A self-determination theory analysis of self-critical and personal standards perfectionism: The role of goal-related autonomous motivation.

Emily Catherine Moore

Department of Psychology

McGill University

Montreal, Quebec

April 2021

A thesis submitted to McGill University in partial fulfillment of the requirements of the degree of Doctorate of Philosophy

Table of Contents

Abstract

Self-critical perfectionism consists of frequent negative self-evaluations, chronic rumination regarding expectations, fear of criticism, and an inability to acknowledge successful performance (Dunkley, Blankstein, Zuroff, Lecce, & Hui, 2006). Personal standards perfectionism involves setting and striving towards self-identified high standards and goals (Dunkley, Blankstein, Zuroff, et al., 2006). These dimensions of perfectionism have been linked to goal outcomes and indicators of well-being. Self-critical perfectionism has been consistently shown to impede goal progress and foster ill-being, while some research has suggested personal standards perfectionism bolster's goal progress and contributes to well-being. A core interest of Self-Determination Theory (SDT) is the role of motivation in human flourishing. SDT differentiates forms of motivation across a continuum from autonomous to controlled. Autonomous motivation is synthesized with the self and reflects goal pursuit founded in inherent interest, values and enjoyment. In contrast, controlled motivation is driven by internal and external pressures and reveals compelled engagement in goal pursuit. A substantial body of research has demonstrated an important relationship between autonomous motivation during goal pursuit and a range of positive outcomes (Koestner, Otis, Powers, Pelletier, & Gagnon, 2008; Sheldon & Elliot, 1998; Sheldon & Houser-Marko, 2001). SDT broadly, and autonomous motivation specifically, may provide a theoretical framework by which to understand the opposite relationships of self-critical and personal standards perfectionism with goal outcomes and indicators of well-being.

Through a series of five longitudinal studies, the present thesis sought to explore the value of adopting a self-determination theory perspective to understand the role of perfectionism within the context of goal pursuit. Specifically, the present thesis examined the role of goal-

related motivation as a mediator in the relationships between self-critical and personal standards perfectionism and accompanying outcomes. Across studies, goal progress and depressive symptoms were considered as outcome variables. To date, no studies have explored the role of goal-related autonomous motivation during personal goal pursuit in this group.

The primary aim of this thesis was to employ SDT to understand how self-critical and personal standards perfectionism influence the pursuit of personal goals (Article 1) and contribute to the development of ill-being (Article 2). Existing literature has begun to establish these relationships; however, the underpinnings are not well understood. An additional aim of the present doctoral thesis was to further differentiate self-critical perfectionism from personal standards perfectionism. A substantial body of literature has highlighted the multidimensionality of perfectionism, however the notion of an adaptive form of perfectionism remains debated.

In Article 1, implementing a 5-wave prospective longitudinal design, we demonstrated that the opposite goal effects of self-critical and personal standards perfectionism could be largely explained by considering the function of autonomous goal motivation and autonomy support from significant others. The results highlight the significance of perfectionists' experiencing volition during the pursuit of their personal goals and the value of having their autonomy supported by important others.

Article 2 builds on this research by corroborating the results of Article 1 and expanding the self-determination theory perspective to a clinical variable—depressive symptoms. The results of four 3-wave longitudinal studies confirmed the role of goal-related autonomous motivation in mediating the opposite effects of self-critical and personal standards perfectionism on goal progress. In addition, the results suggest relationships between both dimensions of perfectionism and depressive symptoms that are mediated by autonomous motivation. Overall,

the results confirm that autonomous motivation plays a key role in goal progress and indicate that goal-related autonomy can be linked to the presence of symptoms of psychopathology in self-critical and personal standards perfectionists.

Taken together, the research presented in this thesis provides compelling evidence that, SDT provides a valuable framework for understanding perfectionism's influence. Specifically, it implicates relative autonomous motivation as a key variable. Moreover, it contributes to the proposition that personal standards perfectionism is distinct from self-critical perfectionism and possibly adaptive.

Résumé

Le perfectionnisme autocritique consiste en des auto-évaluations négatives fréquentes, une rumination chronique concernant les attentes, la peur de la critique et une incapacité à reconnaître une performance réussie (Dunkley et al., 2006). Le perfectionnisme des normes personnelles implique de s'efforcer à des standards élevés et auto-identifiés (Dunkley et al., 2006). Ces dimensions du perfectionnisme ont été liées aux résultats des objectifs et aux indicateurs de bien-être. Il a été constamment démontré que le perfectionnisme autocritique entrave la progression des objectifs et favorise le mal-être, tandis que certaines recherches suggèrent que le perfectionnisme des normes personnelles renforce la progression des objectifs et contribue au bien-être. Un intérêt central de la théorie de l'autodétermination (TAD) est le rôle de la motivation dans l'épanouissement humain. La TAD différencie les formes de motivation à travers un continuum allant d'autonome à contrôlable. La motivation autonome est intégrée avec le moi et reflète la poursuite d'objectifs fondée sur l'intérêt, les valeurs et le plaisir. En revanche, la motivation contrôlée est déterminée par des pressions internes et externes et révèle un engagement forcé dans la poursuite d'objectifs. Un important corps de recherche a démontré une relation importante entre la motivation autonome lors de la poursuite d'objectifs et une gamme de résultats positifs (Koestner, Otis, Powers, Pelletier, & Gagnon, 2008; Sheldon & Elliot, 1998; Sheldon & Houser-Marko, 2001). La TAD au sens large, et la motivation autonome en particulier, peuvent fournir un cadre théorique permettant de comprendre les relations opposées du perfectionnisme autocritique et du perfectionnisme des normes personnelles avec les résultats des objectifs et les indicateurs de bien-être.

À travers une série de cinq études longitudinales, la présente thèse a cherché à explorer la valeur d'adopter une perspective de théorie de l'autodétermination pour comprendre le rôle du

perfectionnisme dans le contexte de la poursuite d'objectifs. Plus précisément, la présente thèse a examiné le rôle de la motivation liée aux objectifs en tant que médiateur dans les relations entre le perfectionnisme autocritique et le perfectionnisme des normes personnelles avec les résultats associés. À travers les études, la progression des objectifs et les symptômes dépressifs ont été considérés comme des variables. À ce jour, aucune étude n'a exploré le rôle de la motivation autonome liée aux objectifs lors de la poursuite d'objectifs personnels dans ce groupe.

L'objectif principal de cette thèse était d'utiliser la TAD pour comprendre comment le perfectionnisme autocritique et le perfectionnisme des normes personnelles influencent la poursuite des objectifs personnels (Article 1) et contribuent au développement du mal-être (Article 2). La littérature existante a commencé à établir ces relations; cependant, les raisons ne sont pas bien comprises. Un objectif supplémentaire de la thèse de doctorat était de différencier davantage le perfectionnisme autocritique du perfectionnisme des normes personnelles. Un important corps de littérature a mis en évidence la multidimensionnalité du perfectionnisme, mais la notion d'une forme adaptative de perfectionnisme reste débattue.

Dans l'article 1, mettant en œuvre une conception longitudinale prospective à cinq vagues, nous avons démontré que les effets opposés du perfectionnisme autocritique et des normes personnelles pouvaient être largement expliqués en considérant la fonction de motivation autonome et de soutien à l'autonomie des autres. Les résultats mettent en évidence l’importance de l’expérience de la volonté des perfectionnistes dans la poursuite de leurs objectifs personnels et la valeur de voir leur autonomie soutenue par d’autres personnes d’importances.

L'article 2 s'appuie sur cette recherche en corroborant les résultats de l'article 1 et en élargissant la perspective de la TAD à une variable clinique - les symptômes dépressifs. Les résultats de quatre études longitudinales à trois vagues ont confirmé le rôle de la motivation

autonome dans la médiation des effets opposés du perfectionnisme autocritique et des normes personnelles sur la progression des objectifs. De plus, les résultats suggèrent des liens entre les deux dimensions du perfectionnisme avec les symptômes dépressifs qui sont reliés à la motivation autonome. En tout, les résultats confirment que la motivation autonome joue un rôle clé dans la progression des objectifs et peut être liée à la présence de symptômes de psychopathologie chez les perfectionnistes autocritiques et chez les perfectionnistes des normes personnelles.

Dans l'ensemble, la recherche présentée dans cette thèse fournit des preuves convaincantes que la TAD représente un cadre précieux pour comprendre l'influence du perfectionnisme. Plus précisément, elle implique la motivation autonome comme une variable clé. Finalement, cela contribue à la proposition selon laquelle le perfectionnisme des normes personnelles est distinct du perfectionnisme autocritique et est possiblement adaptatif.

Acknowledgments

I am immensely grateful to have had the opportunity to pursue my PhD at McGill University. The last six years reflect an amazing journey in an intellectually stimulating environment, saturated with diverse experiences that have allowed me to flourish. I could not have asked for a more inspiring or fulfilling graduate school experience. I have grown immeasurably both professionally and personally. My completion of this degree would not have been possible without the love, encouragement and guidance of a number of wonderful individuals who have supported me throughout this endeavour.

First, I wish to express my sincere gratitude to my PhD supervisor, Dr. Richard Koestner. I could not have asked for a more dedicated, inspiring or supportive mentor. Richard embodies the teachings of SDT through thoughtfulness in his interactions with students, openly making ongoing efforts to foster their feelings of autonomy, competence and relatedness. One of Richard's most notable qualities is his confidence in his students' ability to find direction and engage in autonomous goal pursuit. I never left a meeting with Richard without feeling extremely inspired. He supported all my wild ideas, fellowship experiences, extra practicums and trips back home. My personal growth throughout my graduate years and the completion of this thesis would not have been possible without his encouragement and guidance. Richard, I feel profoundly fortunate to have landed under your supervision and am honoured to call you my mentor.

