partner high self-oriented perfectionism condition, $n = 49$ in the partner high socially prescribed perfectionism condition, and $n = 47$ in the partner high other-oriented perfectionism condition. Partner high socially prescribed perfectionism and partner high other-oriented perfectionism are dummy coded variables with partner high self-oriented perfectionism being the reference group. SPP = socially prescribed perfectionism, OOP = other-oriented perfectionism.

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

10.3.4. Interaction effects. The interaction terms explained between 6-7% of the variance in liking and working relationship (see Table 3, Step 3 for details). Student self-oriented perfectionism × partner high other-oriented perfectionism was the only interaction interaction term to uniquely predict the dependent variables. In order to interpret these interactions, regression graphs for values of student self-oriented perfectionism one standard deviation above and below the mean, in the partner high other-oriented perfectionism condition and in the other two conditions, were plotted and the slopes tested for significance (see Aiken & West, 1991). Student self-oriented perfectionism was only associated with higher levels of liking in the partner high self-oriented perfectionism and partner high socially prescribed perfectionism conditions ($\beta = 0.54$, $SE = 0.09$, $p < .001$) but not in the partner high other-oriented perfectionism condition ($\beta = 0.11$, $SE = 0.15$, *ns*; see Figure 1). Students with higher levels of self-oriented perfectionism only predicted that they would like partners more when partners were described as being high in self-oriented perfectionism or socially prescribed perfectionism, but there was not a significant difference in predictions of liking between students with higher or lower levels of self-oriented perfectionism when partners were described as being high in other-oriented perfectionism.

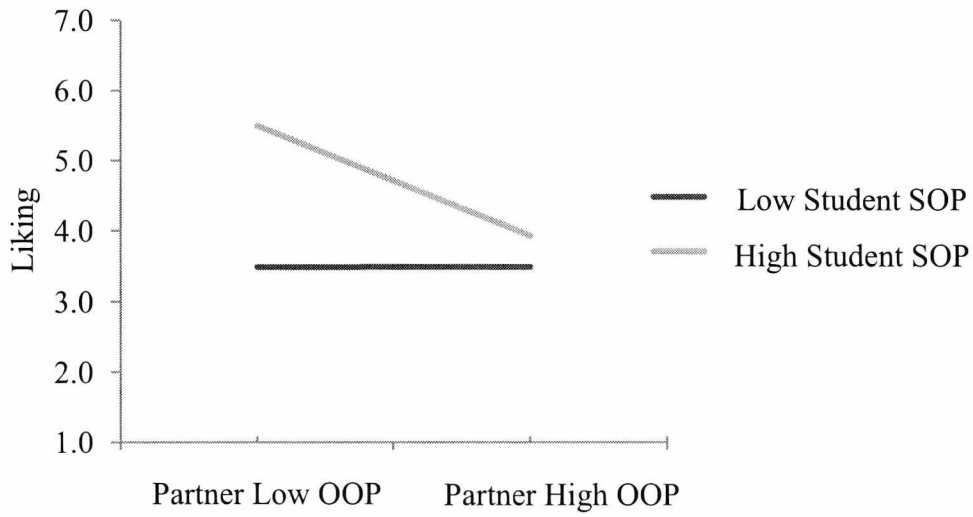

Figure 1. Student self-oriented perfectionism × partner high other-oriented perfectionism interaction predicting liking. SOP = self-oriented perfectionism, OOP = other-oriented perfectionism.

Like the interaction predicting liking, student self-oriented perfectionism was only associated with higher levels of working relationship in the partner high self-oriented perfectionism and partner high socially prescribed perfectionism conditions ($\beta = 0.46$, $SE = 0.09$, $p < .001$) but not in the partner high other-oriented perfectionism condition ($\beta = -0.07$, $SE = 0.15$, *ns*; see Figure 2). Students with higher levels of self-oriented perfectionism only predicted higher levels of working relationship when partners were described as being high in self-oriented perfectionism or socially prescribed perfectionism, but there was not a significant difference in predictions of working relationship between students with higher or lower levels of self-oriented perfectionism when partners were described as being high in other-oriented perfectionism.

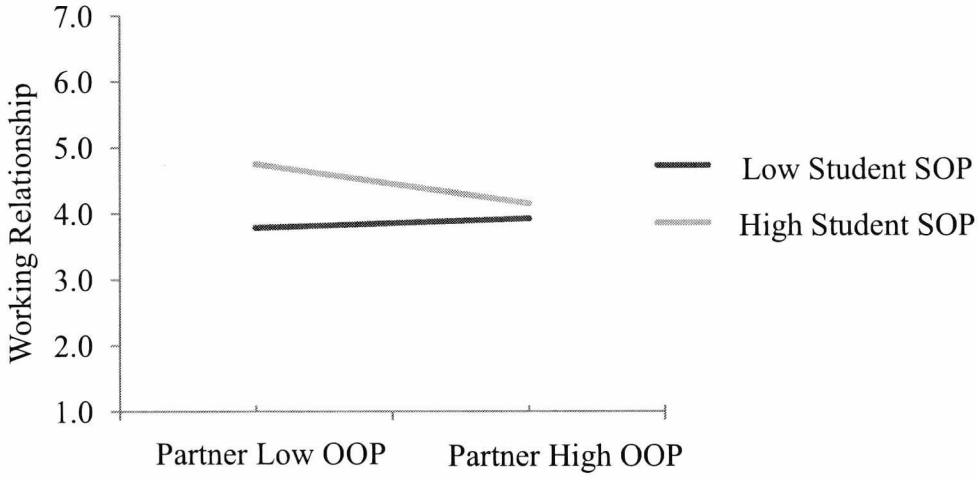

Figure 2. Student self-oriented perfectionism × partner high other-oriented perfectionism interaction predicting working relationship. SOP = self-oriented perfectionism, OOP = other-oriented perfectionism.

10.4. Brief Discussion

The aim of the present study was to investigate whether perfectionism is associated with dyadic relationships. In particular, I had three aims: first, to examine whether students' perfectionism is associated with the relationship quality with an interaction partner; second, to examine whether the interaction partner's perfectionism is associated with the relationship quality; and third, to examine the interaction effects of students' and partners' perfectionism on the relationship quality.

Hypothesis 1, students' self-oriented perfectionism is associated with higher levels of relationship quality, was supported. Students with higher levels of self-oriented perfectionism predicted that they would like partners more, and also predicted a higher quality of working relationship with partners, than students with lower levels of self-oriented perfectionism. However, the interaction effects revealed that students with higher levels of self-oriented perfectionism only predicted that they would like partners more, and only predicted a higher quality of working relationship with partners, when their partner had low levels of other-oriented perfectionism. When partners were described as being high in other-oriented perfectionism, in contrast, there was not a significant difference in predictions of liking and quality of working relationship between students with higher or lower levels of self-oriented perfectionism.

Hypothesis 2, students' socially prescribed perfectionism is associated with lower levels of relationship quality, was not supported. Students with higher levels of socially prescribed perfectionism predicted that they would like partners more (not less) than students with lower levels of socially prescribed perfectionism.

Similarly, Hypothesis 3, students' other-oriented perfectionism is associated with lower levels of relationship quality, was not support. Students with higher levels of other-oriented perfectionism predicted a higher (not lower) quality of working relationship with partners than students with lower levels of other-oriented perfectionism.

In terms of the hypothetical interaction partners' perfectionism, the hypotheses were mostly not supported. Hypothesis 5, partners' socially prescribed perfectionism is associated with lower levels of relationship quality, was not supported. Students predicted a higher (not lower) quality of working relationship with partners who were described as being high in socially prescribed perfectionism than with partners who were described as being high in either self-oriented or other-oriented perfectionism.

In comparison, Hypothesis 6, partners' other-oriented perfectionism is associated with lower levels of relationship quality, was partially supported. Students predicted that they would like partners who were described as being high in other-oriented perfectionism less than partners who were described as being high in either self-oriented or socially prescribed perfectionism.

Finally, Hypothesis 4, partners' self-oriented perfectionism is associated with higher levels of relationship quality, was not supported. There was not a significant difference in students' predictions of liking of partners who were described as being high in self-oriented perfectionism or socially prescribed perfectionism, and there were not a significant difference in students' predictions of working relationship with partners who were described as being high in self-oriented perfectionism or other-oriented perfectionism.

The findings from Study 4 make a significant contribution to the research literature on perfectionism and dyadic relationships. To the best of my knowledge, the present study is the first to use vignettes to examine how students' and interaction partners' perfectionism are associated with relationship quality. In line with previous studies which have shown self-oriented perfectionism to have a positive impact on interpersonal characteristics and outcomes, students' self-oriented perfectionism was associated with a higher quality of relationship, but only with partners who were not described as being high in other-oriented perfectionism (e.g., Flett, Hewitt, & De Rosa, 1996; Hewitt, Flett, & Mikail, 1995).

Differently to previous studies which have shown socially prescribed perfectionism to have a negative impact on interpersonal characteristics, processes, and outcomes, socially prescribed perfectionism did not have a negative impact on relationship quality in the present study (e.g., Hewitt, Flett, & Mikail, 1995; R. W. Hill, Zrull, & Turlington, 1997; Sherry et al., 2008). Students with higher levels of socially prescribed perfectionism predicted that they would like partners more than students with lower levels of socially prescribed perfectionism, and students with partners who were described as being high in socially prescribed perfectionism predicted higher levels of working relationship quality than students with partners who were described as being high in the other two forms of perfectionism.

In line with previous studies which have shown other-oriented prescribed perfectionism to have a negative impact on interpersonal characteristics and outcomes (e.g., Hewitt, Flett, & Mikail, 1995; R. W. Hill, Zrull, & Turlington, 1997), students predicted that they would like partners who were described as being high in other-oriented perfectionism less than partners who were described as being high in the other two forms of perfectionism. However, students

with higher levels of other-oriented perfectionism predicted a higher quality of working relationship with partners than students with lower levels of other-oriented perfectionism, against expectations.

Study 4 has a significant limitation, however. Although vignettes are widely used to elicit participants' reactions to a specific event, situation, or person, as it makes participants' cognitive reactions more accessible, vignettes still only elicit participants' predictions of how they might respond in that scenario (e.g., Alexander & Becker, 1978; Grønhøj & Bech-Larsen, 2010). Hence, the present findings are restricted to how perfectionism is related to predictions of hypothetical intragroup relationships, opposed to how perfectionism is related to intragroup relationships in the real-world. To address this limitation, I conducted Study 5 with a sample of students working on team projects to examine whether the findings of perfectionism and dyadic relationships could be replicated and extended to real-world teams. I also included a measure of engagement to examine whether intragroup relationships moderate the effect of perfectionism on students' level of engagement in their studies.

Chapter 11

Study 5: Perfectionism in Students: Relationships with Cohesion and Engagement

11.1. Aims and Hypotheses

The aim of the present study was to investigate perfectionism, cohesion, and engagement and, in doing so, to expand on Study 4 by investigating whether perfectionism is associated with real-world, opposed to hypothetical, intragroup relationships. In particular, I had two aims: first, to examine whether perfectionism is associated with cohesion; and second, to examine whether perfectionism and cohesion are associated with engagement. To this end, a sample of undergraduate students, working on team projects, completed a questionnaire on perfectionism, cohesion, and engagement. I tested four hypotheses:

(H1) Self-oriented perfectionism is associated with higher levels of cohesion and engagement.

(H2) Socially prescribed perfectionism is associated with lower levels of cohesion and engagement.

(H3) Other-oriented perfectionism is associated with lower levels of cohesion and engagement.

(H4) Cohesion is associated with higher levels of engagement.

11.2. Method

11.2.1. Participants and procedure. A sample of $N = 110$ (11 male, 99 female) second-year undergraduate psychology students was recruited from the University of Kent. After excluding one outlier (see 11.2.3. Preliminary analyses), the final sample was $N = 109$ (11 male, 98 female). Mean age of students was 19.7 years ($SD = .88$; range = 19-24 years). Students were recruited from a second-year statistics lecture. In this year-long statistics course, students worked on a number of team projects in the same teams, meaning that students' intragroup relationships were salient. Students were asked to respond to the questionnaire items in reference to their project team. For participating, students received either course credits or a raffle ticket and, at the end of the study, one randomly selected student was awarded a voucher worth £50 (approximately US$75). The study was approved by the relevant ethics committee and followed the British Psychological Society's code of conduct and ethical guidelines (British Psychological Society, 2005).

11.2.2. Measures.

11.2.2.1. Perfectionism. To measure perfectionism, I used the 45-item HMPS (Hewitt & Flett, 1991; see Chapter 2; also see Appendix A for the questionnaire items for Study 5) that captures self-oriented perfectionism, socially prescribed perfectionism, and other-oriented perfectionism. Students were asked to respond to the items in regards to their statistics course studies order to capture how perfectionistic students were about their studies. Students responded to the items on a 7-point scale from 1 (*strongly disagree*) to 7 (*strongly agree*).

11.2.2.2. Cohesion. To measure students' perceived cohesion of their project teams, I used the 9 items of the Group Environment Questionnaire (GEQ; Carron et al., 2002) that capture task cohesion, and I collapsed across the subscales group integration-task (5 items; "Our team is united in trying to reach our goals for performance") and individual attractions to the group-task (4 items; e.g., "This team does not give me enough opportunities to improve my personal performance" reverse coded). Students responded to the items on a 7-point scale from 1 (*strongly disagree*) to 7 (*strongly agree*). The GEQ is a widely used measure of cohesion which has demonstrated reliability and validity in numerous studies and, in particular, although it was originally used with samples of sports teams, the GEQ has demonstrated reliability and validity with samples of student- and employee-teams (Ahronson & Cameron, 2007; Carron et al., 2002; A. Chang, Duck, & Bordia, 2006; Cumming, 2010).

11.2.2.3. Engagement. To measure engagement, I used the 17-item Utrecht Work Engagement Scale-Student (UWES-S; Schaufeli, Salanova, et al., 2002) that captures vigor (6 items; e.g., "I feel strong and vigorous when I'm studying or going to class."), dedication (5 items; e.g., "To me, my studies are challenging"), and absorption (6 items; e.g., "When I am studying, I forget everything else around me"). Students responded to the items on a 7-point scale from 1 (*strongly disagree*) to 7 (*strongly agree*). The UWES-S is a widely used measure of student engagement and has demonstrated reliability and validity in numerous studies (see Schaufeli, Salanova, et al., 2002).

11.2.3. Preliminary analyses.

11.2.3.1. Descriptive statistics. For all scales, mean scores were computed by averaging responses across items. Table 1 shows the descriptive statistics and Cronbach's alphas. All alphas were above the .70 recommended for widely used scales (Nunnally, 1967), except that for other-oriented perfectionism which was marginally acceptable (.65). Still, as other-oriented perfectionism was a central variable, it was retained in the analyses.

11.2.3.2. Multivariate outliers. Following recommendations by Tabachnick and Fidell (2007), the 7 variables (self-oriented perfectionism, socially prescribed perfectionism, other-oriented perfectionism, cohesion, vigor, dedication, absorption) were screened for multivariate outliers. One student showed a Mahalanobis distance larger than the critical value of $\chi^2(7) = 24.32$, $p < .001$, and was excluded from the analyses.

11.2.3.3. Gender. To examine possible gender differences in the data, I computed a Box's *M* test (see Tabachnick & Fidell, 2007). The effect of gender was nonsignificant, Box's $M = 42.10$, $F(28,1050) = 1.11$, *ns*. Therefore, data were collapsed across gender.

11.2.4. Analytic strategy. To investigate the relationships between perfectionism, cohesion, and engagement, I computed two sets of analyses. First, I computed bivariate correlations between the variables. Second, I computed hierarchical multiple regressions predicting cohesion and the three facets of engagement (vigor, dedication, absorption).[10] One model was tested predicting cohesion and it was comprised of two steps: centered perfectionism (self-oriented perfectionism, socially prescribed perfectionism, other-oriented perfectionism) was entered in Step 1, and the perfectionism interaction terms (self-oriented perfectionism × socially prescribed perfectionism, self-oriented perfectionism × other-oriented perfectionism, socially prescribed perfectionism × other-oriented perfectionism) were entered in Step 2. Two models were tested predicting the facets of engagement. Model 1 was comprised of two steps: centered perfectionism (self-oriented perfectionism, socially prescribed perfectionism, other-oriented perfectionism) was entered in Step 1, and the perfectionism interaction terms (self-oriented perfectionism × socially prescribed perfectionism, self-oriented perfectionism × other-oriented perfectionism, socially prescribed perfectionism × other-oriented perfectionism) were entered in Step 2. Model 2 was comprised of three steps: centered perfectionism (self-oriented perfectionism, socially prescribed perfectionism, other-oriented perfectionism) was entered in Step 1, centered cohesion was entered in Step 2, and the perfectionism × cohesion interaction terms (self-oriented perfectionism × cohesion, socially prescribed prescribed × cohesion, other-oriented perfectionism × cohesion) were entered in Step 3.

[10] Although the data were nested (students within teams) there were too many teams comprised of only one member to conduct multilevel linear modelling.

11.3. Results

11.3.1. Correlations. All of the significant correlations were in the expected directions (see Table 1). Self-oriented perfectionism showed a positive correlation with socially prescribed perfectionism, other-oriented perfectionism, and dedication. Students with higher levels of self-oriented perfectionism also had higher levels of socially prescribed perfectionism, other-oriented perfectionism, and dedication than students with lower levels of self-oriented perfectionism. In comparison, socially prescribed perfectionism showed a negative correlation with cohesion: Students with higher levels of socially prescribed perfectionism had lower levels of cohesion than students with lower levels of socially prescribed perfectionism. In contrast, other-oriented perfectionism did not show any significant correlations with the dependent variables, and cohesion did not show any significant correlations with the facets of engagement. However, vigor showed positive correlations with dedication and absorption, and dedication showed a positive correlation with absorption. Students with higher levels of vigor also had higher levels of dedication and absorption than students with lower levels of vigor, and students with higher levels of dedication also had higher levels of absorption than students with lower levels of dedication.

Table 1

Correlations and Descriptive Statistics

	1	2	3	4	5	6	7
Perfectionism							
1. SOP							
2. SPP	.23*						
3. OOP	.55***	.14					
Intragroup relationship							
4. Cohesion	.11	−.20*	−.12				
Engagement							
5. Vigor	.12	−.08	−.05	.10			
6. Dedication	.26**	−.06	.12	.19	.61***		
7. Absorption	.10	−.02	−.04	.07	.65***	.52***	
M	4.64	3.79	3.97	5.04	3.41	4.48	3.82
SD	0.93	0.66	0.54	0.99	1.01	1.17	1.21
α	.91	.79	.65	.84	.78	.89	.77

Note. $N = 109$. All scores are mean scores and students responded to all items on a 7-point scale (see 11.2. Method). SOP = self-oriented perfectionism, SPP = socially prescribed perfectionism, OOP = other-oriented perfectionism.

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

11.3.2. Regressions. Perfectionism explained 11% of the variance in cohesion and 8% of the variance in one facet of engagement: dedication. However, perfectionism did not explain any of the variance in vigor or absorption (see Table 2, Step 1 for details). Regarding the individual predictor variables, all of the three forms of perfectionism uniquely predicted cohesion: self-oriented perfectionism with a positive coefficient, and socially prescribed perfectionism and other-oriented perfectionism with negative coefficients. As expected, students with higher levels of self-oriented perfectionism had higher levels of perceived cohesion than students with lower levels of self-oriented perfectionism, and students with higher levels of socially prescribed perfectionism or other-oriented perfectionism had lower

levels of perceived cohesion than students with lower levels of socially prescribed perfectionism or other-oriented perfectionism. Only one form of perfectionism uniquely predicted dedication: self-oriented perfectionism, with a positive coefficient. Also as expected, students with higher levels of self-oriented perfectionism had higher levels of dedication than students with lower levels of self-oriented perfectionism. Unlike perfectionism, cohesion did not significantly explain any of the variance in the facets of engagement, however (see Table 2, Model 2, Step 2 for details).

Table 2
Regressions: Perfectionism Predicting Cohesion, and Perfectionism and Cohesion Predicting Engagement

	Intragroup relationship		Engagement					
	Cohesion		Vigor		Dedication		Absorption	
Models, steps, and variables	ΔR^2	β	ΔR^2	β	ΔR^2	β	ΔR^2	β
Step 1: Perfectionism	.109**		.043		.079*		.025	
SOP		.30**		.23		.29*		.17
OOP		–.24*		–.11		–.12		–.05
SPP		–.25*		–.16		–.02		–.13
Model 1								
Step 2: Interaction terms	.006		.103**		.069*		.008	
SOP × SPP		–.08		–.17		–.02		–.05
SOP × OOP		–.05		–.31***		–.27**		–.06
SPP × OOP		.03		.21		.12		.10
Model 2								
Step 2: Intragroup relationship	—		.001		.018		.000	
Cohesion		—		.04		.14		.02
Step 3: Interaction terms	—							
SOP × cohesion		—		.19		.04		.15
SPP × cohesion		—		–.05		–.10		.04
OOP × cohesion		—		–.24		–.12		–.25

Note. $N = 109$. SOP = self-oriented perfectionism, SPP = socially prescribed perfectionism, OOP = other-oriented perfectionism.
* $p < .05$. ** $p < .01$. *** $p < .001$.

11.3.3. Interaction effects. The perfectionism × cohesion interaction terms did not explain any of the variance in any of the facets of engagement (see Table 2, Model 2, Step 3 for details). In contrast, the perfectionism interaction terms explained between 7-10% of the variance in vigor and dedication, but the perfectionism interaction terms did not explain any of the variance in cohesion or dedication, however (see Table 2, Model 1, Step 2 for details). Self-oriented perfectionism × other-oriented perfectionism was the only interaction term to uniquely predict vigor and dedication. In order to interpret these interactions, regression graphs for values of self-oriented and other-oriented perfectionism one standard deviation above and below the mean were plotted and the slopes tested for significance (see Aiken & West, 1991). Self-oriented perfectionism was only associated with higher levels of vigor at lower levels of other-oriented perfectionism ($\beta = 0.24$, $SE = 0.10$, $p = .05$) but not at higher levels of other-oriented perfectionism ($\beta = -0.41$, $SE = 0.24$, *ns*; see Figure 1). Students with higher levels of self-oriented perfectionism only had higher levels of vigor when they also had lower levels of other-oriented perfectionism, but there was not a significant difference in vigor between students with higher or lower levels of self-oriented perfectionism when they also had higher levels of other-oriented perfectionism.

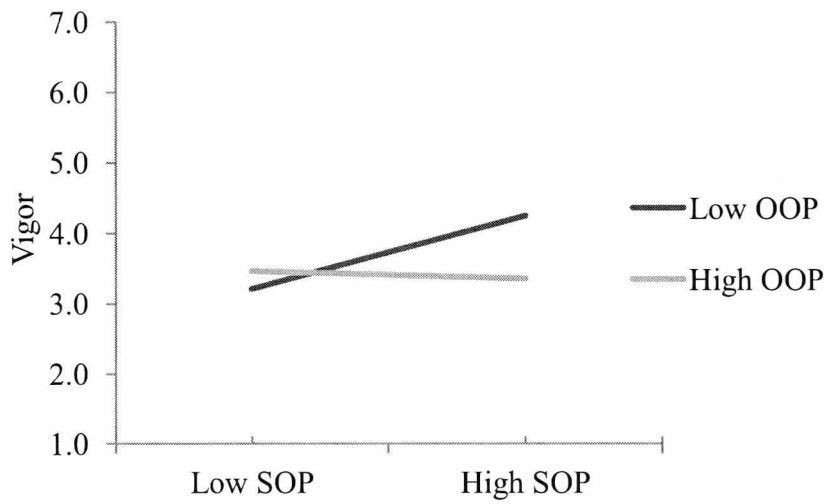

Figure 1. Self-oriented perfectionism × other-oriented perfectionism interaction predicting vigor. SOP = self-oriented perfectionism, OOP = other-oriented perfectionism.

Self-oriented perfectionism was only associated with higher levels of dedication at lower levels of other-oriented perfectionism ($\beta = 0.33$, $SE = 0.10$, $p < .001$); at higher levels of other-oriented perfectionism, in contrast, self-oriented perfectionism was associated with lower levels of dedication ($\beta = -0.55$, $SE = 0.22$, $p < .05$; see Figure 2). Students with higher levels of self-oriented perfectionism only had higher levels of dedication than students with lower levels of self-oriented perfectionism when they also had lower levels of other-oriented perfectionism. Conversely, students with higher levels of self-oriented perfectionism had lower levels of dedication than students with lower levels of self-oriented perfectionism when they also had higher levels of other-oriented perfectionism.

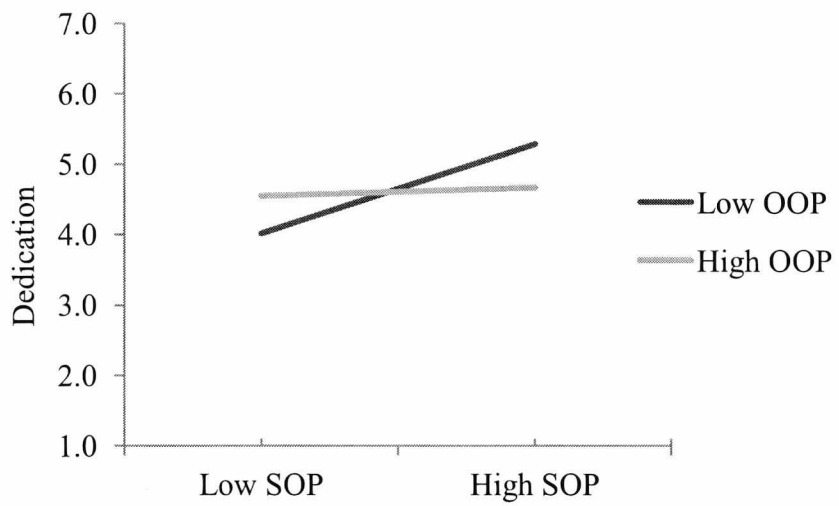

Figure 2. Self-oriented perfectionism × other-oriented perfectionism interaction predicting dedication. SOP = self-oriented perfectionism, OOP = other-oriented perfectionism.

11.4. Brief Discussion

The aim of the present study was to investigate perfectionism, cohesion, and engagement and, in doing so, to expand on Study 4 by investigating whether perfectionism is associated with real-world, opposed to hypothetical, intragroup relationships. In particular, I had two aims: first, to examine whether perfectionism is associated with cohesion; and second, to examine whether perfectionism and cohesion are associated with engagement.

Hypothesis 1, self-oriented perfectionism is associated with higher levels of cohesion and engagement, was partially supported. Students with higher levels of self-oriented perfectionism had higher levels of perceived cohesion than students with lower levels of self-oriented perfectionism. Similarly, students with higher levels of self-oriented perfectionism had higher levels of dedication than students with lower levels of self-oriented perfectionism. However, the interaction effects revealed that students with higher levels of self-oriented perfectionism only had higher levels of dedication when they also had lower levels of other-oriented perfectionism. When students had higher levels of other-oriented perfectionism, students with higher levels of self-oriented perfectionism had lower levels of dedication than students with lower levels of self-oriented perfectionism. In addition, despite not showing a significant main effect with vigor, the interaction effects revealed that, like dedication, students with higher levels of self-oriented perfectionism had higher levels of vigor when they also had lower levels of other-oriented perfectionism. When students had higher levels of other-oriented perfectionism, unlike dedication, there was not a significant difference in vigor between students with higher or lower levels of self-oriented perfectionism.

Hypothesis 2, socially prescribed perfectionism is associated with lower levels of cohesion and engagement, was partially supported. Although socially prescribed perfectionism was associated with cohesion, and students with higher levels of socially prescribed perfectionism had lower levels of perceived cohesion than students with lower levels of socially prescribed perfectionism, socially prescribed perfectionism was not significantly associated with engagement.

Hypothesis 3, other-oriented perfectionism is associated with lower levels of cohesion and engagement, was partially supported. Like socially prescribed perfectionism, other-oriented perfectionism was associated with cohesion, and students with higher levels of other-oriented perfectionism had lower levels of perceived cohesion than students with lower levels of other-oriented perfectionism, but other-oriented perfectionism was not significantly associated with engagement.

Finally, Hypotheses 4, cohesion is associated with higher levels of engagement, was not supported, and students' perceived cohesion was not significantly associated with engagement.

The findings from Study 5 make a significant contribution to the research literature on perfectionism, cohesion, and engagement. The present findings are the first to show that perfectionism is associated with cohesion in students. Extending previous studies which have shown self-oriented perfectionism to be associated with positive interpersonal characteristics and outcomes (e.g., Flett, Hewitt, & De Rosa, 1996; Hewitt, Flett, & Mikail, 1995), the present study showed that self-oriented perfectionism was associated with higher levels of perceived cohesion in students. Similarly, self-oriented perfectionism was also associated with higher levels of vigor and dedication, but only when students also had lower levels of other-oriented perfectionism. When students had higher levels of other-oriented perfectionism, there was not a significant difference in vigor between students with higher or lower levels of self-oriented perfectionism. In contrast, when students had higher levels of other-oriented perfectionism and higher levels of self-oriented perfectionism, students had significantly lower levels of dedication.

Expanding on previous studies which have shown socially prescribed and other-oriented perfectionism to have a negative impact on interpersonal characteristics, processes, and outcomes, the present findings are the first to show that socially prescribed and other-oriented perfectionism are associated with lower levels of cohesion in students (e.g., Hewitt, Flett, & Mikail, 1995; R. W. Hill, Zrull, & Turlington, 1997; Sherry et al., 2008).

Study 5 has some limitations, however. First, although the data were nested (students within teams), I analyzed the data with ordinary least squares regression opposed to multilevel linear modeling. However, this may lead to biased parameter estimates because independence is violated as there is likely to be more variation in data collected from students from different teams than from students within the same team (Heck et al., 2011; Hox, 2010). Second, the sample comprised only undergraduate students. Therefore, it is unclear if the findings are specific to perfectionism in academia or if they generalize to other areas of life, such as perfectionism at work.

To address these limitations, I conducted Study 6 with a sample of teams of employees to examine whether the findings of perfectionism and intragroup relationships in students could be replicated and extended to another life domain in which perfectionism is prevalent (e.g., Slaney & Ashby, 1996; Stoeber & Stoeber, 2009). In addition, I analyzed the data using multilevel linear model in order to simultaneously investigate the effects of group-level and individual-level predictors as both between-group and within-group variation can be

examined, while accounting for the non-independence of observations (Heck et al., 2011; Hox, 2010).

Chapter 12

Study 6: Perfectionism in Employee Teams: Relationships with Cohesion and Stress

12.1. Aims and Hypotheses

The aim of the present study was to investigate perfectionism, cohesion, and stress and, in doing so, to expand on Study 5 by investigating multilevel effects in employee teams. In particular, I had two aims: first, to investigate whether perfectionism is associated with cohesion; and second, to investigate whether perfectionism and cohesion are associated with stress. To this end, a sample of teams of employees completed a questionnaire on perfectionism, cohesion, and stress. I tested four hypotheses:

(H1) Socially prescribed perfectionism is associated with lower levels of cohesion and higher levels of stress.