My next thank you is to the many friends I have been privileged to meet within the Department of Psychology. Thank you for cherished time spent together at Thomson House, thought-provoking conversations and lots of laughter. My PhD experience would have been a lot less enjoyable and much more challenging without the love, reassurance, camaraderie and

deadline reminders from the most wonderful clinical cohort members. Danielle, Mallory, Paige, Paul, Sarah P and Sarah S, you are all brilliant, genuine and kind. You each mean so much to me. I will forever treasure having experienced this journey with all of you. A special thanks to Paige, for being a friend from our very first day. Thanks to Alison, my undergrad best friend, who embarked on this journey with me towards a PhD. It has been a pleasure to pursue our dreams together and to find many moments for fun in between. Matteo, serendipity was on my side when I met you, as you are one of the most captivating people I know. Thank you for inspiring me, challenging me and supporting me. To the many other wonderful peers I had the opportunity to engage with and learn from, thank you.

I'd also like to extend my gratitude to my lab mates, Anne, Amanda and Brenda. Thank you for your friendship and for sharing your skills and perspectives. You made my days in the lab brighter. Special thanks to Anne, for being a close confidant, source of support and a wellspring of joy. I have fond memories of conference adventures, lab days where more chatting than work was accomplished, playing hairdresser and lovely tea breaks. I promise to become a better pen pal.

I would also like to thank the many Professors and clinical supervisors that I was privileged to learn from. Your guidance and feedback have deeply supported my development as a clinician and scientist. I especially want to thank my committee members David Zuroff and Melanie Dirks. I would like to thank Ted Powers, a valued collaborator for his support and encouragement. I would also like to acknowledge the financial support I received from the Vanier Canada Graduate Scholarship, CIHR Health System Impact Fellowship, the Faculty of Graduate Studies and the Department of Psychology of McGill University. My time in the Department was also greatly enriched by the support of Chantale Bousquet whose patience,

kindness and problem-solving could always be depended upon. I am also sincerely grateful for the administrative support of Giovanna LoCascio and Nina Pinzarrone. I will truly miss the pleasant atmosphere of the McGill Psychology Department generated by the presence of countless wonderful individuals.

I also wish to thank other important mentors I've had the privilege of connecting with during my graduate studies. Alia Karsan was instrumental in fostering the practical applicability of my research skills and teaching me how to pivot. Alia, I admire your leadership ability, value our friendship and truly appreciate your ongoing support. Thanks to Mick Sullivan for his support and guidance early on in my graduate training. I would not have landed at McGill and benefited from this wonderful experience without you. Special thanks to Irv Binik, who I had the pleasure of getting to know through my work as his teaching assistant over the years. I truly appreciate your candidness, wisdom and advice. Special mentions to Pasqualina Di Dio, Marc Hamel, Jennifer Russell, Debbie Sookman, Marie-Andrée Lahaie, Laurie Gelfand, Gabrielle Pagé and Blaine Ditto for being cherished role models and great sources of knowledge and support.

To many friends outside of the department, who have provided support, excitement, distraction and perspective. You bring so much joy and laughter to my life. Thank you to my lifetime best friend Kayla. You have been there for me every step of this journey and I have fond memories of your visits to Montreal. I will always treasure our time together. Thank you to Paul for the necessary distractions from my research, deep conversations, introductions to great friends, belly laughs and reminders to embrace life to its fullest.

I am grateful to Vladimir, my love, for all his care, reassurance and support. Vlad, you may have entered my life later on in this process, but you've contributed immensely. Your tenacity in everything you do inspires me daily and your encouragement has been invaluable.

Last but not least, I am endlessly thankful to my parents David and Christine, my sister Georgina, and my brother Alexander. Your ongoing love, guidance and support is unparalleled and deeply appreciated. Georgina, thank you for being my fiercest supporter and my favourite friend. I am fortunate beyond belief to have a sister who is as loving and thoughtful as you. Your wisdom, boldness and strength inspire me daily. I'd be lost without you. Alexander, thank you for your love, unwavering support, and wonderful sense of humour. You inspire me to always find balance, to work hard but play harder. Finally, I am forever grateful to my parents for always believing in me and wholeheartedly supporting the opportunities that have made me who I am. They selflessly encourage me to explore new directions in life and pursue my dreams. Mum and Dad, I dedicate this milestone to you.

Contribution of Authors

Two manuscripts are included in the present doctoral thesis. The first manuscript "Perfectionism and the pursuit of personal goals: A self-determination theory analysis" was co-authored by myself, Anne Holding, Nora Hope, Brenda Harvey, Theodore Powers, David Zuroff and Richard Koestner (Article 1). I was interested in considering the potential implications of self-determination theory in understanding the relationship between perfectionism and personal goal progress. I conducted the literature review that led to the research questions in the study which were further developed through support from Richard Koestner. The longitudinal study design framework was originally developed by Richard Koestner. Nora Hope, Anne Holding and Richard Koestner collected the data. Finally, I conducted all main analyses, interpreted the data and wrote the manuscript. Richard Koestner assisted with statistical analysis and provided feedback on earlier versions of the manuscript prior to its publication in *Motivation and Emotion*. I revised the manuscript for publication with editorial assistance from all co-authors.

The second manuscript "The Role of Goal-Related Autonomy: A Self-Determination Theory Analysis of Perfectionism, Poor Goal Progress and Depressive Symptoms" was co-authored by myself, Anne Holding, Amanda Moore, Shelby Levine, Theodore Powers, David Zuroff and Richard Koestner (Article 2). I was interested in further application of SDT to perfectionism and in expanding my research to consider a clinical variable. I conducted the literature review that led to the research questions. The data was collected by myself, Anne Holding, Nora Hope and Amanda Moore. I completed the majority of the data analyses and interpreted the data with input from Richard Koestner. Shelby Levine and Anne Holding provided statistical support for the structural equation modeling component of the analyses.

Richard Koestner provided input on data analysis. I wrote and revised the manuscript. Editorial assistance was provided by all co-authors prior to submission of the manuscript. Anne Holding contributed to the revision of the manuscript for publication. Article 2 was published in the *Journal of Counseling Psychology*.

Statement of Original Contribution

Unique Analytical and Theoretical Contributions

Perfectionism has a meaningful impact on diverse domains of individuals lives (Stoeber & Otto, 2006). Recent work indicates rapidly increasing rates of perfectionism in society (Curran & Hill, 2019). Two dimensions of perfectionism have been uniquely related to goal pursuit (Powers, Milyavskaya, & Koestner, 2012). Within various contexts, self-critical perfectionism appears to impede goal progress, while personal standards perfectionism supports it. Despite this, a debate regarding the existence of a positive form of perfectionism remains (Hill, 2017; Stoeber & Gaudreau, 2017). Additional longitudinal evidence is required to differentiate the dimensions of perfectionism and substantiate a positive form. Seeing that successful goal pursuit contributes to sustained well-being and is fundamental to human functioning, understanding the influence of perfectionism in this context is essential. Nevertheless, the process by which self-critical perfectionism undermines goal progress and personal standards perfectionism bolsters it remains unclear. Numerous studies have demonstrated that autonomous motivation for pursuing goals enhances pursuit and contributes to a number of desirable outcomes, including bolstered goal progress and improved well-being (Koestner, 2008; Koestner et al., 2008). Self-determination theory (SDT) may provide a theoretical framework by which to understand how perfectionism impacts goal pursuit, goal progress and well-being. Recently, Stoeber (2018) identified a lack of longitudinal investigations and insufficient investigation of mediators as significant gaps in the perfectionism literature.

The present thesis addresses these gaps in the literature in a series of five longitudinal investigations. Each article makes a unique contribution to the analytical and theoretical

understandings of the relationship between perfectionism, motivation and goal progress. This thesis makes important theoretical contributions to SDT by demonstrating the role of goal-related motivation in the relationship between both dimensions of perfectionism, goal progress and symptoms of psychopathology. Moreover, the studies in this thesis aim to bridge a prominent theory of motivation—SDT—with a large body of personality literature examining the impact of self-critical and personal standards perfectionism. Furthermore, the present thesis makes an important contribution in further distinguishing the positive dimension of perfectionism—personal standards perfectionism—from the negative dimension of perfectionism—self-critical perfectionism, by exploring covariates, mediators and associated outcomes.

The most noteworthy contribution of Article 1 is the indication that goal-related autonomous motivation mediates the opposite relationships of self-critical perfectionism and personal standards perfectionism with subsequent goal progress. While autonomous motivation has previously been associated to enhanced goal pursuit (Koestner, 2008), prior research has not explored whether goal-related autonomous motivation might mediate the differential relationships between self-critical perfectionism, personal standards perfectionism and goal progress during goal pursuit. Therefore, Article 1 is the first study to integrate SDT and perfectionism, in order to understand the influence of perfectionism during goal pursuit, highlighting a novel theoretical contribution. Other notable original contributions of Article 1 include (1) the repeated assessment of goal-related autonomous motivation to detect dynamic changes and (2) an extensive longitudinal examination of perfectionism and SDT variables.

Article 2 is unique in examining the effects of goal-related autonomous motivation on an indicator of ill-being, in both self-critical perfectionists and personal standards perfectionists. The most important contribution of Article 2 is the use of multivariate statistical analysis to

demonstrate the structural relationships between five key variables of interest: self-critical perfectionism, personal standards perfectionism, goal-related motivation, goal progress and depressive symptoms. This work offers valuable theoretical contributions and implications for SDT, which has traditionally focused on positive aspects of human functioning but has recently began to consider the circumstances that bring about pathological functioning (Vansteenkiste & Ryan, 2013). Article 2 contributes to this novel direction in SDT by identifying goal-related autonomous motivation as an important predictor of psychopathological symptoms during personal goals pursuit in self-critical perfectionists and personal standards perfectionists. In addition, Article 2 provides convincing replications of differential associations between goal-related autonomous motivation and both dimensions of perfectionism. Lastly, Article 2 corroborates the value of integrating SDT to explain differences between the two dimensions of perfectionism and provide further clarification on their impact.

General Introduction

"Perfection spells paralysis."

— Winston Churchill

"I know quite certainly that I myself have no special talent: curiosity, obsession and dogged endurance, combined with self-criticism, have brought me to my ideas."

— Albert Einstein

The quotes above reveal the divide in perspectives regarding whether perfectionism is a virtue or a vice. Winston Churchill's words clearly suggest his belief that a lack of forward momentum is the outcome of striving for perfection. In contrast, Albert Einstein's statement asserts that it is simply his perfectionistic tendencies and self-critical inclinations that explain his notable contributions and resounding success. Colloquial use of the term perfectionism displays similar division. Though perfectionistic actions are touted by some, they are equally condemned by others. Society abounds with conversational debate concerning whether perfectionism is a hindrance or an advantage. This division in opinions regarding whether perfectionism is inherently detrimental, beneficial or instead a combination of both, is an argument that is also reflected in academic research on this topic. A uniform conceptualization of the construct is not wholly evident. Perfectionism and what it encompasses has been and continues to be thoroughly debated in the literature.

In line with the quotes above, the present thesis sought to explore whether perfectionism was beneficial or deleterious throughout the process of goal pursuit. This work strove to further

differentiate two dimensions of perfectionism—personal standards and self-critical perfectionism—by analyzing their impact on personal goal pursuit and indicators of well-being. The differential relationships between these outcomes and the two dimensions of perfectionism were a central focus. Importantly, it also endeavoured to integrate the theoretical perspectives of self-determination theory (SDT) in order to examine why these differential relationships exist. A fundamental aim of the present thesis was to examine whether the motives of personal standards perfectionists differed from those of self-critical perfectionists throughout personal goal pursuit. An affiliated aim was to explore whether the quality of perfectionists' motivation played a role in distinguishing their experiences. Conceivably, Winston Churchill and Albert Einstein may have both been accurate in describing their experience of perfectionism during goal pursuit, but simply experienced different dimensions of perfectionism associated with divergent motives.

Literature Review

Perfectionism

Broadly, perfectionism can be defined as a personality style characterized by extremely high standards, unreasonable expectations, consistent attempts at flawlessness and immensely critical self-evaluations (Flett & Hewitt, 2002; Frost, Marten, Lahart, & Rosenblate, 1990; Hewitt & Flett, 1991; Stoeber & Otto, 2006). Perfectionism was originally theorized to be a one-dimensional maladaptive personality style consisting of overly high expectations, an overwhelming sense of self-doubt and a tendency to focus on shortcomings (Hollender, 1965; Horney, 1951; Missildine, 1963). Subsequently, Hamachek (1978) suggested the existence of a positive or normal perfectionism in addition to the negative or neurotic form. Normal perfectionists were described as individuals who were realistic and flexible with regards to their perfection and capable of gaining pleasure from their meticulous effort. In contrast, he described

neurotic perfectionists as individuals with unrealistic and inflexible expectations of themselves, who experienced their painstaking efforts as inadequate. Despite Hamachek's proposal of a positive form of perfectionism, the field continued to be dominated by the notion that perfectionism was uniquely dysfunctional.

For the following decade, perfectionism was perceived as a unidimensional and maladaptive construct that was indicative of psychopathology (Burns, 1980; Pacht, 1984). This notion was reinforced as high levels of perfectionism were identified in various patient populations, implying that this personality style frequently resulted in an assortment of psychopathology (Ranieri et al., 1987; Rasmussen & Eisen, 1992; Rosen, Murkofsly, Steckler, & Skolnick, 1989). Moreover, work with nonclinical populations suggested that perfectionism was associated with increased psychological distress as well as psychological symptoms commonly seen in depression, anxiety and disordered eating (Flett, Hewitt, & Dyck, 1989; Hewitt, Mittelstaedt, & Wollert, 1989; Thompson, Berg, & Shatford, 1987). These findings were considered evidence that even in otherwise emotionally healthy individuals, perfectionism was decidedly dysfunctional.

The multidimensionality of perfectionism became more prominent in the 1990's as work exploring the manifold aspects of the construct commenced (Frost, Marten, Lachart, & Rosenblate, 1990; Hewitt & Flett, 1991). Hewitt and Flett (1991) identified three distinct styles of perfectionism—self-oriented perfectionism, socially prescribed perfectionism and other-oriented perfectionism—which they differentiated based on the focus of the perfectionistic standards and the associated goal. Self-oriented perfectionism involves having lofty expectations of the self, unforgiving self-evaluations and intense attempts to avoid failure (Hewitt & Flett, 1991). Socially prescribed perfectionism is described as the need to attain standards or

expectations held by important others (Hewitt & Flett, 1991). Other-oriented perfectionism is characterized by exceedingly high expectations of others (Hewitt & Flett, 1991). Concurrently, Frost, Marten, Lachart, et al. (1990) proposed six facets of perfectionism—personal standards, organization, concern over mistakes, doubts about actions, parental expectations, and parental criticism. From this perspective, perfectionists are conceptualized as individuals with high expectations, who experience excessive worry about making mistakes, struggle with notable self-doubt, attach significant importance to organization, and are concerned about parental appraisals. This work led to widespread recognition that perfectionism was a multidimensional construct (Frost, Heimberg, Holt, Mattia, & Neubauer, 1993; Stoeber, 2012; Stoeber & Otto, 2006). Nonetheless, Hamachek's notion that one perfectionistic dimension was possibly adaptive remained unrecognized and continues to be debated today. Consequently, one overarching goal of the present thesis is to contribute to the differentiation of the negative and positive dimensions of perfectionism through the exploration of the constructs associated with each.

The exploration and measurement of perfectionism continued, and many different multidimensional measures of perfectionism now exist. They vary in their conceptualizations, ranging in the number of dimensions they present and the terminology used (Burns, 1980; Frost, Marten, Lachart, et al., 1990; Hewitt & Flett, 1991; Hollender, 1965; Pacht, 1984; Rhéaume et al., 2000). Interestingly, despite superficial differences in the two most widely used multidimensional measures (Frost et al., 1990; Hewitt & Flett, 1991), two central dimensions emerged during factor analytic research, suggesting substantial overlap between the measures (Bieling, Israeli, & Antony, 2004; Cox, Enns, & Clara, 2002; Dunkley, Blankstein, Masheb, & Grilo, 2006; Dunkley, Zuroff, & Blankstein, 2006; Frost, Heimberg, Holt, Mattia, & Neubauer, 1993). The two dimensions differ with regards to the prominence of sensitivity to external

scrutiny and the presence of self-criticism (Dunkley, Zuroff, & Blankstein, 2003; Powers, Zuroff, & Topciu, 2004; Stoeber & Otto, 2006). Of note, when the self-criticism subscale of the Depression Experiences Questionnaire (Blatt, D'Afflitti, & Quinlan, 1976) is introduced alongside scales assessing the more neurotic higher order dimension, self-criticism surfaces as the most potent predictor of maladjustment among the elements of perfectionism (Dunkley, Zuroff, et al., 2006). Given this prior work, throughout the present thesis I will employ Dunkley, Zuroff, and Blankstein (2003) terminology for referring to the two dimensions of perfectionism: self-critical perfectionism and personal standards perfectionism.

Self-critical perfectionism can be defined as a maladaptive form of perfectionism that consists of frequent and intense negative self-evaluation, chronic rumination regarding external expectations, fear of criticism, and an inability to experience pleasure subsequent to successful performance (Dunkley, Blankstein, Zuroff, et al., 2006). Self-critical perfectionism is reminiscent of Hamachek's early conceptualization of neurotic perfectionism and related to Blatt's self-criticism construct (Blatt, 1974). Contrastingly, personal standards perfectionism includes engaged setting and striving towards self-identified high standards and objectives (Dunkley, Blankstein, Zuroff, et al., 2006). This dimension lacks the self-denigrating component of self-critical perfectionism. It is therefore understood as an adaptive perfectionism dimension, closely related to Hamachek's originally proposed normal form of perfectionism. Personal standards perfectionism is related but distinct from the construct of excellencism—the pursuit of excellence—which encompasses high standards, and intense determination but integrates more flexibility (Gaudreau, 2018). The two dimensions of perfectionism differ in important ways and a substantial body of literature suggests unique relationships with an array of outcomes.

The self-critical dimension of perfectionism has been positively associated with negative affect (Bieling, Israeli, Smith, & Antony, 2003; Chang, Watkins, & Banks, 2004; Dunkley et al., 2003; Frost et al., 1993), neuroticism (Cox, Enns, & Clara, 2002; Enns, Cox, Sareen, & Freeman, 2001; Parker & Stumpf, 1995; Stumpf & Parker, 2000), depression (Bieling, Israeli, & Antony, 2004; Cox et al., 2002; Enns et al., 2001; Frost et al., 1993; Rice, Ashby, & Slaney, 1998), anxiety (Bieling et al., 2004), distress (Dunkley, Blankstein, Halsall, Williams, & Winkworth, 2000), suicidal ideation (Chang et al., 2004; Enns et al., 2001), hassles (Dunkley et al., 2000; Dunkley et al., 2003), avoidant coping styles (Dunkley et al., 2000; Dunkley et al., 2003), and an external locus of control (Suddarth & Slaney, 2001). Furthermore, unhealthy perfectionism has been negatively associated with positive affect (Bieling et al., 2003; Chang et al., 2004; Dunkley et al., 2003), conscientiousness (Parker & Stumpf, 1995), agreeableness (Parker & Stumpf, 1995), extraversion (Parker & Stumpf, 1995), life satisfaction (Chang et al., 2004), and self-esteem (Rice et al., 1998; Stumpf & Parker, 2000). Moreover, across studies pure maladaptive perfectionism, as conceptualized by the 2x2 model has been associated with a range of negative outcomes (Gaudreau, Franche, Kljajic, & Martinelli, 2018). This body of research suggests that individuals who demonstrate a self-critical perfectionism personality style face a range of challenges, experience significant psychopathology, and fail to obtain significant advantage from their perfectionism.

On the other hand, the personal standards dimension of perfectionism has been positively correlated with positive affect (Bieling et al., 2003; Chang et al., 2004; Frost et al., 1993), extraversion (Parker & Stumpf, 1995), conscientiousness (Enns et al., 2001; Parker & Stumpf, 1995; Stumpf & Parker, 2000), active coping styles (Dunkley et al., 2000), external locus of control (Suddarth & Slaney, 2001), hassles (Dunkley et al., 2000), depression (Bieling et al.,

2003; Cox et al., 2002), anxiety (Bieling et al., 2004; Hill et al., 2004), neuroticism (Cox et al., 2002; Enns et al., 2001) and negative affect (Bieling et al., 2003; Dunkley et al., 2003). In addition, pure adaptive perfectionism as outlined by the 2x2 model, is associated with additional positive outcomes (Gaudreau et al., 2018). This body of work illustrates that this dimension of perfectionism is associated with a variety of positive constructs that may contribute to improved quality of life, suggesting that it may be healthy or perhaps adaptive. However, the evidence also suggests relationships between this dimension of perfectionism, a range of negative qualities and even some forms of psychopathology. This combination of findings contradicts the notion that this dimension of perfectionism is functional or perhaps a positive personality style. Therefore, while consensus endures regarding the multidimensional nature of perfectionism, the existence of an adaptive form of perfectionism remains contentious.