(H2) Self-oriented perfectionism is associated with higher levels of cohesion and lower levels of stress.

(H3) Other-oriented perfectionism is associated with lower levels of cohesion and higher levels of stress.

(H4) Cohesion is associated with higher levels of stress.

12.2. Method

12.2.1. Participants. A sample of $N = 150$ clinical employees was recruited from the local NHS Trust (Eastern and Coastal Kent Community Services). After excluding one outlier (see 12.2.4. Preliminary analyses), the final sample was $N = 149$ employees (13 male, 134 female). Mean age of employees was 42.7 years ($SD = 10.4$; range = 22-64 years). Mean time employees had worked in full-time employment was 23.2 years ($SD = 10.9$; range = 0.5-55 years) and mean time employees had been in their current job was 7.1 years ($SD = 7.76$; range = 0.8-34 years). Employees' job types were nurse (24%), team leader (16%), health visitor (14%), physiotherapist (13%), speech and language therapist (10%), cardiac rehabilitation worker (7%), health care assistant (4%), dietitian (4%), counselor (2%), consultant physician (2%), and 4% were unspecified. There were 13 teams, comprised of 20 employees, 16 employees, 15 employees (3 teams), 12 employees, 10 employees, 9 employees, 8 employees, 7 employees, 6 employees (2 teams), and 5 employees (2 teams).

12.2.2. Procedure. Managers from Eastern and Coastal Kent Community Services were informed about the study via email and, if a manager wanted their team to take part, were asked to contact the researcher. Next, the manager distributed an advertisement to the team, briefing them about the study. Then, the researcher attended a team meeting and team members, who wanted to take part, were recruited into the study and completed the informed consent form and questionnaire. The study was approved by the relevant ethics committees and followed the British Psychological Society's code of conduct and ethical guidelines (British Psychological Society, 2005).

12.2.3. Measures.

12.2.3.1. Perfectionism and stress. To measure perfectionism, I used the 45-item HMPS (Hewitt & Flett, 1991; see Chapter 2 for details; also see Appendix A for the questionnaire items for Study 6) that captures self-oriented perfectionism, socially prescribed perfectionism, and other-oriented perfectionism. Employees were asked to respond to the perfectionism items in regards to working in order to capture how perfectionistic employees were about their work. To measure stress, I used the 14-item Role Stress Scale (RSS; Rizzo et al., 1970; see Chapter 7 for details). Employees responded to the perfectionism and stress items on a 7-point scale from 1 (*strongly disagree*) to 7 (*strongly agree*).

12.2.3.2. Cohesion. To measure cohesion, I used the 9 items of the Group Environment Questionnaire (GEQ; Carron et al., 2002) that capture task cohesion, and the 4 items of the Team-Member Exchange (TMX; Seers, 1989) that capture cohesiveness, in order to provide a comprehensive assessment of team cohesion. I measured total cohesion and collapsed across the three subscales: group integration-task (5 items; "Our team is united in trying to reach our goals for performance"), individual attractions to the group-task (4 items; e.g., "This team does not give me enough opportunities to improve my personal performance" reverse coded), and cohesiveness (4 items; e.g., "Team members generally trust each other"; TMX; Seers, 1989). The GEQ and TMX are widely used measures of cohesion and have demonstrated reliability and validity in numerous studies (see Ahronson & Cameron, 2007; Carron et al., 2002; A. Chang et al., 2006; Cumming, 2010, for reliability information on the GEQ; see Dierdorff et al., 2011; Kamdar & Van Dyne, 2007; Love & Forret, 2008; Seers et al., 1995; Tse et al., 2008, for reliability information on the TMX).

12.2.4. Preliminary analyses.

12.2.4.1. Descriptive statistics. For all scales, mean scores were computed by averaging responses across items. Table 1 shows the descriptive statistics and Cronbach's alphas. All alphas were above the .70 recommended for widely used scales (Nunnally, 1967).

12.2.4.2. Outliers. Following recommendations by Tabachnick and Fidell (2007), the 5 variables (self-oriented perfectionism, socially prescribed perfectionism, other-oriented perfectionism, cohesion, role stress) were screened for multivariate outliers. One employee showed a Mahalanobis distance larger than the critical value of $\chi^2(5) = 20.52, p < .001$ and was excluded from the analyses.

12.2.4.3. Gender. To examine possible gender differences in the data, I computed a Box's *M* test (see Tabachnick & Fidell, 2007). The effect of gender was nonsignificant, Box's $M = 18.67$, $F(15,1671) = 1.05$, *ns*. Therefore, data were collapsed across gender.

12.2.5. Analytic strategy. In order to investigate the relationships between perfectionism, cohesion, and stress, I conducted two sets of analyses. First, I computed bivariate correlations between all the variables. Second, I used multilevel linear modeling (MLM) to determine whether: (a) socially prescribed perfectionism, self-oriented perfectionism, or other-oriented perfectionism were associated with cohesion, and (b) socially prescribed perfectionism, self-oriented perfectionism, other-oriented perfectionism, or cohesion were associated with stress. Employees were nested within teams meaning that employees were the level-1 unit of analysis and teams were the level-2 unit of analysis (e.g., Hox, 2010).

In particular, socially prescribed perfectionism, self-oriented perfectionism, and other-oriented perfectionism were level-1, individual-level predictors meaning that employees' scores on these forms of perfectionism were entered as predictors. In contrast, team cohesion was a level-2, group-level predictor meaning that employees' cohesion scores were aggregated for each team and this aggregated team cohesion score was entered as a predictor. The level-1 predictor variables (i.e., socially prescribed perfectionism, self-oriented perfectionism, other-oriented perfectionism) were group mean centered. Employees' perfectionism scores were first aggregated for each team (i.e., team socially prescribed perfectionism, team self-oriented perfectionism, team other-oriented perfectionism). Next, employees' individual perfectionism scores were subtracted from the aggregated perfectionism score for their team (e.g., socially prescribed perfectionism – team socially prescribed perfectionism). I chose group mean

centering so that the level-1 intercepts could be interpreted as reflecting employees' perfectionism in relation to the mean level of perfectionism of their team (Heck et al., 2011; Peugh, 2010). Moreover, the pattern of significant effects in the level-1 models was the same whether group mean centering or grand mean centering was applied. The level-2 predictor variable (i.e., team cohesion) was computed by aggregating the cohesion for each team, and then centering the aggregated cohesion around the grand mean cohesion for all teams (Hox, 2010). With MLM it is possible to simultaneously investigate the effects of group-level and individual-level predictors as both between-group and within-group variation can be examined, while accounting for the non-independence of observations (Heck et al., 2011; Hox, 2010). The MLM analyses consisted of two steps.

First, I computed one variance components model for cohesion and one for stress to determine the proportion of variance in the data between teams compared to within teams and, hence, whether MLM was appropriate (Hox, 2010). From the variance components models, I calculated the intraclass correlation coefficients (ICC): the amount of variance in the dependent variables that occurs across teams opposed to across individual employees (Tabachnick & Fidell, 2007).

Second, I computed random intercept models[11] to explore whether the predictor variables were associated with the dependent variables after taking into account that the data were nested (Hox, 2010). Models were tested by entering predictors one at a time so that fit could be compared between models using the likelihood ratio test to compare deviance statistics (Hox, 2010). Hence, predictor variables were only retained if they significantly improved the fit of the model. When predicting cohesion, I tested three level-1 models: socially prescribed perfectionism was entered in Model 1, self-oriented perfectionism was added in Model 2, and other-oriented perfectionism was added in Model 3. When predicting stress, I again tested three level-1 models: socially prescribed perfectionism was entered in Model 1, self-oriented perfectionism was added in Model 2, and other-oriented perfectionism was added in Model 3. In addition, I also tested a level-2 model: team cohesion was added in Model 4.

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[11] I computed random intercept models in order to examine the fixed effects of the predictor variables because I did not expect the direction of relationships between the predictor variables and the dependent variables to vary (e.g., I expected socially prescribed perfectionism to only show a positive relationship with stress and not a negative relationship with stress). Moreover, for the significant random intercept models predicting cohesion and stress (see 12.3. Results), I also computed random slope models which showed that the random effects were not significant, suggesting that the direction of relationships between the predictor variables and the dependent variables did not vary (see Appendix B: Supplementary Analysis: Study 6).

12.3. Results

12.3.1. Correlations. All significant correlations were in the expected directions (see Table 1 for details). Self-oriented perfectionism showed positive correlations with socially prescribed perfectionism and other-oriented perfectionism. Employees with higher levels of self-oriented perfectionism also had higher levels of socially prescribed perfectionism and other-oriented perfectionism than employees with lower levels of self-oriented perfectionism. In comparison, socially prescribed perfectionism showed positive correlations with other-oriented perfectionism and stress, and a negative correlation with cohesion. Employees with higher levels of socially prescribed perfectionism had higher levels of other-oriented perfectionism and stress, and perceived their team to have a lower level of cohesion, than employees with lower levels of socially prescribed perfectionism. Like socially prescribed perfectionism, other-oriented perfectionism also showed a positive correlation with stress and a negative correlation with cohesion. Employees with higher levels of other-oriented perfectionism had higher levels of stress and perceived their team to have a lower level of cohesion than employees with lower levels of other-oriented perfectionism. Finally, cohesion showed a negative correlation with stress, and employees who perceived their team to have a higher level of cohesion had lower levels of stress than employees who perceived their team to have a lower level of cohesion.

Table 1

Correlations and Descriptive Statistics

	1	2	3	4	5
1. Self-oriented perfectionism					
2. Socially prescribed perfectionism	.47***				
3. Other-oriented perfectionism	.50***	.42***			
4. Cohesion	–.06	–.40***	–.24**		
5. Stress	–.02	.48***	.17*	–.46***	
M	4.72	3.66	4.02	5.53	3.36
SD	0.86	0.85	0.71	0.89	0.90
α	.85	.84	.77	.91	.84

Note. $N = 149$. All scores are mean scores and employees responded to all items on a 7-point scale (see 12.2. Method).
* $p < .05$. ** $p < .01$. *** $p < .001$.

12.3.2. Multilevel linear models. The variance components models for cohesion and stress indicated that there was a significant amount of variance across teams in both cohesion and stress (see Tables 2-3, variance components models, for details). In particular, the ICC was 0.33 for cohesion and 0.27 for stress, indicating that multilevel linear modeling was appropriate for the data (Hox, 2010).

Perfectionism was significantly associated with cohesion (see Table 2 for details). The likelihood ratio test, comparing Model 1 and the variance components model, was significant: $\chi^2(1) = 19.74, p < .001$ indicating that the model with socially prescribed perfectionism as a predictor fit the data significantly better than the model with no predictors. In particular, the variance in cohesion reduced by 16% when socially prescribed perfectionism was added to the model. As expected, socially prescribed perfectionism was associated with cohesion. Examining the estimates of fixed effects shows that employees with higher levels of socially prescribed perfectionism than the rest of their team perceived their team to have a lower level of cohesion (see Table 2, Model 1).

The likelihood ratio test, comparing Model 2 and Model 1, was nonsignificant: $\chi^2(1) = 4.41$, *ns* indicating that the model with self-oriented perfectionism and socially prescribed perfectionism as predictors did not fit the data significantly better than the model with socially prescribed perfectionism in isolation. Nevertheless, examining the estimates of fixed effects shows that the coefficient for self-oriented perfectionism was significant, despite the model not being a significant improvement, suggesting that there was a trend for employees with higher levels of self-oriented perfectionism than the rest of their team to perceive their team to have a lower level of cohesion (see Table 2, Model 2).

The likelihood ratio test, comparing Model 3 and Model 1, was nonsignificant: $\chi^2(1) = -1.84$, *ns* indicating that the model with other-oriented perfectionism and socially prescribed perfectionism as predictors did not fit the data significantly better than the model with socially prescribed perfectionism in isolation. Similarly, examining the estimates of fixed effects shows that the coefficient for other-oriented perfectionism was nonsignificant also (see Table 2, Model 3).

Table 2

Summary of Multilevel Models: Perfectionism Predicting Cohesion

Parameters	Variance Components Model	Model 1	Model 2	Model 3
Estimates of fixed effects				
Intercept	5.49 (.16)***	5.48 (.16)***	5.48 (.16)***	5.48 (.16)***
SPP		–0.37 (.07)***	–0.46 (.08)***	–0.34 (.08)***
SOP			0.21 (.08)**	
OOP				–0.10 (.09)
Estimates of covariance parameters				
Residual	0.58 (.07)***	0.49 (.06)***	0.47(.06)***	0.49 (.06)***
Intercept	0.29 (.15)*	0.30 (.15)*	0.31 (.15)*	0.30 (.15)*
Model summary				
Deviance statistic	366.83	347.09	342.68	348.93
Number of estimated parameters	3	4	5	5

Note. $N = 149$. Deviance statistic = –2 Log Likelihood. Parameter estimate standard estimates listed in parentheses. SPP = socially prescribed perfectionism, SOP = self-oriented perfectionism, OOP = other-oriented perfectionism.

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

Like cohesion, perfectionism was significantly associated with stress (see Table 3 for details). The likelihood ratio test, comparing Model 1 and the variance components model, was significant: $\chi^2(1) = 26.79, p < .001$ indicating that the model with socially prescribed perfectionism as a predictor fit the data significantly better than the model with no predictors. In particular, the variance in stress reduced by 18% when socially prescribed perfectionism was added to the model. As expected, socially prescribed perfectionism was associated with stress. Examining the estimates of fixed effects shows that employees with higher levels of socially prescribed perfectionism than the rest of their team had higher levels of stress (see Table 3, Model 1).

Unlike cohesion, the likelihood ratio test, comparing Model 2 and Model 1, was also significant: $\chi^2(1) = 19.59, p < .001$ indicating that the model with self-oriented perfectionism and socially prescribed perfectionism as predictors fit the data significantly better than the model with socially prescribed perfectionism in isolation. In particular, the variance in stress reduced by 16% when self-oriented perfectionism was added to the model. As expected, self-oriented perfectionism was associated with stress. Examining the estimates of fixed effects shows that employees with higher levels of self-oriented perfectionism than the rest of their team had lower levels of stress (see Table 3, Model 1).

The likelihood ratio test, comparing Model 3 and Model 2, was nonsignificant: $\chi^2(1) = -2.73$, *ns* indicating that the model with other-oriented perfectionism, self-oriented perfectionism, and socially prescribed perfectionism as predictors did not fit the data significantly better than the model with self-oriented perfectionism and socially prescribed perfectionism without other-oriented perfectionism. Similarly, examining the estimates of fixed effects shows that the coefficient for other-oriented perfectionism was nonsignificant also (see Table 3, Model 3).

The likelihood ratio test, comparing Model 4 and Model 2, was nonsignificant: $\chi^2(1) = -3.20$, *ns* indicating that the model with team cohesion, self-oriented perfectionism, and socially prescribed perfectionism as predictors did not fit the data significantly better than the model with self-oriented perfectionism and socially prescribed perfectionism without team cohesion. Nevertheless, examining the estimates of fixed effects shows that the coefficient for team cohesion was significant, despite the model not being a significant improvement, suggesting that there was a trend for employees in teams with higher levels of cohesion to have lower levels of stress (see Table 3, Model 2).