The ongoing controversy over a positive form of perfectionism has led investigators to closely examine the dimensions of perfectionism. Many researchers endorse the view that an adaptive form of perfectionism exists and suggest that it is through controlling for the overlap between the dimensions that this is demonstrated (Dunkley et al., 2003; Powers, Koestner, Zuroff, Milyavskaya, & Gorin, 2011; Powers, Milyavskaya, & Koestner, 2012; Stoeber & Gaudreau, 2017; Stoeber & Otto, 2006). However, a number of researchers maintain that while one dimension is evidently more detrimental than the other dimensions, it is unreasonable to consider the less detrimental dimension a positive form of perfectionism. This group correspondingly disputes statistically controlling for the overlap between the dimensions, stating that this approach eliminates critical facets of perfectionism (Flett & Hewitt, 2005; Hewitt & Flett, 2004; Hill, 2014, 2017).

Stoeber and Otto (2006) conducted a meta-analysis to thoroughly examine the controversial idea of a positive perfectionism dimension. Controlling for the overlap between the dimensions, they explored the effects of self-critical and personal standards perfectionism on diverse outcomes. The majority of the studies included in their analysis suggested a relationship between personal standards perfectionism and positive outcomes. A handful of studies demonstrated mixed results and another found null results, but none exposed a relationship between personal standards perfectionism and negative outcomes. Stoeber and Otto (2006) concluded that the bulk of studies that have investigated personal standards perfectionism and its correlates have found evidence that it is associated with positive outcomes or is unrelated to outcomes. They expressed that this is especially the case when controlling for the overlap between the dimensions of perfectionism or when self-critical perfectionism is at low levels in group-based conceptions (Stoeber & Otto, 2006). For example, if the overlap between personal standards and self-critical perfectionism is controlled for in the aforementioned findings, the relationships between personal standards perfectionism, negative affect, hassles, anxiety and one outcome of depression are no longer significant (Bieling et al., 2003; Stoeber & Otto, 2006). This statistical approach also leads self-esteem to be positively correlated with personal standards perfectionism (Rice et al., 1998). Stoeber and Otto (2006) also highlighted a stronger negative impact of self-critical perfectionism when removing the overlap of personal standards perfectionism, suggesting a suppression effect of this dimension. In line with the recommendation from Stoeber and Otto (2006), controlling for the overlap between personal standards perfectionism and self-critical perfectionism has become commonplace.

Despite this, a number of investigators remain unconvinced by Stoeber and Otto (2006) approach. Hill (2014) argues that when self-critical perfectionism is partialled out from personal

standards perfectionism the conceptual value is fundamentally distorted. He states that what remains is simply residual variance with unclear characteristics and that this cannot be understood as perfectionism. Hill (2014) also expresses concern that controlling for the overlap between the dimensions of perfectionism generates spurious relationships, which are consequent of suppression effects and therefore uninterpretable. Stoeber and Gaudreau (2017) responded to Hill's (2014) primary concern by highlighting the nuance in perfectionistic striving. They note that not all individuals approach perfectionistic striving in combination with extreme self-criticism, a fear of failing to reach perfectionism or a sense that their self-worth is dependent on them attaining perfection. The authors provided further support for their approach by reasoning that if nothing remains that is distinguishable as perfectionism once the overlap between personal standards and self-critical perfectionism is controlled for, then one-dimensionality of the construct is being implied. This would suggest that there is no need to study other dimensions of perfectionism but instead to focus simply on self-critical perfectionism.

Stoeber and Gaudreau (2017) reference work by Gotwals, Stoeber, Dunn, and Stoll (2012) identifying correlations that are not typically higher than r =.60 and suggest that this is insufficient overlap to propose that the two dimensions are in fact one single construct. Importantly, this strength of correlation implies that on average self-critical perfectionism accounts for approximately 36% of the variance in personal standards perfectionism. This highlights important divergence between both dimensions, clarifying that approximately 64% of the variance in personal standards perfectionism is not accounted for by self-critical perfectionism. This presents an argument for the independence of the constructs. The distinction between self-critical and personal standards perfectionism is further supported by work suggesting that collinearity is not a concern at r =.60 and instead only becomes problematic when

r =.80 or higher (Abu-Bader, 2010; Grewal, Cote, & Baumgartner, 2004). Stoeber and Gaudreau (2017) conclude that the argument that partialling self-critical perfectionism removes a fundamental component of personal standards perfectionism and leaves only uninterpretable residual variance is unsubstantiated.

To address Hill's (2014) second concern about the emergence of obscure spurious relationships subsequent to partialling as a result of suppression effects, Stoeber and Gaudreau (2017) suggest that the partialling process contributes to the predictive validity of both forms of perfectionism. Therefore, this is more indicative of a "suppression situation" than a suppression effect (Tzelgov & Henik, 1991). Specifically, they reason that the relations that emerge are not spurious but instead reliable and predictable. The overlap between the two forms of perfectionism prompts suppression of the adaptive associations of personal standards perfectionism while diminishing the maladaptive associations of self-critical perfectionism. Stoeber and Gaudreau (2017) argue that controlling for the overlap in these constructs allows both the adaptive aspects of personal standards perfectionism and the maladaptive features of self-critical perfectionism to become more evident. The reliability and replicability of this suppression situation in perfectionism research is viewed as a noteworthy accomplishment by Stoeber and Gaudreau (2017). Hill (2017) reasserted his original perspective and expressed dissatisfaction regarding the persuasiveness of the rebuttal offered by Stoeber and Gaudreau (2017), nonetheless he countered with few new arguments. Consequently, the debate regarding a positive form of perfectionism continues on. Despite this, the advantages of partialling and the adaptive aspects of personal standards perfectionism continue to be explored. Subsequently, one important goal of the present thesis is to contribute to the evidence substantiating a positive form

of perfectionism and its' association with adaptive outcomes through multiple longitudinal investigations.

Perfectionism is prevalent and has an important impact across domains throughout individuals' lifetimes. Therefore, improving our general understanding of perfectionism and distinguishing between a maladaptive and adaptive form is essential. Refinement in our knowledge on this topic is especially relevant as rates of perfectionism are rapidly increasing (Curran & Hill, 2019). An improved understanding will allow us to better predict, prevent and address perfectionism and the associated outcomes. A substantial body of research has highlighted the role of both self-critical perfectionism and personal standards perfectionism in various contexts, including the workplace, athletics, academics, and mental health.

The workplace is a setting where perfectionism is often prominent (Stoeber & Stoeber, 2009) given that achievement-related indicators are abundant and performance appraisals are frequent (Mitchelson & Burns, 1998). In addition, perfectionistic tendencies are becoming increasingly legitimized in today's workplaces (Stoeber, Davis, & Townley, 2013), which emphasizes the need to understand perfectionism in this context and differentiate the influence of both forms. A recent meta-analysis of perfectionism in the workplace suggests a net detrimental effect of perfectionism at work (Harari, Swider, Steed, & Breidenthal, 2018). The authors state that while personal standards perfectionism does appear to be related to outcomes that may offer benefit to employers and employees—employee engagement, conscientiousness and motivation—the authors suggest that the stronger relationships between self-critical perfectionism and numerous negative outcomes—burnout, stress, anxiety and depression—appear to outweigh the potential positives of the adaptive dimension. More recently, Ocampo, Wang, Kiazad, Restubog, and Ashkanasy (2020) conducted an integrative review on this topic.

They identified that self-critical perfectionism was reliably related to negative job attitudes, fatigue, stress, poor performance outcomes and burnout. Their findings regarding personal standards perfectionism were less consistent. They reported mixed findings on the relationship between personal standards perfectionism, employee well-being and job performance. Ocampo et al. (2020) conclude that perfectionism has both beneficial and detrimental implications for individual functioning in the workplace. They acknowledge Harari et al. (2018) contradictory conclusion but advance the notion that a nuanced examination of perfectionism suggests that it is not always maladaptive in this domain.

Within the area of athletics, perfectionism is significant and impactful, as it is prevalent in athletes. In their review, Flett and Hewitt (2005) conclude that all dimensions of perfectionism are predominantly maladaptive within the context of sports performance. Contrastingly, Stoeber (2011) argues that perfectionism has both positive and negative sides. Stoeber (2011) demonstrates that when the two higher-order factors of perfectionism are differentiated, it becomes clear that only self-critical perfectionism displays maladaptive associations, including negative emotions, fear of failure, and performance-avoidance goals. However, personal standards perfectionism frequently illustrates adaptive associations, including competitive self-confidence, hope of success, performance approach goals, and performance excellence. Consequently, while debate on this topic remains, it appears that perfectionism in athletes is not inherently maladaptive. Given that perfectionism clearly plays a role in sports performance and effects athletes, further research on this topic is necessary.

In the academic sphere, personal standards perfectionism has been reliably associated to enhanced academic performance. A thorough review by Stoeber (2012) suggests that superior GPA’s, higher individual grades and improved exam performance have been repeatedly shown

in students with higher levels of personal standards perfectionism, across a wide range of academic contexts. On the other hand, the body of research on the relationship between self-critical perfectionism and academic functioning is more ambiguous. The majority of work does not identify significant negative correlations between self-critical perfectionism and academic performance, but a few studies suggest minor negative associations (Stoeber, 2012). In addition, while individuals higher in personal standards perfectionism are reliably found to have higher GPA's than non-perfectionists and self-critical perfectionists (Grzegorek, Slaney, Franze, & Rice, 2004; Kljajic, Gaudreau, & Franche, 2017), limited research suggests that both personal standards perfectionists and self-critical perfectionists have higher GPA's than non-perfectionistic individuals (Grzegorek et al., 2004). A recent meta-analysis by Osenk, Williamson, and Wade (2020) echoes these findings. Their analyses suggest that personal standards perfectionism has positive associations with academic variables thought to encourage effective learning and offer overall advantage. With regards to self-critical perfectionism their results paint a more negative picture. They found associations ranging in intensity with a number of academic variables that are believed to impede effective learning. Therefore, the nuanced roles of both forms of perfectionism in this domain remain somewhat unclear at this time.

The body of research examining perfectionism in relation to mental health outcomes is extensive. When considered as a whole, perfectionism is considered a transdiagnostic risk factor and sustaining element in several psychological disorders (Egan, Wade, & Shafran, 2011). Self-critical perfectionism is reliably linked to poorer well-being, lower life satisfaction, high negative affect, low positive affect, compromised functioning and a number of psychological disorders (Dunkley et al., 2003; Dunkley, Zuroff, & Blankstein, 2006; Enns & Cox, 2002; Stoeber & Stoeber, 2009; Zuroff, Stotland, Sweetman, Craig, & Koestner, 1995). On the other hand,

personal standards perfectionism is commonly linked to better life satisfaction, higher self-esteem and improved well-being, while being less related to psychopathology (DiBartolo, Li, & Frost, 2008; Stoeber & Otto, 2006; Suh, Gnilka, & Rice, 2017). A recent meta-analysis suggests that both dimensions of perfectionism are associated with psychopathology, but that the relationship with self-critical perfectionism is much stronger than with personal standards perfectionism (Limburg, Watson, Hagger, & Egan, 2017). This was observed to be true for all disorders examined except eating disorders where both dimensions were strongly associated to symptoms. They concluded that treatment should focus on self-critical perfectionism in psychological disorders such as depression, anxiety disorders and OCD because it appears to drive the symptoms of psychopathology (Limburg et al., 2017).

In depression, prospective research has established a relationship between perfectionism and the development of depression, underlining the directionality of the relationship (Békés et al., 2015). In addition, multi-year longitudinal research in a clinical sample has demonstrated that self-critical perfectionism predicts increases in depressive symptoms (Dunkley, Sanislow, Grilo, & McGlashan, 2006, 2009). With regards to anxiety, in their recent meta-analysis Smith, Vidovic, Sherry, Stewart, and Saklofske (2018) found that self-critical perfectionism predicted increased anxiety, whereas the relationship between personal standards perfectionism and anxiety remained ambiguous. In a recent meta-analysis, Smith et al. (2016) examined seven dimensions of perfectionism and found that they were positively related to subsequent depression symptoms when controlling for neuroticism and baseline depression. Although, when they controlled for the overlap between the positive and negative dimensions of perfectionism as recommended by Stoeber and Otto (2006) and Stoeber and Gaudreau (2017), personal standards and self-oriented perfectionism were no longer significant predictors of subsequent depressive

symptoms (Smith et al., 2016). To summarize, the relationship between self-critical perfectionism and negative mental health outcomes is well established, while the role of personal standards perfectionism in mental health remains unclear.

This brief overview of perfectionism literature underlines the various impacts of perfectionism across many domains of our lives and highlights the importance of furthering our understanding in this area. The need for additional research is strengthened by results of a recent meta-analysis that suggests that both dimensions of perfectionism are rapidly increasing (Curran & Hill, 2019). In an international sample of more than 40,000 university students collected over the last three decades, the more negative dimension of perfectionism appeared to be increasing at more than three times the frequency of the more positive dimension. The authors note that this discernible trend of self-critical perfectionism increasing over time corresponds to an increase in psychopathology in this age group (Curran & Hill, 2019). Therefore, given the meaningful impact of perfectionism on diverse domains of individuals lives and the increasing rates of perfectionism in society, it is more critical than ever to study perfectionism. Special emphasis on understanding the factors that mediate and moderate the relationships between both dimensions of perfectionism and outcome variables is especially relevant. Further knowledge in this area would equip us to focus intervention efforts on potentially more malleable intermediary variables to reduce the negative impact of self-critical perfectionism and bolster the positive impact of personal standards perfectionism.

Personal Goals

Personal goals and related goal constructs are historically and currently omnipresent in psychological research (Austin & Vancouver, 1996). Goal-striving in conjunction with motivation have been posited as integral facets of human life (Klinger, 1987). The importance of

personal objectives in human functioning has been well established in the literature (Brunstein, 1993; Emmons, 2003; Sheldon, 2014). Goals have been characterized by Klinger (1998) as "the linchpin of psychological organization" (p. 44). Personal goals have been defined as mental representations of desired outcomes (Bandura, 1986; Emmons, 2003). They aid individuals to plan and organize goal-directed behavior, energize, track progress, build capacity and achieve anticipated outcomes (Carver & Scheier, 2001; Gollwitzer & Sheeran, 2006; Harkin et al., 2016). The processes of goal reflection, selection and pursuit offer structure, purpose and order to people's lives. Goals are closely related to a person's priorities, interests and values, they are a crucial ingredient in an individual's construction of their life as meaningful (Emmons, 2003). It has been suggested that the status of our goal pursuits dictate our thought content and emotional state (Emmons, 2003; Klinger, 1998) Frisch (1998) went as far as to suggest that happiness can be understood as the degree to which valued goals, desires and needs have been fulfilled. Similarly, Emmons (2003) proposed that selecting and pursuing meaningful personal goals is an efficient path to experiencing long-term well-being.

A variety of personal goal constructs have been explored: life tasks—goals that individuals have for themselves associated to specific ages (Sanderson & Cantor, 1999), personal projects—specific brief tasks individuals pursue (Little, 1983), current concerns—endeavours individuals are contemplating engaging in (Klinger, 1987), possible selves—imagined future self which serves to guide behaviour (Markus & Ruvolo, 1989), and personal strivings—an overarching theme that unites distinct concrete goals (Emmons, 1989). Personal goals provide insight into people's minds and help us understand who they are. Personal goals have been conceptualized as an important unit of analysis for understanding personality. Goals characterize the "personal concerns" tier of personality, which McAdams (1996) maintained is one of three

major facets of personality that along with a “dispositions” tier and a “self-narrative” tier collaborate to allow us to profoundly understand an individual. Within the area of human motivation, goals are thought to be essential integrative and investigative units, in an effort to understand the relationship between personal goals and life satisfaction. In turn, this work aims to enhance human well-being (Austin & Vancouver, 1996).

Personal goals focus and guide behaviour; they require individuals to mobilize their energy, demonstrate persistence, utilize their skills and regulate themselves (Sheldon, 2014). There is agreement in the literature that personal goal pursuit has the potential to foster a number of positive changes and contribute to successful development over the life course (Emmons, 2003; Heckhausen, Wrosch, & Schulz, 2010; Sheldon, 2014).

The interplay of perfectionism and personal goals has been examined. Research in this area has concentrated on the adaptive and maladaptive facets of perfectionism. Personal standards perfectionism has been positively related to the ability to initiate and sustain goal directed behaviour, but negatively related to the ability to change goal directed behaviour in the face of failure (Campbell & Paula, 2002). This suggests that while personal standards perfectionism may prompt motivation to begin working towards a goal and support continued effort, it may impede disengagement when efforts are unsuccessful and goal failure occurs. Personal standards perfectionism has been linked to increased goal progress (Powers, Koestner, & Topciu, 2005; Powers, Koestner, Zuroff, Milyavskaya, & Gorin, 2011). Powers et al. (2011) identified a positive relationship between personal standards perfectionism and prospective goal progress across five studies, when controlling for self-critical perfectionism. This relationship was corroborated by Powers, Milyavskaya, and Koestner (2012) who also demonstrated the

benefits of personal standards perfectionism in goal achievement, when the overlap with self-critical perfectionism was removed.

In contrast, self-critical perfectionism has been positively associated with goal instability and negatively associated with the ability to initiate goal directed behaviour and the ability to change goal-directed behaviour when unsuccessful (Campbell & Paula, 2002). This depicts self-critical perfectionists as individuals with fluctuating goals, who experience difficulty commencing goal progress and similarly to personal standards perfectionists have difficulty disengaging from futile goals. Additionally, negative associations between self-critical perfectionism and goal progress have been identified (Powers, Koestner, Lacaille, Kwan, & Zuroff, 2009; Powers, Koestner, & Zuroff, 2007; Powers et al., 2011). When paired with implementation intentions, self-critical perfectionism was negatively related to goal progress (Powers et al., 2005). Powers et al. (2011) revealed a significant negative relationship between self-critical perfectionism and goal progress in five samples pursuing goals in distinct categories. This relationship was found using both self-rated and friend-rated measures of goal progress, as well as an objective measure of goal progress. Powers et al. (2012) replicated the original results and further supported the deleterious effect of self-critical perfectionism in the process of goal pursuit.

In sum, the two dimensions of perfectionism have been reliably and uniquely related to goal pursuit. Within various contexts, self-critical perfectionism appears to impede goal progress, while personal standards perfectionism encourages it. Given that engaging in fruitful goal pursuit contributes to sustained well-being and is central to human functioning, understanding the influence of perfectionism in this context is an important endeavour. The present work sought to explore mechanisms that might explain the two forms of perfectionisms' differential impact on

goal progress. In order to build upon the existing literature, it seems important to understand the "why" behind these relationships and explore the process by which perfectionism assists or interferes in the process of goal pursuit. Self-determination theory (SDT) may provide a theoretical framework by which to understand how perfectionism impacts goal selection, pursuit and progress. SDT makes valuable predictions regarding particular motivational elements that facilitate goal progress and produce enriched well-being (Sheldon, 2014).

Self-determination theory (SDT)

Self-Determination Theory was developed in response to the dominant focus of motivation research on controlling behaviour rather than exploring how humans naturally self-motivate (Ryan & Deci, 2017). The originators were interested in understanding how human motivation is functionally designed and experienced within the individual, with a specific focus on the dynamics that facilitate, dissuade or destabilize that natural vitality and sense of direction (Ryan & Deci, 2017).