Table 3
Summary of Multilevel Models: Perfectionism and Team Cohesion Predicting Stress

Parameters	Variance Components	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6
Estimates of fixed effects							
Intercept	3.43 (.14)***	3.43 (.14)***	3.44 (.14)***	3.44 (.14)***	3.41 (.12)***	3.41 (.12)***	3.41 (.12)***
SPP		0.42 (.07)***	0.58 (.07)***	0.57 (.08)***	0.58 (.07)***	0.60 (.07)***	0.57 (.07)***
SOP			–0.36 (.07)***	–0.37 (.08)***	–0.36 (.07)***	–0.38 (.07)***	–0.37 (.07)***
OOP				0.04 (.09)			
L2-cohesion					–0.51 (.21)*	–0.51 (.21)*	–0.51 (.21)*
SPP × cohesion						–0.28 (.14)*	
SOP × cohesion							–0.22 (.11)
Estimates of covariance parameters							
Residual	0.60 (.07)***	0.49 (.06)***	0.41(.05)***	0.42 (.05)***	0.41 (.05)***	0.40 (.05)***	0.41 (.05)***
Intercept	0.22 (.11)*	0.23 (.11)*	0.24 (.11)*	0.24 (.11)*	0.16 (.08)	0.16 (.08)	0.16 (.08)
Model summary							
Dev. statistic	370.31	343.59	324.00	326.73	320.80	318.09	318.98
Number of estimated parameters	3	4	5	6	6	7	7

Note. $N = 149$. SPP = socially prescribed perfectionism, SOP = self-oriented perfectionism, OOP = other-oriented perfectionism. Deviance statistic = –2 Log Likelihood. Parameter estimate standard estimates listed in parentheses. Cohesion is a level-2, team level variable.
* $p < .05$. ** $p < .01$. *** $p < .001$.

Because Model 4 (with team cohesion, self-oriented perfectionism, and socially prescribed perfectionism) was not a significantly better fit of the data than Model 2 (with only self-oriented perfectionism and socially prescribed perfectionism), despite team cohesion showing a significant coefficient (see Table 3, Models 2 and 4), I tested two additional models in which the cross-level interactions between perfectionism (level-1) and team cohesion (level-2) were added. Hence, in Model 5, socially prescribed perfectionism, self-oriented perfectionism, team cohesion, and socially prescribed perfectionism × team cohesion were added; in Model 6, socially prescribed perfectionism, self-oriented perfectionism, team cohesion, and self-oriented perfectionism × team cohesion were added. The likelihood ratio test, comparing Model 5 and Model 2, was nonsignificant: $\chi^2(2) = 5.91$, *ns*, and the likelihood ratio test, comparing Model 6 and Model 2, was nonsignificant: $\chi^2(2) = 5.02$, *ns* indicating that the models with team cohesion, self-oriented perfectionism, socially prescribed perfectionism, and the cross-level interactions as predictors did not fit the data significantly better than the model with only self-oriented perfectionism and socially prescribed perfectionism. Nevertheless, examining the estimates of fixed effects shows that the coefficient for socially prescribed perfectionism × team cohesion was significant, despite the model not being a significant improvement, suggesting that there was a trend for team cohesion to moderate the impact of socially prescribed perfectionism on stress (see Table 2, Model 5).

12.4. Brief Discussion

The aim of the present study was to investigate perfectionism, cohesion, and stress and, in doing so, to expand on Study 5 by investigating multilevel effects in employee teams. In particular, I had two aims: first, to investigate whether perfectionism is associated with cohesion; and second, to investigate whether perfectionism and cohesion are associated with stress.

Hypothesis 1, socially prescribed perfectionism is associated with lower levels of cohesion and higher levels of stress, was supported. Employees with higher levels of socially prescribed perfectionism than the rest of their team perceived their team to have a lower level of cohesion and also had higher levels of stress.

Hypothesis 2, self-oriented perfectionism is associated with higher levels of cohesion and lower levels of stress, was partially supported. Self-oriented perfectionism was not significantly associated with cohesion in the multilevel analysis. However, employees with

higher levels of self-oriented perfectionism than the rest of their team had lower levels of stress.

Hypothesis 3, other-oriented perfectionism is associated with lower levels of cohesion and higher levels of stress, was partially supported. Although other-oriented perfectionism was associated with lower levels of cohesion and higher levels of stress in the bivariate correlations, other-oriented perfectionism was not significantly associated with either cohesion or stress after taking into account that the data were nested in the multilevel analyses.

Finally, Hypothesis 4, cohesion is associated with lower levels of stress, was partially supported. Although cohesion was associated with lower levels of stress in the bivariate correlations, the multilevel model with team (level-2) cohesion, socially prescribed perfectionism, and self-oriented perfectionism did not fit the data better than the model with only socially prescribed perfectionism and self-oriented perfectionism. However, team cohesion still showed a significant negative coefficient, suggesting that there was a trend for employees in teams with higher levels of cohesion to have lower levels of stress.

The findings of Study 6 make a significant contribution to the research literature on perfectionism, cohesion, and stress. The present findings are the first to show that perfectionism is associated with cohesion and stress in employee teams. Expanding on previous studies which have shown socially prescribed perfectionism to be associated with higher levels of stress and burnout (e.g., Appleton et al., 2009; Childs & Stoeber, 2010; Flett et al., 1995), the present findings are the first to show that socially prescribed perfectionism is associated with stress in employee teams. Employees with higher levels of socially prescribed perfectionism than the rest of their team had higher levels of stress. Expanding on previous studies which have shown socially prescribed to have a negative impact on interpersonal characteristics, processes, and outcomes, the present findings are the first to show that socially prescribed perfectionism is associated with cohesion in employee teams (e.g., Hewitt, Flett, & Mikail, 1995; R. W. Hill, Zrull, & Turlington, 1997; Sherry et al., 2008). Employees with higher levels of socially prescribed perfectionism than the rest of their team perceived their team to have a lower level of cohesion.

Expanding on previous studies which have shown self-oriented perfectionism to be associated with lower levels of burnout (e.g., Appleton et al., 2009; Childs & Stoeber, 2010), the present findings are the first to show that self-oriented perfectionism is associated with stress in employee teams. Employees with higher levels of self-oriented perfectionism than the

rest of their team had lower levels of stress. Self-oriented perfectionism was not associated with cohesion in employee teams in the present study, however.

Other-oriented perfectionism was not associated with cohesion or stress in employee teams, but it was associated with lower levels of cohesion and higher levels of stress in the bivariate correlations. Still, it is surprising that other-oriented perfectionism was not associated with lower levels of cohesion in employee teams, especially because previous studies have shown other-oriented perfectionism to have a negative impact on interpersonal characteristics and outcomes (e.g., Hewitt, Flett, & Mikail, 1995; R. W. Hill, Zrull, & Turlington, 1997).

Study 6 has some limitations, however. First, I did not assess when teams were formed or when employees joined teams, and the stage of a team's life cycle has been shown to be associated with team outcomes (Gersick, 1988). Future studies should examine whether the pattern of relationships between perfectionism and intragroup relationship varies across a team's life span. Second, there was a relatively large number of teams with a small number of employees per team which may have inflated the intraclass correlation coefficients, and future studies should replicate the present findings with fewer teams with a larger number of employees per team (Hox, 2010). Third, the findings with cohesion were restricted to task cohesion, and I chose to focus on task cohesion because it has been shown to be more consistently related to team outcomes than other forms of cohesion (A. Chang & Bordia, 2001; Mullen & Cooper, 1994; Zaccaro, 1991; Zaccaro & Lowe, 1988). Still, future studies should replicate the present findings with other forms of cohesion, such as interpersonal cohesion and group pride (Beal et al., 2003; Mullen & Cooper, 1994). Finally, the sample comprised only clinical employees. Therefore, it is unclear if the findings are specific to perfectionism in clinical employees or if they generalize to employees in other settings and to other life domains, such as academia.

Chapter 13: General Discussion

13.1. Overview

Over the past 20 years, Hewitt and Flett's (1991) tripartite model of perfectionism has been the focus of numerous research studies. The model differentiates intrapersonal and interpersonal forms of perfectionism, and the three forms of perfectionism have been shown to be associated with an array of negative, as well as some positive, characteristics, processes, and outcomes (see Enns & Cox, 2002; Stoeber & Otto for reviews). Academia and work are two life domains in which perfectionism is most prevalent (Slaney & Ashby, 1996; Stoeber & Stoeber, 2009). Similarly, stress, burnout, and engagement are central variables in students' and employees' psychological adjustment, and have been shown to impact students, employees, and organizations in numerous ways (see Cooper et al., 2001; Salanova et al., 2010; Schaufeli et al., 1996; Shirom, 2002, for reviews). Nevertheless, there is a lack of research with samples of students and employees on the longitudinal effects of perfectionism on stress, burnout, and engagement.

Furthermore, working with others should be important to perfectionists. A perfectionist's performance is interdependent with that of their team, and a positive relationship within the team is a means of not only achieving the team's goals thus bolstering one's own performance, but it is also a means of forging one's identity as a perfectionist (cf. Hogg, 1992; Mullen & Cooper, 1994; Tajfel & Turner, 1979, 1986; also see Chapter 4). Nevertheless, no study has examined the effects of the three forms of perfectionism on intragroup relationships in a team-work context in either students or employees.

The aim of the present research was therefore to investigate perfectionism in students and employees. In particular, I had two aims. The first aim was to examine whether perfectionism longitudinally predicts stress, burnout, and engagement, and I conducted three studies. In Study 1, a sample of undergraduate students completed measures of perfectionism, the Big Five, burnout, and engagement twice over four months. In Study 2, a sample of health service provision employees completed measures of perfectionism, stress, and burnout twice over six months. And in Study 3, a sample of teachers completed measures of perfectionism, stress, burnout, and engagement twice over three months.

The second aim was to examine whether perfectionism is associated with intragroup relationships in a team-work context, and I again conducted three studies. In Study 4, a sample of undergraduate students completed a questionnaire on perfectionism, read a vignette about working with a hypothetical student partner who was described as a self-oriented, socially prescribed, or other-oriented perfectionist, and then rated the relationship quality. In Study 5, a sample of undergraduate students working on team projects completed a questionnaire on perfectionism, cohesion, and engagement. And in Study 6, a sample of teams of clinical employees completed a questionnaire on perfectionism, cohesion, and stress.

13.2. Does Perfectionism Longitudinally Predict Stress, Burnout, and Engagement?

Perfectionism longitudinally predicted stress and burnout but not engagement in the present research. The findings from the present research are the first to indicate that socially prescribed perfectionism is a personality characteristic that contributes to the development of stress and burnout. Socially prescribed perfectionism was consistently associated with stress and burnout across studies. Students with higher levels of socially prescribed perfectionism had higher levels of total burnout than students with lower levels of socially prescribed perfectionism (Study 1). Similarly, health care provision employees and teachers with higher levels of socially prescribed perfectionism had higher levels of stress and burnout than employees and teachers with lower levels of socially prescribed perfectionism (Studies 2 and 3). In addition, socially prescribed perfectionism was associated with stress in clinical employee teams, and employees with higher levels of socially prescribed perfectionism than the rest of their team had higher levels of stress (Study 6).

Moreover, and more importantly, socially prescribed perfectionism longitudinally predicted increases in stress and burnout. Even after controlling for baseline levels of neuroticism and conscientiousness, students with higher levels of socially prescribed perfectionism and lower levels of self-oriented perfectionism had increased levels of total burnout four months later, but students with higher levels of both socially prescribed and self-oriented perfectionism did not have increased levels of burnout (Study 1). Health care provision employees with higher levels of socially prescribed perfectionism had increased levels of stress and inefficacy six months later (Study 2). And teachers with higher levels of socially prescribed perfectionism had increased levels of stress, exhaustion, cynicism, and inefficacy four months later (Study 3).

In contrast to stress and burnout, socially prescribed perfectionism was not consistently associated with engagement, and it did not longitudinally predict decreased levels of engagement. Socially prescribed perfectionism was only associated with engagement in one study. Teachers with higher levels of socially prescribed perfectionism had lower levels of engagement than teachers with lower levels of socially prescribed perfectionism (Study 3). Still, teachers with higher levels of socially prescribed perfectionism did not have decreased levels of engagement three months later.

The findings from the present research are the first to indicate that self-oriented perfectionism is a personality characteristic that contributes to the development of burnout. Unlike socially prescribed perfectionism, however, self-oriented perfectionism did not show a consistent pattern of results across studies. Health care provision employees with higher levels of self-oriented perfectionism had lower levels of one facet of burnout, inefficacy, than employees with lower levels of self-oriented perfectionism (Study 2). Similarly, self-oriented perfectionism was associated with stress in clinical employee teams, and employees with higher levels of self-oriented perfectionism than the rest of their team had lower levels of stress (Study 6). In contrast, teachers with higher levels of self-oriented perfectionism had higher levels of stress and one facet of burnout, exhaustion, than teachers with lower levels of self-oriented perfectionism (Study 3). In addition, self-oriented perfectionism significantly predicted only one outcome variable in the longitudinal analyses, and health care provision employees with higher levels of self-oriented perfectionism had increased levels of cynicism six months later (Study 2).

Like the findings with stress and burnout, self-oriented perfectionism did not show a consistent pattern of significant associations with engagement. Students with higher levels of self-oriented perfectionism had higher levels of total engagement than students with lower levels of self-oriented perfectionism (Study 1). Similarly, students with higher levels of self-oriented perfectionism and lower levels of other-oriented perfectionism had higher levels of vigor and dedication than students with higher levels of both forms of perfectionism (Study 5). In contrast, teachers with higher levels of self-oriented perfectionism did not have higher (or lower) levels of engagement than teachers with lower levels of self-oriented perfectionism (Study 3), and self-oriented perfectionism did not longitudinally predict increased (or decreased) engagement in students or teachers (Studies 1 and 3).

To the best of my knowledge, previous studies that have examined the two forms of perfectionism and stress, burnout, and engagement have all been cross-sectional meaning that they only provide information on the co-occurrence of perfectionism and stress, burnout, and engagement but not information on whether perfectionism predicts changes in stress, burnout, and engagement. The present findings therefore expand on previous cross-sectional studies by showing that perfectionism longitudinally predicts changes in stress and burnout.

Moreover, the present findings are in line with the findings from previous studies (Appleton et al., 2009; Childs & Stoeber, 2010; Flett et al., 1995; A. P. Hill & Appleton, 2011; A. P. Hill, Hall, Appleton, & Kozub, 2010; A. P. Hill et al., 2008; A. P. Hill, Hall, Appleton, & Murray, 2010; Mitchelson & Burns, 1998; Stoeber & Childs, 2010; Stoeber & Rennert, 2008; Tashman et al., 2010; van Yperen et al., 2011; Zhang et al., 2007). In particular, socially prescribed perfectionism has been shown to be associated with higher levels of burnout in athletes, higher levels of stress and burnout in employees, and lower levels of engagement in students. Similarly, perfectionistic concerns (of which socially prescribed perfectionism is a facet e.g., Stoeber & Otto, 2006; also see Chapter 2) has been shown to be associated with higher levels of burnout in students, higher levels of stress and burnout in employees, and lower levels of engagement in employees. Moreover, neuroticism has been shown to longitudinally predict increased levels of burnout but, in the present research, socially prescribed perfectionism was a more useful predictor of burnout than neuroticism (Goddard et al., 2004).

Why does socially prescribed perfectionism lead to increased levels of stress and burnout? For both self-oriented and socially prescribed perfectionists, one's sense of self is inexorably tied to attaining standards of performance. Striving for exceedingly high standards may initially be adaptive and rewarding as these perfectionists are highly invested in their studies or work and may achieve high levels of performance (e.g., Hall, 2006; Hewitt & Flett, 1991, 1993; Shafran et al., 2002; also see Chapter 3). However, successfully achieving high standards may not necessarily validate one's self-worth. Self-oriented and socially prescribed perfectionists are extremely critical about the quality of their performance, are unlikely to experience satisfaction even after successfully completing a task, and may raise performance standards after successful task completion (e.g., Kobori et al, 2009; Stoeber & Yang, 2010). Perfectionists' patterns of cognition, affect, and behavior which lead to high levels of performance initially may become maladaptive when conditions change (e.g., Hall, 2006;

Hewitt & Flett, 1991, 1993; Shafran et al., 2002; also see Chapter 3). In particular, when perfectionists experience difficulties, mistakes, or failure they may engage in increased achievement striving to compensate for the reduction in self-worth. However, if problems are consistently encountered, perfectionists perceive them to be threatening to self-worth and not as opportunities to learn, grow, and master the task. Consequently, any perceived stressors are potentially extremely ego-threatening as failure risks tarnishing one's self-identity and self-worth as a perfectionist. Still, self-oriented and socially prescribed perfectionists adhere to striving for perfectionistic standards, despite experiencing increasing levels of stress and burnout for instance, because doing so may have been, at one time, adaptive.

Unlike self-oriented perfectionists, however, socially prescribed perfectionists do not hold perfectionistic standards for their performance, but they believe that significant others impose perfectionistic standards on them (e.g., Hall, 2006; Hewitt & Flett, 1991, 1993; Shafran et al., 2002; also see Chapter 3). Self-oriented perfectionists' self-identity and self-worth are contingent upon attaining self-acceptance by living up to their own perfectionistic standards. In contrast, socially prescribed perfectionists believe that love, acceptance, and approval are conditional upon attaining others' perfectionistic standards. Hence, socially prescribed perfectionists' self-identity and self-worth are contingent upon attaining both self-acceptance and also the acceptance of others, while avoiding the disapproval of others, by living up to the perfectionistic standards of others. Not only is attaining the perfectionistic standards of others under less personal control, and harder to achieve, than attaining self-imposed perfectionistic standards, but any perceived stressors signal extremely negative interpersonal consequences to socially prescribed perfectionists as they believe that significant others will reject them (e.g., Crocker & Park, 2004; Hewitt & Flett, 1993; A. P. Hill, Hall, & Appleton, 2011). For instance, of the three forms of perfectionism, only socially prescribed perfectionism has been shown to be associated with beliefs that failure is associated with negative interpersonal consequences (Conroy et al., 2007).

In striving to live up to the perfectionistic standards of others, socially prescribed perfectionists face a paradox in that they do not believe that they can attain these standards even though doing so is the very cornerstone of their self-worth (e.g., Hewitt & Flett, 1993). When socially prescribed perfectionists encounter a stressor, they ruminate about others' exceedingly high standards for their performance and their inability to live up to these standards, thus drawing further attention to the discrepancy between other's standards and

their own actual performance (Flett et al., 1998). By attending to this perceived discrepancy, the perfectionist becomes preoccupied with other's expectations, magnifying them to the point that they become irrational and self-defeating "shoulds" which, in turn, decrease self-efficacy and may lead to stress and burnout (Ellis, 2002; Horney, 1950).

Socially prescribed perfectionists believe that they must not only be perfect to attain the approval of others, but that they must also appear to others as perfect. However, striving to appear as perfect may prevent socially prescribed perfectionists from seeking social support to help cope with stressors, and it may also divert self-regulatory resources away from coping with stressors as the perfectionists are utilizing resources to conceal their perfectionism, and associated stress and burnout, from being exposed to others (e.g., D. M. Clark & Wells, 1995; Schmeichel & Baumeister, 2004; Sherry et al., 2007).

In the present research, students with higher levels of socially prescribed perfectionism only had increased levels of burnout when they also had lower levels of self-oriented perfectionism, but not when they had higher levels of self-oriented perfectionism (Study 1). While self-oriented perfectionism has been shown to be associated with contingencies of self-worth based on personal competence, socially prescribed perfectionism has been shown to be associated with contingencies of self-worth based on the approval of others (A. P. Hill, Hall, & Appleton, 2011). Contingencies based on the approval of others are under less personal control, making them harder to fulfill, than contingencies based on personal competence (e.g., Crocker & Park, 2004). Perhaps self-oriented perfectionism ameliorated the longitudinal effects of socially prescribed perfectionism on burnout as students had more personal control over their perfectionistic standards and contingencies of self-worth. Nevertheless, self-oriented perfectionism did not ameliorate the longitudinal effects of socially prescribed perfectionism on stress or burnout in employees (Studies 2 and 3) which may reflect differences between the academic and work domains. In particular, as undergraduate students have more personal control over their studies than employees do over their work, perhaps employees' personal control over contingencies of self-worth were insufficient to ameliorate the effect of contingencies based on the approval of others.

Similarly, Self-Determination Theory (Deci & Ryan, 1985; Ryan & Deci, 2000) may help to explain why socially prescribed perfectionism leads to increases in stress and burnout. Socially prescribed perfectionism, which is comprised of externally imposed perfectionistic standards, has been shown to be associated with higher levels of controlled motivation, while

self-oriented perfectionism, which is comprised of internally imposed standards, has been shown to be associated with higher levels of autonomous motivation (Miquelon et al., 2005; Stoeber et al., 2009; van Yperen, 2006). Behaviors that are regulated by controlled motivation are characterized by contingent self-evaluation and external demands. In contrast, behaviors that are regulated by autonomous motivation are performed because they are enjoyable or because they are in line with one's goals and values (Deci & Ryan, 1985; Ryan & Deci, 2000). Numerous studies consistently confirm that autonomous motivation is associated with helpful outcomes while controlled motivation is associated with unhelpful outcomes, and employees who have high levels of autonomous motivation, compared to controlled motivation, have lower levels of burnout, more positive work-related attitudes, and higher levels of job satisfaction, job involvement, and performance (Breaugh, 1985; Deci, Connell, & Ryan, 1989; Levesque, Blais, & Hess, 2004; also see Gagné & Deci, 2005, for a review).

One last finding regarding socially prescribed perfectionism remains to be explained. Why did socially prescribed perfectionism predict increased levels of only one facet of burnout in Study 2, inefficacy, but not exhaustion or cynicism? Theoretical models of burnout propose that: (a) the three facets of burnout develop simultaneously, (b) exhaustion occurs first and next leads to cynicism which then leads to inefficacy, or (c) cynicism occurs first and next leads to inefficacy which then leads to exhaustion (e.g., Maslach, Schaufeli, & Leiter, 2001). However, the finding that socially prescribed perfectionism only predicted increases in inefficacy, and not cynicism or exhaustion, is not in line with these developmental sequences of burnout. Because some studies have shown the measure of inefficacy that I used in Study 2 to represent low levels of engagement, not high levels of burnout, perhaps socially prescribed perfectionism predicted decreased levels of engagement not increased levels of burnout (e.g., Schaufeli & Salanova, 2007; also see Chapter 7: Study 2). However, socially prescribed perfectionism did not predict increased levels of engagement in the studies in which I used a measure designed to specifically capture engagement (Studies 1 and 3). Alternatively, the first stage of burnout for socially prescribed perfectionists may be inefficacy, not exhaustion or cynicism. Socially prescribed perfectionists perceive a discrepancy between their performance and others' standards, they feel that they cannot live up to others' expectations, and they believe that, despite their best efforts, they will not be able to achieve the level of performance required by others (e.g., Flett & Hewitt, 2002; Hewitt & Flett, 1991, 2002, 2004; Hall, 2006). Socially prescribed perfectionists may first feel that they are unable to effectively solve the

problems that arise in their work and then, because they tenaciously strive to amend this discrepancy, they experience exhaustion and cynicism.

In contrast to socially prescribed perfectionism, self-oriented perfectionism has been shown to be associated with lower levels of burnout in athletes and employees, and with higher levels of engagement in employees (Appleton et al., 2009; Childs & Stoeber, 2010; Flett et al., 1995; A. P. Hill & Appleton, 2011; A. P. Hill, Hall, Appleton, & Kozub, 2010; A. P. Hill et al., 2008; A. P. Hill, Hall, Appleton, & Murray, 2010; Mitchelson & Burns, 1998; Stoeber & Childs, 2010; Stoeber & Rennert, 2008; Tashman et al., 2010; van Yperen et al., 2011; Zhang et al., 2007). Similarly, perfectionistic strivings (of which self-oriented perfectionism is a facet; e.g., Stoeber & Otto, 2006; also see Chapter 2) have been shown to be associated with lower levels of burnout in students, lower levels of stress and burnout in employees, and higher levels of engagement in students. However, in a number of studies with employee samples, self-oriented perfectionism and perfectionistic strivings were not associated with either higher or lower levels of stress and burnout. In the present research, self-oriented perfectionism was associated with lower levels of stress in one study (Study 6), lower levels of burnout in one study (Study 2), and higher levels of engagement in two studies (Study 1 and 5). However, self-oriented perfectionism did not longitudinally predict decreased levels of stress or burnout, or increased levels of engagement, but it did ameliorate the longitudinal effects of socially prescribed perfectionism on increased levels of burnout in one study, as discussed above (Study 1).

Self-oriented perfectionism was not associated with positive outcomes in all studies, however. Self-oriented perfectionism was associated with higher levels of stress and one facet of burnout, exhaustion, in one study (Study 3), and it longitudinally predicted increased levels of one facet of burnout, cynicism, in another study (Study 2). Why did self-oriented perfectionism show a mixed pattern of associations with higher and lower levels of stress and burnout, especially as previous research has found it to be associated with lower levels of burnout and higher levels of engagement (e.g., Appleton et al., 2009; Childs & Stoeber, 2010)?

Self-oriented perfectionists are vulnerable to negative outcomes when they encounter set-backs and difficulties (e.g., Flett & Hewitt, 2002; Hewitt & Flett, 1991, 2002, 2004; Hall, 2006; Shafran et al., 2002; also see Chapter 3). In particular, just one experience of failure may lead to negative outcomes because it confirms self-oriented perfectionists' fears that they

cannot achieve their self-imposed standards despite tenaciously striving for them (e.g., A. P. Hill, Hall, Appleton, & Duda, 2011; Hall, 2006). Moreover, because they have an internal locus of control as standards are self-imposed, self-oriented perfectionists take personal responsibility for failures which results in debilitating self-criticism. Hence, self-oriented perfectionists face a paradox in that they are likely to perceive that they have failed to achieve their self-imposed standards because they impose exceedingly high standards. Correspondingly, in the present research, any positive cross-sectional findings associated with self-oriented perfectionism did not endure to the longitudinally analyses, suggesting that any benefits of self-oriented perfectionism are short-lived. The inability to tolerate mistakes and failure, and the corresponding debilitating self-criticism, is the very cornerstone of self-oriented perfectionism and differentiates it from adaptive forms of motivation and achievement striving (see Hall, 2006).

13.3. Is Perfectionism Associated with Intragroup Relationships in a Team-Work Context?

Perfectionism was associated with intragroup relationships in a team-work context in the present research. The findings from the present research are the first to indicate that socially prescribed perfectionism is a personality characteristic that is associated with students' and employees' intragroup relationships. However, socially prescribed perfectionism was not consistently associated with negative intragroup relationships. Students with higher levels of socially prescribed perfectionism predicted that they would like hypothetical interaction partners more than students with lower levels of socially prescribed perfectionism, and students predicted a higher quality of working relationship with partners who were described as being high in socially prescribed perfectionism than with partners who were described as being high in either self-oriented or other-oriented perfectionism (Study 4). In contrast, students with higher levels of socially prescribed perfectionism perceived their team to be less cohesive than students with lower levels of socially prescribed perfectionism (Study 5), and socially prescribed perfectionism was associated with cohesion in clinical employee teams with employees with higher levels of socially prescribed perfectionism than the rest of their team perceiving their team to be less cohesive (Study 6).

The findings from the present research are the first to indicate that self-oriented perfectionism is a personality characteristic that is associated with students' intragroup relationships. Unlike socially prescribed perfectionism, however, self-oriented perfectionism was consistently associated with positive intragroup relationships. Students with higher levels of self-oriented perfectionism predicted a higher relationship quality with hypothetical interaction partners than students with lower levels of self-oriented perfectionism, but only with partners who were described as being high in self-oriented or socially prescribed perfectionism but not with partners who were described as being high in other-oriented perfectionism (Study 4). In comparison, students with higher levels of self-oriented perfectionism perceived their team to be more cohesive than students with lower levels of self-oriented perfectionism (Study 5).

Finally, the findings from the present research are the first to indicate that other-oriented perfectionism is a personality characteristic that is associated with students' intragroup relationships. Like socially prescribed perfectionism, other-oriented perfectionism was not consistently associated with negative intragroup relationships, however. Students with higher levels of other-oriented perfectionism predicted a higher quality of working relationship with hypothetical interaction partners than students with lower levels of other-oriented perfectionism (Study 4). In contrast, students predicted that they would like hypothetical interaction partners who were described as being high in other-oriented perfectionism less than partners who were described as being high in either self-oriented or socially prescribed perfectionism (Study 4). Similarly, students with higher levels of other-oriented perfectionism perceived their team to be less cohesive than students with lower levels of other-oriented perfectionism (Study 5).

To the best of my knowledge, previous studies that have examined the three forms of perfectionism and intragroup or interpersonal relationships have investigated associations between perfectionism and interpersonal characteristics, and the impact of perfectionism on romantic relationships. Previous studies have not, however, investigated the impact of the three forms of perfectionism on intragroup relationships in a team-work context. The present findings therefore expand on findings from previous studies by showing that perfectionism is associated with students' and employees' intragroup relationships in a team-work context. The present findings are not, however, entirely in line with findings from previous studies (Alden et al., 1994; Bieling & Alden, 1997; E. C. Chang et al., 2008; Flett et al., 1996; Flett, Hewitt,

et al., 2001; Flett, Velyvis, & Hewitt, 2001, as cited by Hewitt & Flett, 2002; Hewitt et al., 2006; R. W. Hill, Zrull, & Turlington, 1997; Laurenti et al., 2008; Ommundsen et al., 2005; Sherry et al., 2008; Wyatt & Gilbert, 1997). In particular, previous studies have shown socially prescribed perfectionism and perfectionistic concerns to be associated with higher levels of social disconnection, interpersonal distress, psychosocial adjustment problems, dyadic maladjustment, interpersonal sensitivity, and negative perceptions of sports team relationships, for instance. Two findings from Study 4 are not in line with this pattern of associations.

First, students with higher levels of socially prescribed perfectionism predicted that they would like hypothetical interaction partners more than students with lower levels of socially prescribed perfectionism. All partners were described as experiencing unhelpful consequences of their perfectionism, which is a salient and pervasive aspect of socially prescribed perfectionism in particular (e.g., Hewitt & Flett, 1991, 2002, 2004). Students with higher levels of socially prescribed perfectionism may have liked partners more because they perceived a high degree of similarity with them (cf. Byrne, 1979). Second, students with partners who were described as being high in socially prescribed perfectionism predicted higher levels of working relationship quality than students with partners who were described as being high in the other two forms of perfectionism. Partners with high levels of socially prescribed perfectionism were described as having a preoccupation with pleasing and being accepted by others (cf. Hewitt & Flett, 1991, 2002, 2004; also see Chapter 2). Students may have perceived this as indicating that partners high in socially prescribed perfectionism would be especially easy to work with.

Still, both of these unexpected findings were in relation to socially prescribed perfectionists' interaction partners, and socially prescribed perfectionism was not associated with positive intragroup relationship from the perspective of the perfectionists themselves: Socially prescribed perfectionists liked partners more and were perceived to be easy to work with, but socially prescribed perfectionists perceived their teams to be less cohesive. Alternatively, as the positive effects of socially prescribed perfectionism were only found in Study 4 which utilized hypothetical team-work scenarios, the present findings may indicate that any positive effects of socially prescribed perfectionism on intragroup relationships do not persist over repeated interactions with other team members in real-world teams.