Self-determination theory is an empirically based, organismic theory of human behaviour and personality development, primarily concerned with the social-contextual factors that nurture or obstruct human flourishing (Ryan & Deci, 2017). The theory advances three universal basic psychological needs—autonomy, competence and relatedness—that are presented as universally essential for optimal human functioning. Autonomy, refers to a way of functioning composed of feelings of volition, congruence and integration (de Charms & Carpenter, 1968; Friedman, 2003). The need for autonomy comprises our innate desire to have choice regarding our actions and experiences (Ryan, 1993). Autonomy is distinct from the constructs of independence and self-reliance, as dependence can be consistent with autonomy assuming it is congruent with the values and interests of the self (Ryan & Deci, 2017). Competence denotes our need to experience

mastery and acquire the know-how of acting effectively in our environment (Bandura, 1989; White, 1959). Competence is key in energizing behaviour but is quickly foiled under challenging conditions (Ryan & Deci, 2017). Relatedness refers to our need to experience social connection and to identify as an integral member of a group. This encompasses both a need to feel cared for and also to offer care to others (Angyal, 1941; Baumeister & Leary, 1995; Bowlby, 1979).

Fulfillment of the basic needs is viewed as crucial in stimulating the healthy development of an individual's innate capacities (Ryan & Deci, 2017). Via the satisfaction of an individual's autonomy, competence and relatedness needs, the theory posits that well-being is facilitated and psychological growth occurs. In contrast, through the frustration of an individual's needs psychological growth is impeded and the development of psychopathology follows. For example, perfectionism is a psychological struggle that can be understood through the lense of developmental need satisfaction and frustration, as autonomy is often sacrificed and competence prioritized in order to obtain parental connection and approval.

Organismic Integration Theory

Organismic integration theory (OIT) is an important mini-theory within SDT that is primarily concerned with the motivation underlying goal pursuit (Ryan & Deci, 2017). The theory focuses on the quality of motivation, rather than the quantity. OIT focuses especially on extrinsic motivation, understood in SDT as instrumental motivation—activities performed to achieve outcomes independent from the behavior itself (Ryan & Deci, 2019). This sizable and heterogeneous category of motives encompasses various forms of extrinsic motivation, ranging in their degree of autonomy and control. These motives are understood as occurring across a continuum from highly controlled to highly autonomous. Importantly, the pursuit of personal goals can be to varying degrees, determined by both autonomous and controlled motivation. For

instance, an individual might strive to become a lawyer because they find law inherently interesting (autonomous motivation) and because they want to achieve prestige (controlled motivation). Moreover, OIT proposes a process of internalization whereby individuals demonstrate an inherent tendency to move beyond external control toward autonomous regulation whenever possible, by assimilating social regulations into the self (Ryan & Deci, 2019).

Autonomous motivation is equivalent to "want to" motivation (Inzlicht, Schmeichel, & Macrae, 2014). Autonomous motivation encompasses intrinsic, integrated and identified motives (Ryan & Deci, 2017, 2019). The quintessential depiction of autonomous motivation is intrinsic motivation. Intrinsic motivation involves engaging in a behavior or pursuing a goal simply for the pleasure of it, because it is experienced as inherently enjoyable and interesting. It describes humans' natural propensity to engage with their interests and exercise their capacities. For example, taking a relaxing stroll through a forest to experience the cool mossy air and sounds of birds chirping.

Unfortunately, not all activities of human life are intrinsically motivating and experienced as inherently satisfying. Household chores, healthy eating and exercise are a few examples of the many daily tasks that for many are not innately enjoyable but can be executed by individuals willingly or even enthusiastically. These happenings highlight that instrumental activities—those engaged in to produce a desired outcome other than sheer enjoyment—can be autonomously regulated. The extent to which the activity has been actively internalized and integrated into the self is what determines to what degree it is autonomously motivated. When an activity is not fundamentally enjoyable, these well internalized types of motivation support individuals to volitionally engage because they are able to recognize its importance. Integrated motives are

present when tasks are congruent with an individual's other values and engagement is wholeheartedly endorsed. Identified motives occur when an individual intentionally acknowledges the pertinence and merit of the behavior (Ryan & Deci, 2019). In other words, individuals can experience a sense of autonomy even when completing tasks that are extrinsically rewarded. Therefore, distinguishing between autonomous and controlled motivation is in some ways more important than the discrepancy between intrinsic and extrinsic motivation (Ryan & Deci, 2000).

In contrast, controlled motivation comprises external regulation and introjection (Ryan & Deci, 2017). Controlled motivation is equivalent to "have to" motivation (Inzlicht et al., 2014). External regulation is the most extrinsic form of motivation. Performing a task in order to acquire positive reinforcement or avoid negative reinforcement is characteristic of external regulation. Whether motivated by coercion, reward contingencies or other outside pressures, external regulation is understood as a potent but unsustainable form of motivation. Introjected motivation concerns behavior compelled by internal pressures and occurs when external demands are partly integrated (Ryan & Deci, 2019). Introjected motives can be powerful but are a threat to well-being and are often insubstantial in response to obstacles.

In research, the quality of motivation underlying individuals' personal goals has been explored. "Perceived locus of causality" (PLOC) is a common approach that has been used to assess the degree of autonomous and controlled motivation in personal goal pursuit (Ryan & Connell, 1989). The PLOC measures the extent to which people view their own behavior as produced by internal factors (i.e. values and interests) or produced by external factors (i.e. pressure, reward contingencies). Internally motivated behavior is labeled I-PLOC and equates to autonomous motivation, while externally motivated behavior is referred to as E-PLOC and is the

equivalent to controlled motivation. As per OIT, autonomous motivation is calculated as the mean of intrinsic, integrated and identified scores, whereas controlled motivation is calculated as the mean of introjected and external regulation. Subsequently, a relative autonomy index is computed by subtracting the controlled motivation score from the autonomous motivation score (Ryan & Deci, 2000; Sheldon, 2014). This index pinpoints the motivation for personal goals upon a continuum of internalization, ranging from high relative autonomy to low relative autonomy (Ryan & Connell, 1989).

Research in this area has demonstrated that "not all personal goals are truly personal" (Sheldon & Elliot, 1998; pg. 1). Goal pursuit ranges in the degree to which it is engaged in via autonomous or controlled motivation and is frequently lacking integration with the self. Pursuit is experienced as increasingly more autonomous as individuals move from extrinsic motivation and introjection through to identification and finally integration (Sheldon, 2014). With dozens of studies demonstrating that autonomous motivation for pursuing a goal optimizes pursuit and contributes to desirable outcomes such as goal progress, goal attainment and better well-being, the importance of autonomous and controlled motivation in personal goal pursuit has been a central focus of SDT. Autonomous goal motivation has been shown to contribute to bolstered goal progress via increased effort, less goal conflict and increased readiness to change (Koestner, 2008). The existing literature has demonstrated that individuals are more satisfied and successful when they can engage in internally regulated goal pursuit rather than according to a strict, external system of regulation. This remains true when pursuing extrinsic rewards, such as wealth. Individuals are more satisfied when their pursuit of these goals is autonomous, for their own reasons through their own methods (Deci & Ryan, 2000). A number of studies have highlighted that the degree to which goal striving is autonomous versus controlled is an important predictor

of well-being outcomes (Koestner, Lekes, Powers, & Chicoine, 2002; Koestner et al., 2008; Sheldon & Houser-Marko, 2001). Furthermore, success in goal pursuit is bolstered when individuals are supported by empathetic and autonomy supportive others, rather than controlling or directive others (Koestner & Hope, 2014).

The studies of this thesis aimed to identify whether goal-related autonomous motivation is related to goal progress and symptoms of psychopathology in perfectionists. To date, no studies have explored the role of goal-related autonomous motivation during personal goal pursuit in this group. However, some research has explored relationships between the two dimensions of perfectionism and motivation quality. Harvey et al. (2015) identified differential relationships between the two forms of perfectionism and affect at the beginning of the academic week. These relationships were mediated by motivation; self-critical perfectionism was related to controlled motivation for pursuing academic goals, while personal standards perfectionism was associated with autonomous motivation. In a study of adolescent athletes investigating coping skills, Mouratidis and Michou (2011) found that personal standards perfectionism was positively associated with both autonomous and controlled motivation, while self-critical perfectionism was only related to controlled motivation.

The Present Work

The present work empirically explored the differential relations of two dimensions of perfectionism to important outcomes over time. This thesis builds on previous literature by investigating the motivational consequences, personal goal outcomes and psychopathological implication of each dimension of perfectionism across five longitudinal studies.

Employing a self-determination theory approach, this doctoral dissertation builds on prior empirical evidence exploring a relationship between the two dimensions of perfectionism and

personal goal progress. Concurrently, it extends the existing literature through novel hypotheses, longitudinal designs and contemporary analytic methods.

Article 1 utilized a prospective longitudinal design (N = 341) to explore how self-critical and personal standards perfectionism influence goal motivation, goal support and goal progress during goal pursuit. We hypothesized that self-critical perfectionism would be associated with subsequent poorer goal progress, whereas personal standards perfectionism would be associated with bolstered goal progress over the course of the academic year. We proposed that self-critical perfectionism would be associated with relatively controlled motivation and less autonomy support. In contrast, we predicted that personal standards perfectionism would be associated with relatively autonomous motivation and greater autonomy support. Moreover, we endeavoured to assess whether goal motivation and goal support changed dynamically over the course of the year. No specific hypotheses were offered regarding this aim, given that prior research had only explored contemporaneous associations. Furthermore, we wanted to explore whether affect influence's goal progress in this group. We expected that self-critical perfectionism would contribute to negative affect over time, whereas personal standards perfectionism would generate positive affect and that this would impact goal progress. Finally, we sought to examine whether the opposite relations of the two perfectionism dimensions demonstrated in the existing literature were mediated by motivational processes outlined in SDT. We proposed that SDT offered a theoretical framework by which to understand the differential relationships between the two dimensions of perfectionism and goal progress.