The present findings expand on previous findings which have shown self-oriented perfectionism to be associated with higher levels social skill appraisal, assertiveness, and family adjustment, but also with higher levels of negative evaluations of social comparison, competitiveness, and hostility (Flett et al.,, 1994; Flett et al., 1996; Hewitt & Flett, 1991; Hewitt, Flett, & Mikail, 1995; R. W. Hill, Zrull, & Turlington, 1997; Saboonchi & Lundh, 2003; Wyatt & Gilbert, 1997). The present findings are in line with previous evidence but there are, however, two findings that require further explanation.

First, students' self-oriented perfectionism was associated with predictions of a higher quality of relationship with hypothetical interaction partners, but only with partners who were not described as being high in other-oriented perfectionism (Study 4). Perhaps the combination of external, as well as internal, sources of perfectionistic standards was overwhelming and threatening to students with higher levels of self-oriented perfectionism. Alternatively, perhaps other-oriented perfectionistic partners demanding perfectionism threatened to, in essence, turn students' self-oriented perfectionism into socially prescribed perfectionism. Because self-oriented perfectionism is associated with contingencies of self-worth based on personal competence, while socially prescribed perfectionism is associated with contingencies of self-worth based on the approval of others, self-oriented perfectionistic students may have felt that, by demanding perfection from them, other-oriented perfectionistic partners were removing their control over perfectionistic standards and contingences of self-worth (Crocker & Park, 2004; A. P. Hill, Hall, & Appleton, 2011).

Second, students with higher levels of self-oriented perfectionism only had higher levels of vigor and dedication when they also had lower levels of other-oriented perfectionism (Study 5). When students had higher levels of other-oriented perfectionism, however, there was not a significant difference in vigor between students with higher or lower levels of self-oriented perfectionism. In contrast, when students had higher levels of other-oriented perfectionism, students with higher levels of self-oriented perfectionism had significantly lower levels of dedication than students with lower levels of self-oriented perfectionism. Students with higher levels of self-oriented perfectionism may have had higher levels of other-oriented perfectionism also, and therefore wanted other team members to perfect, in order to bolster their own performance and their perfectionist identity (cf. Mullen & Cooper, 1994; Tajfel & Turner, 1979, 1986). However, students with higher levels of both forms of perfectionism may have felt less vigorous when studying, compared to students with higher

levels of only self-oriented perfectionism, because attaining perfectionistic standards was perceived to be under less personal control as it required others to perform perfectly (Crocker & Park, 2004; A. P. Hill, Hall, & Appleton, 2011). Moreover, students with higher levels of both self-oriented and other-oriented perfectionism may have felt less dedicated to their studies in order to mentally distance themselves from, and cope with, this perceived lack of personal control (Schaufeli et al., 1996; Schaufeli, Salanova, et al., 2002).

Similarly, personal control over perfectionistic standards may explain why health service employees with higher levels of self-oriented perfectionism had increased levels of only one facet of burnout, cynicism, six months later (Study 2). Self-oriented perfectionists have an internal locus of control and feel personal responsibility for attaining standards of performance (e.g., Flett & Hewitt, 2002; Hewitt & Flett, 1991, 2002, 2004; Hall, 2006). The first stage of burnout for self-oriented perfectionists may be cynicism, not exhaustion, meaning that, when they experience difficulties at work, self-oriented perfectionists mentally distance themselves from work in order to lessen the importance of work, and the impact of failure, on self-worth (e.g., Schaufeli et al., 1996; Schaufeli, Salanova, et al., 2002). To compensate, perhaps self-oriented perfectionists raise perfectionistic standards in other life domains when they experience difficulties and cynicism at work.

Finally, the present findings expand on previous findings which have shown other-oriented perfectionism to be associated with higher levels of social skill appraisal and assertiveness, but also to higher levels of other-blame, authoritarianism, dominance, narcissism, and antisocial and histrionic personality characteristics (Flett et al.,, 1994; Flett et al., 1996; Hewitt & Flett, 1991; Hewitt, Flett, & Mikail, 1995; R. W. Hill, Zrull, & Turlington, 1997; Saboonchi & Lundh, 2003; Wyatt & Gilbert, 1997). There was one finding from the present research, however, that was not entirely in line with this pattern of associations.

Students with higher levels of other-oriented perfectionism rated a higher quality of working relationship with hypothetical interaction partners than students with lower levels of other-oriented perfectionism (Study 4). Given that other-oriented perfectionism has been shown to be associated with authoritarianism, dominance, and narcissism (Flett et al., 1996; Hewitt & Flett, 1991; R. W. Hill, Zrull, & Turlington, 1997), perhaps other-oriented perfectionistic students felt that they would be able to work well with partners because they would dominate the relationship and lead the project in an authoritative style, meaning that other-oriented perfectionistic students felt that they work well, albeit not necessarily

cohesively, with partners. Correspondingly, students with higher levels of other-oriented perfectionism perceived their team to be less cohesive than students with lower levels of other-oriented perfectionism (Study 5). Mirroring socially prescribed perfectionism, other-oriented perfectionism only had positive effects on intragroup relationships from the perspective of the perfectionists themselves, but not from the perspective of perfectionists' partners: Students liked other-oriented perfectionistic partners less (Study 4). Conversely, any positive effects of other-oriented perfectionism on intragroup relationships may be restricted to hypothetical team-work scenarios, and may not persist over repeated interactions with other team members in real-world teams.

Alternatively, perhaps differences in the perfectionism of other team members explains why other-oriented perfectionism was associated with predictions of higher levels of working relationship quality in Study 4, but lower levels of perceived cohesion in Study 5. Perhaps students with higher levels of other-oriented perfectionism predicted a higher level of working relationship quality because all partners were described as striving for perfectionistic standards and therefore corroborated other-oriented perfectionists' view that it is important for others to strive for and achieve perfection (Hewitt & Flett, 1991). In contrast, perhaps students with higher levels of other-oriented perfectionism perceived their team to be less cohesive because they did not perceive team mates as striving for their perfectionistic standards (Study 5).

13.3. Limitations and Future Research

Although each study sought to address the limitations of the previous study (see Chapters 6-11: Studies 1-6) the present research has some limitations. To the best of my knowledge, Studies 1-3 were the first studies to utilize two-wave longitudinal designs to investigate the effects of self-oriented perfectionism and socially prescribed perfectionism on stress, burnout, and engagement in students and employees. Still, future studies should utilize three-wave longitudinal designs to examine potential mediator variables of the relationships between perfectionism and stress, burnout, and engagement (see Cole & Maxwell, 2003). For instance, future studies should investigate if changes in stress between Time 1 and Time 2 mediate the effect of socially perfectionism at Time 1 on increases in burnout between Time 1 and Time 3. To expand on the findings from Study 2, future studies should examine if the experience of failure between Time 1 and Time 2 mediates the effect of self-oriented perfectionism at Time 1 on increased levels of cynicism between Time 1 and Time 3.

Furthermore, because socially prescribed perfectionists are unlikely to use social support, future studies should examine if a lack of social support between Time 1 and Time 2 mediates the relationship between socially prescribed perfectionism at Time 1 and increased levels of stress between Time 1 and Time 3 (Hewitt & Flett, 2002). As discussed above, socially prescribed perfectionism has been shown to be associated with higher levels of controlled motivation and self-oriented perfectionism has been shown to be associated with higher levels of autonomous motivation (Miquelon et al., 2005; Stoeber et al., 2009; van Yperen, 2006). Increased controlled motivation may be one vehicle by which socially prescribed perfectionism predicts increased stress and burnout longitudinally. Similarly, decreased autonomous motivation may lead self-oriented perfectionists to have increased levels of stress and burnout longitudinally, while increased autonomous motivation may lead them to have decreased levels of stress and burnout.

In addition to three-wave longitudinal designs, future research should investigate the course of perfectionism and stress and burnout as academic and work conditions change. For instance, undergraduate students could be assessed once a year for the duration of their university degrees. In doing so, researchers could examine if perfectionism predicts increased levels of stress and burnout as students progress through the academic stages of their degrees and encounter more and more difficulties in their studies (e.g., Hall, 2006; Hewitt & Flett, 2002; Shafran et al., 2010).

Future research should examine whether dynamic aspects of perfectionism mediate the longitudinal impact of trait perfectionism on stress and burnout. Perfectionistic cognitions, for example, are cognitive manifestations of trait perfectionism (Flett et al., 1998; Flett, Hewitt, Whelan, & Martin, 2007). According to the Multidimensional Perfectionism Cognitions Inventory–English (MPCI–E; Kobori, 2006; Stoeber, Kobori, & Tanno, 2010) there are three forms of self-oriented perfectionism cognitions: (a) personal standards or cognitions about striving for perfectionistic standards, (b) pursuit of perfection or cognitions about the need to be perfect, and (c) concern over mistakes or cognitions about mistakes and the negative affect associated with mistakes. Controlling for trait perfectionism, personal standards cognitions have been associated with higher levels of positive affect whereas concern over mistakes cognitions have been associated with lower levels of positive affect and higher levels of negative affect and performance anxiety (Kobori et al., 2011; Stoeber et al., 2010).

Another dynamic aspect of perfectionism which may mediate the longitudinal effects of perfectionism on stress and burnout is perfectionistic self-presentation. Perfectionistic self-presentation refers to the interpersonal expression of one's perfectionism (e.g., Hewitt et al., 2008). Perfectionistic self-presentation is comprised of (a) perfectionistic self-promotion or the need to appear as perfect to others, (b) the non-display of imperfection or the need to conceal overt demonstrations of imperfection to others, and (c) the nondisclosure of imperfection or the need to conceal the reporting of imperfections to others. Perfectionistic self-presentation has been shown to be associated with psychological maladjustment even after controlling for trait perfectionism (e.g., Hewitt et al., 2008).

In addition to three-wave longitudinal designs and mediation tests, future research should use qualitative research methods to help explain why socially prescribed perfectionism, in particular, predicts increased levels of stress and burnout over time. To investigate the four cognitive-behavioral pathways through which perfectionism leads to stress (stress generation, stress anticipation, stress perpetuation, and stress enhancement; Hewitt & Flett, 2002; also see Chapter 3), daily fluctuations in stress could be examined. Students and employees could complete a diary everyday for two weeks recording their thoughts, feelings, and behaviors in response to studying- and work-related stressors they encounter each day, in order to explore the role that perfectionism plays in their cognitive-behavioral responses. Furthermore, an interview study with students and employees suffering from clinical burnout could compare patients with higher and lower levels of socially prescribed perfectionism, to explore participants' lived experience of how perfectionism was associated with them becoming burnt out (also see van Yperen et al., 2011).

There was a high rate of attrition in the longitudinal studies (Studies 1, 2, and 3). I tried to minimize the length of questionnaires and thus the burden for participants in order to reduce attrition. Similarly, in order to increase the likelihood that students would participate in Study 1, I chose to administer questionnaires four months apart so that time points balanced not recruiting students at the very start of a term, when they are busy acclimating to a new term, with not recruiting students at the end of a term, when they are busy completing assignments (Time 1: October, 2009; Time 2: February, 2010). Furthermore, I reduced the time-lag from Study 2 (six months) to Study 3 (three months) again to reduce the likelihood of attrition. Although I did secure a larger longitudinal sample size in Study 3, future research should replicate the present findings with consistently large longitudinal samples of students and

employees in order to ensure sufficient statistical power to detect the effects of perfectionism (see Maxwell, 2004). Still, Studies 1, 2, and 3 had different time-lags reducing the comparability of findings. Future research should replicate the present findings employing consistent time-lags, and also longer time-lags that allow longer-term changes in perfectionism to manifest.

Longer time-lags may also be useful to address controversies over whether self-oriented perfectionism predicts positive or negative outcomes (e.g., Flett & Hewitt, 2002; Hewitt & Flett, 1991, 2002, 2004; Hall, 2006). For example, researchers have demonstrated that, although self-oriented perfectionism is associated with higher levels of performance anxiety, self-oriented perfectionism is also associated with higher levels of achievement, time spent practicing, and problem-solving attempts when distressed (e.g., Kobori et al., 2011). Correspondingly, perfectionists believe that any negative consequences of their perfectionism (such as higher levels of performance anxiety) are a small price to pay for the benefits of their perfectionism (such as higher levels of performance; e.g., Hall, 2006). Longitudinal studies with longer time-lags may help to determine whether these positive effects of self-oriented perfectionism on achievement-behavior persist over time. The negative consequences of self-oriented perfectionism may be shown to be negligible or, as researchers contend, they may be debilitating and undermine performance in the long term (e.g., Hall, 2006). Similarly, in the present research, self-oriented perfectionism was cross-sectionally associated with higher levels of dedication in students (Study 5). However, self-oriented perfectionistic students' higher levels of dedication may pose a risk factor for students becoming too engaged in their studies, meaning that they might fail to conserve resources in the long-term, leading to negative outcomes such as higher levels of burnout and studying interfering with their non-academic life (cf. Halbesleben et al., 2009).

In addition to longer time-lags, future studies should employ multiple repeated measures. Repeated measures across time and across situations would enable researchers to investigate the interplay of person and environment variables and how these relationships change over time—that is, the transaction between the person and the environment (Lazarus & Folkman, 1984). Multiple repeated measures would also enable researchers to investigate intra-individual, as well as inter-individual, differences. In particular, a person's stress, coping, and associated outcomes could be compared across different situations to determine in which situations he or she is most vulnerable to stress and in which situations he or she is less

vulnerable (Lazarus & Folkman, 1984). Because there are likely to be some situations which the majority of people find stressful (e.g., Costa & McCrae, 1990), inter-individual comparisons of individuals' responses across different situations would enable researchers to examine which situations the majority of people find more stressful, and which situations the majority of people find less stressful. Finally, intra-individual differences would be especially relevant to research on perfectionism in order to examine whether perfectionism shows the same pattern of associations with stress and burnout across perfectionists' different life domains especially as perfectionists may only be perfectionistic in one or two domains (Shafran et al., 2002).

The present research investigated undergraduate psychology students, health service provision employees, clinical employees, and teachers. Therefore, differences in sample characteristics may partially explain differences in findings between studies, and future research should replicate the present findings using samples from the same four populations sampled in the present research. In addition, the present findings may only be applicable to these four populations, and future research should investigate whether the present findings are generalizable to other populations. In particular, perfectionism has been shown to be associated with negative patterns of cognition, affect, and behavior in athletes, such as burnout, and future research should investigate whether the present findings are replicated in samples of athletes (see Hall, 2006). Similarly, research on perfectionism is criticized for neglecting to investigate cultural differences in the prevalence, expression, and consequences of perfectionism, and future research should replicate the present findings with samples from other countries and cultures (e.g., E. C. Chang et al., 2004).

The most frequent criticism of the role stress model (Rizzo et al., 1970) is that the subscale measuring role ambiguity is comprised of reverse-coded items and therefore captures the absence, opposed to the presence, of role ambiguity (McGee, Ferguson, & Seers, 1989). Unlike the inefficacy subscale of burnout that I used in Study 2, which is also comprised of reverse-coded items and has shown low reliability and validity, numerous studies have consistently demonstrated the reliability and validity of the role ambiguity measure (e.g., González-Romá & Lloret, 1998; Maslach et al., 1996). Moreover, I chose to use consistent measures across studies to ensure the comparability of findings. Still, future studies should investigate perfectionism and stress, burnout, engagement, and cohesion with different measures to determine if the present findings are generalizable across conceptualizations and

models. Future research should also include measures of performance such as self-rated, coworker-rated, and supervisor-rated performance, and objective measures such as galvanic skin conductance, grades, and absenteeism. These performance and objective measures would not only further test the predictive ability of perfectionism but they would also reduce the potential risk of common method variance due to self-report methods of data collection. I chose not to include these performance and objective measures in the present research as they may have deterred participants, further reducing sample sizes.

The longitudinal effect of socially prescribed perfectionism predicting increased levels of total burnout in the present findings was not significant when self-oriented perfectionism was also included in the model (Study 1). Similarly, the longitudinal effect of self-oriented perfectionism predicting increased levels of cynicism was not significant when socially prescribed perfectionism was also included (Study 2), and the longitudinal effects of socially prescribed perfectionism predicting increased levels of stress and the three facets of burnout were not significant when self-oriented perfectionism was also included (Study 3). The change in significance in Study 1 may be explained by the significant interaction effect between self-oriented and socially prescribed perfectionism. The change in significance in Study 2 may be explained by the small longitudinal sample size and corresponding low power to detect statistical effects (see Maxwell, 2004). However, the change in significance in Study 3 is harder to explain because the sample size was larger and there was not a significant interaction effect between self-oriented and socially prescribed perfectionism.

Multicolinearity occurs when highly correlated predictors are included in a regression and controlling for their overlap reduces the ability of the predictors to explain variance in the outcome variables (see Tabachnick & Fidell, 2007). However, multicolinearity should not change the significance of the steps in a regression (i.e., the R^2) but it may change the significance of the individual predictor variables to nonsignificant (i.e., the β coefficients). Hence, multicolinearity cannot explain why the steps changed from significant to nonsignificant when self-oriented perfectionism was also included in the regressions in Study 3. Nevertheless, I screened all datasets for multicolinearity. The predictor variables did not show correlations of .70 or above, and the Tolerance values were not less than .10, suggesting that the predictor variables did not display multicolinearity in any of the studies. Alternatively, the Time 1 outcome variables explained between 45-57% of the variance in their Time 2 counterparts in Study 3. Therefore, there was little variation in the Time 2 outcome variables

for perfectionism to explain which may account for the sensitivity of the effects of socially prescribed perfectionism. Nevertheless, the ΔR^2 statistics and β coefficients in the models with both socially prescribed and self-oriented perfectionism in Study 3 were still marginally significant (p = .06 to .10) except for the ΔR^2 for exhaustion (p = .18; also see Chapter 8: Study 3 for details).

To the best of my knowledge, Study 4 was the first study in which vignettes have been used in research investigating self-oriented perfectionism, socially prescribed perfectionism, and other-oriented perfectionism. Future research should replicate the findings from Study 4 using the same vignettes and also using modified vignettes to determine whether or not the findings are generalizable to other scenarios and samples—team-work scenarios in samples of employees, in particular. Because the aim of Study 4 was to investigate the effect of students' and partners' perfectionism on the relationship quality, I chose not to include a control condition comprised of a vignette describing a student who does not strive to achieve or impose perfectionistic standards and is therefore not a self-oriented, other-oriented, or socially prescribed perfectionist. Still, future studies should expand on Study 4 by including a control condition to examine how students with high levels of self-oriented, socially prescribed, and other-oriented perfectionism rate the quality of relationships with non-perfectionistic hypothetical partners. Furthermore, although vignettes are widely used to elicit participants' reactions to a specific event, situation, or person, as it makes participants' cognitive reactions more accessible, vignettes still only elicit participants' predictions of how they might respond in that scenario (e.g., Alexander & Becker, 1978; Grønhøj & Bech-Larsen, 2010). Hence, the findings from Study 4 are restricted to how perfectionism is related to predictions of hypothetical dyadic relationships, opposed to how perfectionism is related to dyadic relationships in the real-world.

To expand on the findings from Study 4, future research should employ a think aloud task whereby students are asked to record their cognitive reactions to the hypothetical interaction partner and to also give reasons for their predictions of liking and working relationship quality. In addition, to further examine the moderation effects of students' and partners' perfectionism, students could be identified as a self-oriented, socially prescribed, or other-oriented perfectionist by completing the Hewitt and Flett Multidimensional Perfectionism Scale (Hewitt & Flett, 1991) as a pre-test, and then students could be matched with a vignette that describes a partner who is high in the same form of perfectionism. To

increase the ecological validity, instead of being matched with a vignette, students could be matched with another student and then the dyad could be observed as they complete a joint task. Alternatively, future studies should test the hypothesis that students' socially prescribed perfectionism increases after working with an other-oriented perfectionistic partner. Students with low versus high other-oriented perfectionism could first be identified by completing the Hewitt and Flett Multidimensional Perfectionism Scale (Hewitt & Flett, 1991) as a pre-test. One student low in other-oriented perfectionism could then be matched with one student high in other-oriented perfectionism, and the dyad could be observed working on a joint task to examine task performance and relationship quality. The perfectionism measure could be administered again after task completion to examine if and how perfectionism levels have changed. Future research should also examine groups of students. In particular, the quality of intragroup relationships could be compared between groups that are composed of members with similar levels of perfectionism (i.e., supplementary fit) and with differing levels of perfectionism whereby a member high in a given form of perfectionism can compensate for a member low in that form (i.e., complementary fit; Prewett et al., 2009).

Future research should investigate whether interpersonal perfectionism manifests as intergroup perfectionism, and the associated consequences to intergroup relationships. For instance, perhaps employees with higher levels of other-oriented perfectionism impose perfectionistic standards between (not within) teams. Hence, other-oriented perfectionistic team members, who demand perfection from colleagues outside of their own team, may create an other-oriented perfectionist team identity (cf. Hogg, 1992; Tajfel & Turner, 1979, 1986; also see Chapter 4). Perhaps other-oriented perfectionistic teams are actually highly cohesive because they derogate and are hostile towards outgroups, imposing unrealistic standards which inevitably lead to failure, criticism, and shame (cf. Hill et al., 1994; Hewitt & Flett, 1991). Three-wave longitudinal designs would be necessary to examine whether intergroup other-oriented perfectionism at Time 1 predicts increases in intragroup cohesion at Time 3, mediated by increases in intergroup hostility between Time 1 and Time 2 (Cole & Maxwell, 2003).

Future research should also replicate the present findings on perfectionism and cohesion (Studies 5 and 6) using longitudinal designs to investigate whether perfectionism predicts cohesion, instead of investigating whether perfectionism is associated with cohesion (Taris, 200). In addition, I did not assess when teams were formed or when employees joined teams in Study 6, and the stage of a team's life cycle has been shown to be associated with

team outcomes (Gersick, 1988). Future studies should examine whether the pattern of relationships between perfectionism and intragroup relationships varies across a team's life span. Similarly, Study 5 was conducted during the second term of the academic year, meaning that students had belonged to their project teams for one term and with this were relatively new, meaning that sufficient time may not have elapsed for students' perfectionism to impact intragroup relationships and engagement. Given that students only work in their project teams for one academic year, the findings from Study 5 may not be generalizable to teams that work together for prolonged periods. Still, to the best of my knowledge, Study 5 was the first study to investigate the effects of self-oriented perfectionism, socially prescribed perfectionism, other-oriented perfectionism, and intragroup relationships in students working on team projects. Similarly, Study 6 was the first study to investigate the relationships between the three forms of perfectionism and intragroup relationships using multilevel analyses of clinical employee teams.

Future research should investigate whether helping students and employees to manage perfectionism, socially prescribed perfectionism in particular, might help to lower stress and burnout. "Reducing stress in the workplace will have a direct and major impact on key areas like financial savings, litigation, productivity, staff retention, absenteeism, health, morale and the provision of healthcare" (NHS Employers, 2008). There are a number of excellent self-help guides available which target unhelpful aspects of perfectionism by enabling perfectionists to challenge counterproductive behaviors and thinking errors (Antony & Swinson, 1998, 2009; Shafran et al., 2010). The aim of these guides is to change unrealistic standards to realistic and attainable ones, as well as to reduce self-criticism when standards are perceived to have not been met.

Pleva and Wade (2006), for instance, compared the efficacy of eight weekly sessions of guided self-help with that of pure self-help, based on Antony and Swinson's (1998) self-help book. Participants in the guided self-help condition had greater improvement of obsessive compulsive and depressive symptoms three months after treatment; this difference was, however, because of treatment compliance as participants in the pure self-help condition completed less of the treatment than participants in the guided self-help condition. Still, future research should investigate whether comparable self-help treatments targeting perfectionism reduce stress and burnout in students and employees.

Arpin-Cribbie and colleagues (Arpin-Cribbie, Irvine, Ritvo, Cribbie, Flett, & Hewitt, 2008), examined the efficacy of a 10-week online psycho-educational intervention for decreasing levels of perfectionism. Students were recruited who believed that their perfectionism interfered with their academic or personal life, and participants were assigned to one of three conditions: no treatment, general stress management, or general stress management with a cognitive behavioral intervention. Higher levels of intervention predicted greater improvements in perfectionism and psychological maladjustment. In particular, students in the stress management intervention showed significant improvements in self-oriented perfectionism and concern over mistakes, whereas students in the stress management with cognitive behavior intervention showed significantly greater improvement in self-oriented perfectionism and concern over mistakes, in addition to improvement in socially prescribed perfectionism, automatic perfectionistic thoughts, and depression.

Future research should compare the effects of targeting socially prescribed perfectionism on stress and burnout with the effects of targeting self-oriented perfectionism. The present findings showed that socially prescribed perfectionism consistently predicted increased stress and burnout across studies whereas self-oriented perfectionism only predicted increased cynicism in one study. Hence, targeting socially prescribed perfectionism should perhaps take precedent over targeting self-oriented perfectionism.

Future research should investigate whether reducing other-oriented and socially perfectionism improves intragroup relationships. By reducing other-oriented perfectionists' belief that others should live up to unrealistic standards, targeting other-oriented perfectionism may improve students' and employees' perceptions of, and behaviors towards, other team members (i.e., targets of these unrealistic standards). Similarly, by reducing socially prescribed perfectionists' belief that others impose unrealistic standards, targeting socially prescribed perfectionism may improve students' and employees' perceptions of other team members (i.e., potential sources of these unrealistic standards). Socially prescribed perfectionists believe that they need to appear as perfect to others in social situations, and targeting this belief may make it easier for these perfectionists to seek social support to help cope with stressors, and it may also free self-regulatory resources to help cope with stressors as the perfectionists are not using resources to prevent their perfectionism from being exposed to others (e.g., D. M. Clark & Wells, 1995; Schmeichel & Baumeister, 2004; Sherry et al., 2007).

Targeting socially prescribed perfectionism may also help to lower the stress and burnout not only of the employee or student receiving the intervention but also other employees or students in the perfectionist's team. Burnout and its negative consequences can be contagious: Burnout has been found to crossover from an employee to their team (Bakker et al., 2006; Westman et al., in press). Future studies should examine whether unhelpful aspects of perfectionism, socially prescribed perfectionism in particular, can also be contagious. Perhaps socially prescribed perfectionistic team members create a socially prescribed perfectionistic team climate, drawing further attention to the discrepancy between other's standards and the team's actual performance, in turn decreasing the team's efficacy beliefs and leading to stress and burnout (Ellis, 2002; Flett et al., 1998; Horney, 1950). Drawing on the achievement goal literature, for instance, research suggests that teachers pass their own goals onto their students: Teachers who are focused on interpersonal performance standards (performance goals) create a classroom climate that focuses on interpersonal performance standards as well, and a student's perception of the classroom climate influences the goals that they personally adopt while studying (Meece, Anderman, & Anderman, 2006; Retelsdorf , Butler, Streblow, & Schiefele, 2010). The transmission of socially prescribed perfectionism throughout a team is likely to decrease the team's cohesion because, as this thesis shows, socially prescribed perfectionism is associated with lower levels of cohesion. The erosion of cohesion, in turn, may increase the team's stress and burnout and perhaps precipitate the disintegration of the team (cf. Griffith & Vaitkus, 1999).

13.4. Conclusion

The aim of this thesis was to investigate perfectionism in students and employees and, in particular, to answer two questions. The first question was: does perfectionism longitudinally predict stress, burnout, and engagement? The answer is yes for stress, yes for burnout, but no for engagement. Students with higher levels of socially prescribed perfectionism had increased levels of total burnout four months later, even after controlling for baseline levels of neuroticism. Health service provision employees with higher levels of socially prescribed perfectionism had increased levels of stress and inefficacy six months later, and employees with higher levels of self-oriented perfectionism had increased levels of cynicism six months later. Finally, teachers with higher levels of socially prescribed perfectionism had increased levels of stress, exhaustion, cynicism, and inefficacy three months

later. Nevertheless, neither socially prescribed perfectionism nor self-oriented perfectionism longitudinally predicted changes in engagement. The present findings are the first to indicate that socially prescribed perfectionism is a personality characteristic that is not only associated with stress and burnout but also longitudinally predicts increases in stress and burnout. The findings pertaining to self-oriented perfectionism, in contrast, are less equivocal. Self-oriented perfectionism was associated with higher levels of stress and burnout but it was also associated with lower levels of stress and burnout. Still, the present findings findings are the first to indicate that self-oriented perfectionism is a personality characteristic that longitudinally predicts increases in cynicism.

The second question this thesis aimed to answer was: is perfectionism associated with intragroup relationship in a team-work context? Yes. Socially prescribed perfectionism was associated with negative intragroup relationships from the perspective of the perfectionists themselves, but not from the perspective of the people with whom they work. Students and clinical employees with higher levels of socially prescribed perfectionism perceived their teams to be less cohesive. However, students with higher levels of socially prescribed perfectionism liked hypothetical interaction partners more than students with lower levels of socially prescribed perfectionism, and students predicted a higher quality of working relationship with socially prescribed perfectionistic partners than with either self-oriented or other-oriented perfectionistic partners. In comparison to socially prescribed perfectionism, other-oriented perfectionism was associated with positive and negative intragroup relationships from the perspective of the perfectionists themselves, but only with negative intragroup relationships from the perspective of the people with whom they work. Although students with higher levels of other-oriented perfectionism perceived their team to be less cohesive, they predicted a higher quality of working relationship with hypothetical interaction partners. However, students liked hypothetical other-oriented perfectionistic partners less than either self-oriented or socially prescribed perfectionistic partners. Self-oriented perfectionism, finally, was associated with positive intragroup relationships from the perspective of the perfectionists themselves. Students with higher levels of self-oriented perfectionism perceived their team to be more cohesive and they also predicted a higher quality of relationship with hypothetical interaction partners than students with lower levels of self-oriented perfectionism.

The findings from this thesis are the first to indicate that socially prescribed perfectionism and self-oriented perfectionism are personality characteristics that longitudinally predict stress and burnout in students and employees. The findings from this thesis are also the first to indicate that socially prescribed perfectionism, self-oriented perfectionism, and other-oriented perfectionism are associated with students' and employees' intragroup relationships in a team-work context. Perfectionists believe that any negative consequences of their perfectionism are trivial compared to the benefits of striving for exceedingly high standards of performance (e.g., Hall, 2006). Findings from the present research, however, suggest that students and employees who strive for exceedingly high standards have turbulent team relationships and face increasing levels of stress and burnout over time which may well debilitate their future psychological adjustment and performance.

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Appendix A

Questionnaire Scale Items

A.1. Hewitt and Flett Multidimensional Perfectionism Scale (1991)

A.1.1. Self-oriented perfectionism. Self-oriented perfectionism was used in Studies 1, 3, 4, 5, and 6 with a 7-point answer scale from 1 (*strongly disagree*) to 7 (*strongly agree*). Self-oriented perfectionism was also used in Study 2 but with a 5-point answer scale from 1 (*strongly disagree*) to 5 (*strongly agree*).