Using advanced statistical methods, Article 2 extends the research from Article 1, by exploring depressive symptoms as an outcome, while confirming the differential roles of the two dimensions of perfectionism in goal pursuit. Article 2 describes a large longitudinal study (N =

1360) examining how the two dimensions of perfectionism relate to goal motivation and goal progress, and subsequently whether these variables contribute to depressive symptoms. We hypothesized that the pathway to depressive symptoms and poor goal progress in self-critical perfectionists would be mediated by goal-related autonomy. We expected to replicate previous results suggesting a relationship between self-critical perfectionism and less goal progress, and personal standards perfectionism and better goal progress. We anticipated a similar replication for goal motivation, specifically that self-critical perfectionism would be associated with relatively controlled motivation and personal standards perfectionism with relatively autonomous motivation. We were optimistic that the opposite effects of self-critical and personal standards perfectionism on goal progress would be mediated by goal motivation. Our most novel hypothesis was that a relationship between self-critical perfectionism and subsequent depressive symptoms would be present and mediated by goal motivation and goal progress. We did not expect to find a relationship between personal standards perfectionism and depressive symptoms.

Article 1

Perfectionism and the pursuit of personal goals:

A self-determination theory analysis.[1]

Emily Moore, Anne C. Holding, Nora H. Hope, Brenda Harvey

McGill University

Ted Powers

University of Massachusetts at Dartmouth

David C. Zuroff and Richard Koestner

McGill University

[1] Publication citation:

Moore, E., Holding, A. C., Hope, N. H., Harvey, B., Powers, T. A., Zuroff, D., & Koestner, R. (2018). Perfectionism and the pursuit of personal goals: A self-determination theory analysis. *Motivation and Emotion*, *42*(1), 37-49.

Abstract Article 1

Previous studies have shown that self-critical and personal standards forms of perfectionism are associated with progress on personal goals in opposite ways. The present study used a 5-wave prospective longitudinal design to examine what motivational factors account for the finding that self-critical perfectionism has been reliably associated with poor goal progress whereas personal standard perfectionism has been associated with good progress. Specifically, we adopted a self-determination theory perspective to examine the role of autonomy in mediating the effects of perfectionism. Our results replicated previous findings linking the two forms of perfectionism with opposite patterns of goal progress. Importantly, the results suggested that the negative goal effects of self-critical perfectionism are mediated by lower levels of autonomous goal motivation. The results also demonstrated links from personal standard perfectionism to greater autonomous goal motivation. Interestingly, the effects of self-critical perfectionism on goal progress appeared to be dynamic over time and implicated affective mechanisms. The results of the investigation point to the value of adopting a self-determination theory perspective to understand perfectionism.

Keywords: Goal attainment, Autonomy, Perfectionism, Affect, Self-determination theory

Perfectionism and the pursuit of personal goals:

A self-determination theory analysis.

Perfectionism is commonly understood as a tendency to believe that anything less than perfect is unacceptable (Merriam-Webster 2015). Research has suggested the presence of two forms of perfectionism and shown that while one is related to negative outcomes, the other is related to positive ones, though some overlap occurs (Stoeber and Otto 2006). With regards to the negative form of perfectionism, a portion of work has focused on self-criticism, which has been identified as a core feature of unhealthy perfectionism (Dunkley et al. 2003; Frost et al. 1990). Many researchers argue that self-criticism is the component of unhealthy perfectionism responsible for negative effects that are commonly seen (Dunkley et al. 2003; Powers et al. 2011, 2004). Self-critical perfectionism has been associated with negative affect (Dunkley et al. 2003; Frost et al. 1993; Milyavskaya et al. 2014), anxiety (Bieling et al. 2004), distress (Dunkley et al. 2000), suicidal ideation (Chang et al. 2004; Enns et al. 2001), hassles (Dunkley et al. 2000, 2003), and avoidant coping (Dunkley et al., 2003). Furthermore, self-critical perfectionism has been shown to be negatively associated with positive affect, life satisfaction (Chang et al. 2004) and self-esteem (Rice et al. 1998; Stumpf and Parker 2000). This body of research strongly suggests that individuals with self-critical perfectionism experience many difficulties and fail to obtain significant advantage from their perfectionism.

With regards to the positive form of perfectionism, researchers have focused on high personal standards as a core feature of healthy perfectionism (Blankstein and Dunkley 2002; Powers et al. 2004). Personal standards perfectionism has been associated with a mix of positive and negative features. On the positive side, it has been associated with positive affect (Chang et

al. 2004; Frost et al. 1993) and active coping styles (Dunkley et al. 2000). On the negative side it has been associated with hassles (Dunkley et al., 2000), depression (Bieling et al. 2003; Cox et al. 2002), anxiety (Bieling et al. 2004; Hill et al. 2004), and negative affect (Dunkley et al. 2003). In their review, Stoeber and Otto (2006) argue that the bulk of studies investigating healthy perfectionism and its correlates have found evidence that healthy perfectionism is indeed associated with positive qualities. They note that this is especially the case when the overlap between healthy perfectionism and unhealthy perfectionism is controlled for in dimensional conceptions or when unhealthy perfectionism is at low levels in group-based conceptions (Stoeber & Otto 2006; Stoeber and Gaudreau 2017). For example, if the overlap between healthy and unhealthy perfectionism is controlled for in the aforementioned findings, the relationships between healthy perfectionism, negative affect, hassles, anxiety and depression are no longer significant (Bieling et al. 2003; Stoeber and Otto 2006). Controlling for overlap also results in self-esteem being positively related to healthy perfectionism (Rice et al. 1998). Therefore, it is generally accepted that two forms of perfectionism exist—positive and negative—and that they are generally related in opposite ways to indicators of adjustment.

Although most studies have followed Stoeber and Otto (2006) in controlling for the overlap between different forms of perfectionism when predicting adaptive outcomes, there remains debate about whether such a statistical approach might change the meaning of personal standards perfectionism or lead to spurious results (Hill 2014). Flett and Hewitt (2006) argued that partialling out the self-critical aspect of perfectionism may mean that one is no longer really studying perfectionism. Stoeber and Otto (2017) argued that, "people can strive for perfection without making their self-worth contingent upon achieving perfection, or without criticizing themselves if they fail to reach perfection" (p. 380). Stoeber and Gaudreau (2017) responded

that the statistical partialling is mutually enhancing for the predictive validity of both forms of perfectionism. Furthermore, they argue that this suppression situation is not spurious as it is easily explainable, it is reliable, and actually predictable. These authors argue that when controlling for the overlap by partialling out self-critical perfectionism from personal standards perfectionism, the adaptive relations of personal standards perfectionism can be better observed. Similarly, when controlling for the overlap by partialling out personal standards perfectionism from self-critical perfectionism, the maladaptive relations of the self-critical form are stronger. Stoeber and Gaudreau (2017) argue that this suppression situation is reliable and replicable across different research groups, which they argue is a significant achievement of perfectionism research. Finally, and importantly, these authors argue that you can actually reliably predict what you will get when partialling out the two forms of perfectionism. This is important because if it can be understood well enough to be predicted, it is very difficult to argue that the results are the result of a statistical artifact and should not be interpreted.

The role of self-critical and personal standards perfectionism has recently been examined in relation to goal pursuit. Powers et al. (2011) established the positive impact of personal standards perfectionism and the negative impact of self-critical perfectionism on prospective goal progress in five distinct samples. In the first three studies, participants were individuals striving for academic goals, music performance goals, and weight management goals. The results revealed a significant negative relationship between self-critical perfectionism and goal progress (Powers et al. 2011). In the fourth study, these researchers demonstrated that self-critical perfectionism was significantly negatively associated with peer-rated progress on academic goals, as well as self-rated goal progress. The last study employed an objective measure of goal progress—observed weight loss over 6 months—to further examine the

relationship, and confirmed a link between self-critical perfectionism and decreased goal progress (Powers et al. 2011). These researchers also identified a positive relationship between personal standards perfectionism and prospective goal progress across the five studies, when controlling for self-critical perfectionism. However, the negative relationship of self-critical perfectionism with goal progress was more than twice as strong as the positive relationship of personal standards perfectionism. These results were corroborated by Powers et al. (2012) who also demonstrated a positive association between personal standards perfectionism and goal achievement, when controlling for self-criticism and a negative association between self-critical perfectionism and goal achievement when controlling for personal standards perfectionism. Together, the results from these six studies suggest that self-critical perfectionism hinders goal progress while personal standards perfectionism bolsters it across a variety of domains.

Why does goal progress vary depending on a person's level of self-critical and personal standards perfectionism? We propose that self-determination theory offers a theoretical framework by which to understand how perfectionism impacts goal selection and pursuit. Self-determination theory (SDT) uses the concept of innate, universal, psychological needs to understand human motivation (Deci and Ryan, 1991; Ryan and Deci, 2017). It argues that all humans have fundamental needs to feel autonomous, competent and connected to others in order function optimally. The theory highlights the paramount importance of autonomy, which refers to the experience of freedom in initiating and endorsing behaviors (Joussemet et al. 2008). With regard to personal goals, the theory suggests that goal pursuit will be successful when individuals feel autonomous about their goals (Sheldon 2014), and when they feel their autonomy is supported by important people in their lives (Williams et al. 2006).

Individuals are considered autonomously motivated to the extent that they experience

goals and decisions to be self-generated and freely chosen, rather than controlled by external or internal pressures. Goal motivation is assessed by asking individuals to rate their reasons for pursuing their goal. Autonomous goal motivation reflects personal interests and values and are typically undertaken volitionally (Koestner et al. 2008). By contrast, controlled motivation refers to goals that individuals feel obligated to accomplish because of internal or external pressures (Koestner et al. 2008). Research has demonstrated that autonomously motivated goals are related to enhanced goal progress in various domains (Judge et al. 2005; Koestner et al. 2002; Milyavskaya et al. 2015; Sheldon and Houser-Marko 2001; Sheldon 2014).

Some research has examined how goal motivation might relate to the self-critical form of perfectionism. Shahar et al. (2003) suggested that trait self-criticism represents a maladaptive form of self-definition characterized by self-regulation that is guided by guilt and fear of reproach. The self-regulation of the self-critic thus closely resembles Ryan's (1995) description of "introjected self-regulation" – a form of controlled motivation based on contingent self-esteem and avoiding guilt. Shahar et al. (2003) found that self-criticism was negatively associated with autonomous motivation, and that the effect of self-criticism on positive life events was mediated by lower levels of autonomous motivation. Shahar et al. have also identified decreased intrinsic motivation and elevated levels of amotivation in self-critical participants (Shahar et al. 2006; Shulman et al. 2009). Powers (2007) pointed out that self-critics may develop motivations that are less internally generated or integrated into the self, and will therefore be likely to set less autonomous goals. As a result, the self-critic may be more likely to initiate and regulate goal pursuits based on guilt and self-esteem contingencies rather than based on interest and personal meaning. These researchers obtained results to support their predictions in the context of a brief weight loss intervention for university women.