When I am working on something, I cannot relax until it is perfect.
One of my goals is to be perfect in everything I do.
I never aim for perfection in my work.
I seldom feel the need to be perfect.
I strive to be as perfect as I can be.
It is very important that I am perfect in everything I attempt.
I strive to be the best at everything I do.
I demand nothing less that perfection of myself.
It makes me uneasy to see an error in my work.
I am perfectionistic in setting my goals.
I must work to my full potential at all times.
I do not have to be the best at whatever I am doing.
I do not have very high goals for myself.
I set very high standards for myself.
I must always be successful at school or work.

A.1.2. Socially prescribed perfectionism. Socially prescribed perfectionism was used in Studies 1, 3, 4, 5, and 6 with a 7-point answer scale from 1 (*strongly disagree*) to 7 (*strongly agree*). Socially prescribed perfectionism was also used in Study 2 but with a 5-point answer scale from 1 (*strongly disagree*) to 5 (*strongly agree*).

I find it difficult to meet others' expectations of me.
Those around me readily accept that I can make mistakes too.
The better I do, the better I am expected to do.
Anything I do that is less than excellent will be seen as poor work by those around me.
The people around me expect me to succeed at everything I do.
Others will like me even if I don't excel at everything.
Success means that I must work even harder to please others.
Others think I am okay, even when I do not succeed.
I feel that people are too demanding of me.
Although they may not show it, other people get very upset with me when I slip up.
My family expects me to be perfect.
My parents rarely expected me to excel in all aspects of my life.
People expect nothing less than perfection from me.
People expect more from me than I am capable of giving.
People around me think I am still competent even if I make a mistake.

A.1.3. Other-oriented perfectionism. Other-oriented perfectionism was used in Studies 4, 5, and 6 with a 7-point answer scale from 1 (*strongly disagree*) to 7 (*strongly agree*).

I am not likely to criticize someone for giving up too easily.
It is not important that the people close to me are successful.
I seldom criticize my friends for accepting second best.
Everything that others do must be of top-notch quality.
It doesn't matter to me when someone close to me does not do their absolute best.
I have high expectations for the people who are important to me.
I do not have very high standards for those around me.
I can't be bothered with people who won't strive to better themselves.
I do not expect a lot from my friends.
If I ask someone to do something, I expect it to be done flawlessly.
I cannot stand to see people close to me make mistakes.
The people who matter to me should never let me down.
I respect people who are average.
It does not matter to me when a close friend does not try their hardest.
I seldom expect others to excel at whatever they do.

A.2. NEO Five-Factor Inventory Short (Costa & McCrae, 1992)

A.2.1. Neuroticism. Neuroticism was used in Study 1 with a 7-point answer scale from 1 (*strongly disagree*) to 7 (*strongly agree*).

I am not a worrier.
I often feel inferior to others.
When I'm under a great deal of stress, sometimes I feel like I'm going to pieces.
I rarely feel lonely or blue.
I often feel tense and jittery.
Sometimes I feel completely worthless.
I rarely feel fearful or anxious.
I often get angry at the way people treat me.
Too often, when things go wrong, I get discouraged and feel like giving up.
I am seldom sad or depressed.
I often feel helpless and want someone else to solve my problems.
At times I have been so ashamed I just wanted to hide.

A.2.2. Conscientiousness. Conscientiousness was used in Study 1 with a 7-point answer scale from 1 (*strongly disagree*) to 7 (*strongly agree*).

I keep my belongings clean and neat.
I'm pretty good about pacing myself so as to get things done on time.
I am not a very methodical person.
I try to perform all the tasks assigned to me conscientiously.
I have a clear set of goals and work toward them in an orderly fashion.
I waste a lot of time before settling down to work.
I work hard to accomplish my goals

When I make a commitment, I can always be counted on to follow through.
Sometimes I'm not as dependable or reliable as I should be.
I am a productive person who always gets the job done.
I strive for excellence in everything I do.
I never seem to be able to get organized.

A.3. Role Stress Scale (Rizzo et al., 1970)

Role stress was used in Studies 3 and 6 with a 7-point answer scale from 1 (*strongly disagree*) to 7 (*strongly agree*). Role stress was also used in Study 2 but with a 5-point answer scale from 1 (*strongly disagree*) to 5 (*strongly agree*).

I feel certain about how much authority I have.
Clear, planned goals and objectives exist for my job.
I have to do things that should be done differently.
I know that I have divided my time properly.
I receive an assignment without the manpower to complete it.
I know what my responsibilities are.
I have to buck a rule or policy to carry out an assignment.
I work with two or more groups who operate quite differently.
I know exactly what is expected of me.
I receive incompatible requests from two or more people.
I do things that are apt to be accepted by one person and not accepted by others.
I receive an assignment without adequate resources and materials to execute it.
Explanation is clear of what has to be done.
I work on unnecessary things.

A.4. Maslach Burnout Inventory-Student Survey-Revised (Schaufeli & Salanova, 2007)

A.4.1. Exhaustion. Exhaustion was used in Study 1 with a 7-point answer scale from 1 (*never*) to 7 (*always*).

I feel emotionally drained by my studies.
I feel used up at the end of a day at university.
I feel tired when I get up in the morning and I have to face another day at university.
Studying or attending a class is really a strain for me.
I feel burned out from my studies.

A.4.2. Cynicism. Cynicism was used in Study 1 with a 7-point answer scale from 1 (*never*) to 7 (*always*).

I have become less interested in my studies since my enrolment at university.
I have become less enthusiastic about my studies.
I have become more cynical about the potential usefulness of my studies.
I doubt the significance of my studies.

A.5. Maslach Burnout Inventory-General Survey (Schaufeli et al., 1996)

A.5.1. Exhaustion. Exhaustion was used in Study 3 with a 7-point answer scale from 1 (*never*) to 7 (*always*). Exhaustion was also used in Study 2 but with a 5-point answer scale from 1 (*never*) to 5 (*always*).

I feel emotionally drained from my work.
I feel used up at the end of the workday.
I feel tired when I get up in the morning and have to face another day on the job.
Working all day is really a strain for me.
I feel burned out from my work.

A.5.2. Cynicism. Cynicism was used in Study 3 with a 7-point answer scale from 1 (*never*) to 7 (*always*). Exhaustion was also used in Study 2 but with a 5-point answer scale from 1 (*never*) to 5 (*always*).

I have become less interested in my work since I started this job.
I have become less enthusiastic about my work.
I just want to do my job and not be bothered
I doubt the significance of my work.
I have become more cynical about whether my work contributes anything.

A.5.3. Inefficacy. Inefficacy was used in Study 2 with a 5-point answer scale from 1 (*never*) to 5 (*always*).

In my opinion, I am good at my job.
I feel exhilarated when I accomplish something at work.
I have accomplished many worthwhile things in this job.
I can effectively solve the problems that arise in my work.
I feel I'm making an effective contribution to what this organization does.
At my work, I feel confident that I am effective at getting things done.

A.5.4. Revised inefficacy subscale (Schaufeli & Salanova, 2007). The revised inefficacy subscale was used in Study 3 with a 7-point answer scale from 1 (*never*) to 7 (*always*).

At work, I think I'm inefficient when it comes to solving problems.
In my opinion, I'm inefficient in my job.
Other people say I'm inefficient in my work.
I don't feel confident about accomplishing my work efficiently.

A.6. Utrecht Work Engagement Scale-Student (Schaufeli, Salanova, et al., 2002)

A.6.1. Vigor. Vigor was used in Studies 1 and 5 with a 7-point answer scale from 1 (*never*) to 7 (*always*).

When I get up in the morning, I feel like going to class.
When I'm doing my work as a student, I feel bursting with energy.
As far as my studies are concerned I always persevere, even when things do not go well.
I can continue studying for very long periods at a time.
I am very resilient, mentally, as far as my studies are concerned.
I feel strong and vigorous when I'm studying or going to class.

A.6.2. Dedication. Dedication was used in Studies 1 and 5 with a 7-point answer scale from 1 (*never*) to 7 (*always*).

To me, my studies are challenging.
My studies inspire me.
I am enthusiastic about my studies.
I am proud of my studies.
I find my studies full of meaning and purpose.

A.6.3. Absorption. Absorption was used in Study 5 with a 7-point answer scale from 1 (*never*) to 7 (*always*).

When I am studying, I forget everything else around me.
Time flies when I am studying.
It is difficult to detach myself from my studies.
I am immersed in my studies.
I feel happy when I am studying intensely.

A. 7. Utrecht Work Engagement Scale (Schaufeli, Salanova, et al., 2002)

A.7.1. Vigor. Vigor was used in Study 3 with a 7-point answer scale from 1 (*never*) to 7 (*always*).

When I get up in the morning, I feel like going to work.
At my work, I feel bursting with energy.
At my work I always persevere, even when things do not go well.
I can continue working for very long periods at a time.
At my job, I am very resilient, mentally.
At my job I feel strong and vigorous.

A.7.2. Dedication. Dedication was used in Study 3 with a 7-point answer scale from 1 (*never*) to 7 (*always*).

To me, my job is challenging.
My job inspires me.
I am enthusiastic about me joy.
I am proud of the work that I do.
I find the work that I do full of meaning and purpose.

A.7.3. Absorption. Absorption was used in Study 3 with a 7-point answer scale from 1 (*never*) to 7 (*always*).

When I am working, I forget everything else around me.
Time flies when I am working.
I get carried away when I am working.
It is difficult to detach myself from my job.
I am immersed in my work.
I feel happy when I am working intensely.

A.8. Team-Member Exchange (Seers, 1989) modified for hypothetical team work vignettes

A.8.1. Cohesiveness. Cohesiveness was used in Study 4 with a 7-point answer scale from 1 (*strongly disagree*) to 7 (*strongly agree*).

[Jo and I] generally trust each other.
[Jo is] hard to communicate with.
[Jo and I] lack team spirit.

A.8.2. Exchange. Exchange was used in Study 4 with a 7-point answer scale from 1 (*strongly disagree*) to 7 (*strongly agree*).

I often suggest better work methods to [Jo].
[Jo] lets me know when I affect his work.
I let [Jo] know when he affects my work.
[Jo] recognizes my potential.
[Jo] understands my problems.
I am flexible about switching jobs with [Jo].
I often ask [Jo] for help.
I often volunteer extra help to [Jo].
I am willing to finish work assigned to [Jo].
[Jo is] willing to finish work assigned to me.

A.9. Cohesiveness subscale of the Team-Member Exchange (Seers, 1989)

The cohesiveness subscale was used in Study 6 with a 7-point answer scale from 1 (*strongly disagree*) to 7 (*strongly agree*).

Team members generally trust each other.
Team members are hard to communicate with.
The team lacks team spirit.
The team has a strong sense of togetherness.

A.10. Group Environment Questionnaire (Carron et al., 2002)

A.10.1. Individual attractions to the group-task. Individual attractions to the group-task was used in Studies 5 and 6 with a 7-point answer scale from 1 (*strongly disagree*) to 7 (*strongly agree*).

This team does not give me enough opportunities to improve my personal performance.
I do not like the style of [work] on this team.
I am not happy with the amount [I am able to contribute to this team].
I am unhappy with my team's level of desire to [perform well].

A.10.2. Group integration-task. Group integration-task was used in Studies 5 and 6 with a 7-point answer scale from 1 (*strongly disagree*) to 7 (*strongly agree*).

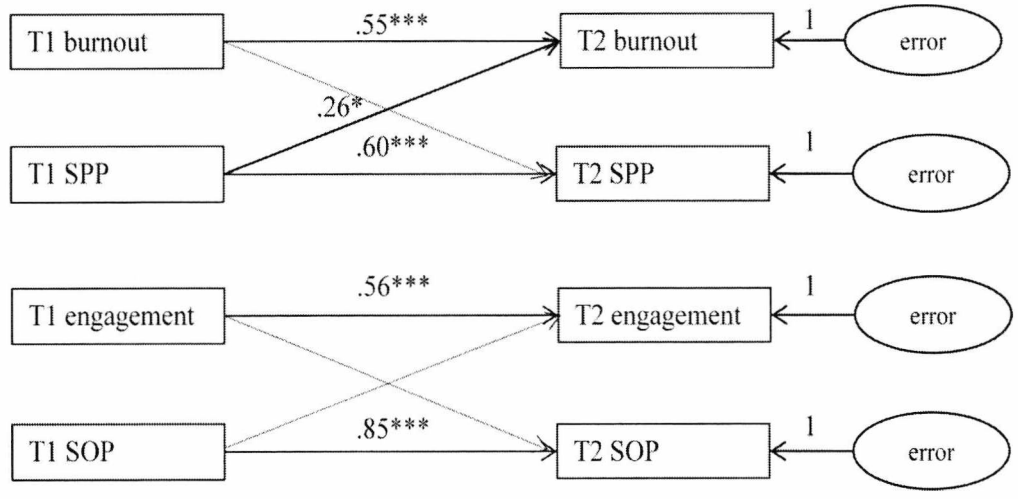
Our team is united in trying to reach its goals for performance.
We all take responsibility for any poor performance by our team.
Our team members have conflicting aspirations for the team's performance.
If members of our team have problems in [their assigned work], everyone wants to help them so we can get back together again.
Members of our team do not communicate freely about each [person's] responsibilities.

Appendix B

Supplementary Analysis: Study 1

Figure 1

Cross-lagged Model: T1 Perfectionism, T1 Burnout, and T1 Engagement Predicting T2 Perfectionism, T2 Burnout, and T2 Engagement



Note. $N = 76$. SPP = socially prescribed perfectionism, SOP = self-oriented perfectionism. All predictors were allowed to covary. Dashed arrow denotes a nonsignificant pathway. $^{*}p < .05$. $^{***}p < .001$.

Table 1

Chi-square Analyses of Structural Equation Model

	χ^2	*Df*	RMSEA	GFI	NFI	CFI	AIC
Cross-lagged Model							
T1 perfectionism, T1 burnout, and T1 engagement predicting T2 perfectionism, T2 burnout, and T2 engagement	29.59**	14	0.12	0.92	0.91	0.95	73.59

Note. $N = 76$. *df* = degrees of freedom, RMSEA = root mean square error of approximation, GFI = goodness of fit index, NFI = normed fit index, CFI = comparative fit index, AIC = Akaike information criterion. Models with fit indices >.90 and RMSEA <.08 indicate a good fit. AIC allows for models to be compared, with lower values indicating better fit (Hu & Bentler, 1999).

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

Appendix C

Supplementary Analysis: Study 6

Table 1

Summary of Multilevel Model: Perfectionism Predicting Cohesion

Parameters	Model 1
Estimates of fixed effects	
Intercept	5.48 (.16)***
Socially prescribed	–0.37 (.07)***
Estimates of covariance parameters	
Residual	0.49 (.06)***
UN(1,1)	0.31 (.15)*
UN(2,1)	0.03 (.05)
UN(2,2)	0.00 (.00)
Model summary	
Deviance statistic	346.91
Number of estimated parameters	6

Note. $N = 149$. Deviance statistic = –2 Log Likelihood. Parameter estimate standard estimates listed in parentheses.

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

Table 2

Summary of Multilevel Models: Perfectionism Predicting Stress

Parameters	Model 1	Model 2
Estimates of fixed effects		
Intercept	3.43 (.14)***	3.44 (.14)***
Socially prescribed	0.41 (.08)***	0.58 (.07)***
Self-oriented		–0.36 (.07)***
Estimates of covariance parameters		
Residual	0.48 (.06)***	0.41 (.05)***
UN(1,1)	0.23 (.11)*	0.24 (.11)*
UN(2,1)	–0.02 (.05)	0.01 (.04)
UN(2,2)	0.02 (.03)	0.00 (.00)
Model summary		
Deviance statistic	343.02	323.99
Number of estimated parameters	6	7

Note. $N = 149$. Deviance statistic = –2 Log Likelihood. Parameter estimate standard estimates listed in parentheses.

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