More recent research has simultaneously considered the relation of both forms of perfectionism to autonomous and controlled goal motivation. In particular, one recent study outlined differential links between of the two forms of perfectionism to university students' motivation to pursue academic goals over a semester (Harvey et al. 2015). The results showed that self-critical perfectionism was significantly positively related to controlled motivation but significantly negatively related to autonomous motivation. By contrast, personal standards perfectionism was significantly positively related to autonomous motivation for academic goals but unrelated to controlled motivation. The authors suggested that self-critical perfectionists were alienated from their academic goals because they felt controlled, whereas personal standards perfectionists tended to experience academic goals as self-concordant. Daily reports of affect across the school week supported this conclusion: self-critical perfectionists showed dramatically worse mood on Monday mornings, whereas personal standard perfectionists showed positive mood on the resumption of school. Moreover, mediational analyses showed that controlled and autonomous motivation toward school (respectively) accounted for these divergent emotional effects.

The extent to which individuals' autonomy to pursue their goals is supported by others has recently been examined by Koestner et al. (2012). These authors noted that almost all personal goals are pursued interpersonally, reflecting that family, friends, and even acquaintances typically provide vital support for our goal efforts. They distinguished autonomy support, which is defined in terms of empathic, perspective-taking from more directive forms of support which focus on encouragement and positive guidance. Across six separate prospective studies, it has been demonstrated that autonomy support, but not directive support, is consistently, significantly associated with greater goal progress (Koestner et al. 2012, 2014;

Gorin et al. 2014). The studies involved diverse samples and included both peer and objective indicators of goal progress. In one study, receiving autonomy support was associated with goals becoming more autonomous and less controlled over time (Koestner et al. 2014, study 2). No previous study has examined the relation between perfectionism and the kind of goal support that people receive. However, there is evidence that self-critical perfectionism is associated with a negative and distrustful interpersonal style that would seem to put individuals at risk to either fail to elicit relational support for their goals, or to misinterpret the support that is provided (Shahar 2015; Zuroff et al. 2005).

Present Study

The purpose of the study was to use SDT to examine how self-critical and personal standards perfectionism influence goal motivation, goal support, and goal progress over the course of the school year. The study employed a large sample of participants and included five distinct time points (Baseline, 1, 3, 5, 7 month) in order to assess whether goal motivation and goal support changes dynamically over the course of the year. Previous studies have focused on contemporaneous associations between perfectionism and motivational factors related to goal progress, but dynamic influence seems possible. For example, given that self-critics engage in harsh self-scrutiny that is associated with rumination and procrastination (Blatt and Zuroff 1992; Powers et al 2007), one could imagine that self-criticism might set in motion a cognitive-emotional style of goal pursuit that could result in detrimental effects of goal motivation and perceived goal support from others. By assessing goal motivation at later times during the school year we were able to determine whether there is dynamic change in motivational factors, and whether such change may mediate the negative impact of self-critical perfectionism on goal progress (as well as the positive impact of personal standard perfectionism). It should be noted

that, apart from the linkages to perfectionism, no previous studies have examined the extent to which goal motivation and goal support change dynamically over time.

Furthermore, we planned to explore the role of affect on the relations among perfectionism, motivation variables, and goal progress. Previous goal studies have typically focused on affect as an outcome that is associated with goal progress. Indeed, many studies have shown that making progress at personal goals is associated with increased positive affect and decreased negative affect (Diener et al. 1999; Koestner et al. 2002). It is also possible, however, that affect might sometimes influence whether people actually make progress at their goals. For example, Gendolla et al. (2007) suggested that high levels of negative affect may lead goal-seekers to perceive their goals to be unreachable, resulting in decreased action toward their goals. There is considerable evidence that self-critical perfectionism is associated with the experience of diverse forms of negative affect (Harvey et al. 2015; Milyakskaya et al. 2014). Other research suggests that positive affect can promote effective goal setting efforts. Fredrickson's (2001) broaden-and-build theory of positive emotions suggests that positive emotions such as enjoyment and interest broaden one's awareness and encourage novel, varied, and exploratory thoughts and actions. Over time, this broadened behavioral repertoire can build skills and resources which promote effective goal pursuit. We planned to explore whether self-critical perfectionism produced negative affect over time whereas personal standard perfectionism produced positive affect over time. Importantly, we planned to examine the links between affect and goal progress.

In summary, the current investigation sought to examine whether the relation of perfectionism to progress in personal goal pursuit was mediated by motivational processes outlined in SDT. Three hypotheses were offered:

1. Self-critical perfectionism will be associated with significantly worse goal progress over the course of the school year whereas personal standards perfectionism will be associated with significantly better goal progress over the course of the school year.
2. Self-critical perfectionism would be associated with low levels of autonomous goal motivation and less autonomy support for goals, as well as heightened negative affect.
3. Personal standard perfectionism would be associated with high levels of autonomous goal motivation and higher autonomy support for goals, as well as heightened positive affect.

We also planned to explore whether the mediational pathways from perfectionism to the SDT motivational variables and goal progress might also involve affect.

Methods

Participants, procedure, and longitudinal design.

Participants were 341 undergraduate students (74% female) whose ages ranged from 17 to 29 years, with a mean age of 19.4 years. Participants were recruited to participate in a year-long study on personal goals. Once they had received the survey link, participants had 1 week to complete the survey online. During their initial survey at the beginning of the academic year, participants identified three personal goals and completed measures of personality, goal motivation and affect. Over the course of the school year, participants completed follow-up surveys assessing goal progress, affect, goal motivation, and autonomy support for goals. A total of five follow up surveys were completed, but we focus on the ones completed at 1, 3, 5 and 7 months. We did not consider the 4 month follow-up because it was intended to capture participants experience during the winter holiday period. Here is the list of key measures that were assessed at each time point: baseline, perfectionism, goal motivation, affect; one month, goal support, affect, goal progress; 3 months, goal motivation, goal support, affect, goal

progress; 5 months, goal motivation, goal support, affect, goal progress; 7 months, goal motivation, goal support, affect, goal progress. The completion rate for each of the surveys was: 1 month = 93% , 3 months =90%, 4 months = 92%, 5 months = 88% and 7 months = 91%. The study was approved by the McGill University Research and Ethics Board. Participants were compensated $50 at the end of the academic year for completing the study.

Statistical tests were performed to compare participants who completed each follow-up survey with those who did not in terms of the key baseline measures. The only variable on which the participants differed significantly was self-criticism (r = -.135) with self-critics being less likely to drop out. This is a surprising result which we have not found in other prospective studies that included self-critical perfectionism.

Measures

Perfectionism. Perfectionism was assessed at baseline. To assess self-critical perfectionism, we used a brief 6-item scale derived from the Depressive Experiences Questionnaire (DEQ) (Blatt et al. 1976). Rudich et al. (2008) selected six DEQ items based on 2 a priori criteria. First, these items were deemed to poses excellent face validity, namely, their content clearly and unmistakably reflect self-criticism, defined as the tendency to set high self-standards and to adopt a punitive stance toward the self. Second, these 6 items were found to be free of explicitly mood adjectives (eg, sadness, irritation), which will protect against their contributing to spurious associations with negative affect and depression. Sample items include "I have a tendency to be very self-critical" and "There is a significant gap between who I am today and who I would like to be." The six item scale correlates above .80 with the full DEQ self-criticism scale. In our study the reliability of the short self-criticism scale was acceptable, alpha = .78.

To measure personal standards perfectionism, all fifteen items from the Self-oriented Perfectionism dimension of the Multidimensional Perfectionism Scale (MPS) were used (Hewitt and Flett1991, 2004). The scale includes items, such as, “One of my goals is to be perfect in everything I do” and “I strive to be the best at everything I do”. The Cronbach’s alpha was .78 for the personal standards perfectionism measure.

The items for self-critical and personal standards perfectionism were interspersed and rated rated on a 7-point scale, ranging from 1 (“strongly disagree”) to 7 (“strongly agree”); higher scores reflect greater levels of perfectionism. This combination of items has successfully been used to assess self-critical and personal standards perfectionism in previous research (Harvey et al. 2015; Milyavskaya et al. 2014; Powers et al., 2011, 2012).

Personal Goals. At baseline participants were asked to identify three personal goals that they planned on pursuing that year. Goals written by participants included: “Get at least a 3.5 GPA”, “Lose 20 pounds”, and “Improve my Japanese.”

Goal motivation. Goal motivation was assessed at baseline, 3 and 5 months. Participants were asked to rate their motivation for pursuing each goal using five items that assessed external, introjected, identified, integrated and intrinsic reasons for goal pursuit (Sheldon and Kasser 1998). Sample items include “because somebody else wants you to, or because you’ll get something from somebody if you do” for external regulation and “because you really believe that it is an important goal to have—you endorse it freely and value it wholeheartedly” for integration. All responses were made on a 7-point scale of 1 (not at all for this reason) to 7 (completely for this reason). The motivation scales were reliable: autonomy motivation, alpha = .81; control motivation alpha = .77.

As in previous research, autonomous motivation was calculated as the mean of intrinsic, integrated and, identified ratings, whereas controlled motivation was calculated as the mean of external and introjected regulation (Koestner et al. 2008). As is often done in the SDT literature, an index of autonomous versus controlled motivation was created by subtracting the mean of the controlled items from that of the autonomous items (Ryan & Deci 2000; Sheldon 2014).

Autonomy Support for Goals. Autonomy support was measured with four items, taken from those previously used to by Koestner et al. (2012). At baseline, participants were asked to identify one family member and one friend who was likely to provide support for their goals. At the 1- and 5-month follow-ups, participants rated the support they received from each individual using a seven-point Likert scale ranging from 1 (not at all true) to 7 (very true). Examples of items include "I feel that my partner understands how I see things with respect to my goals" and "This person listens to how I would like to do things regarding my goals." The internal reliability of the autonomy support scale was adequate, alpha = .80. We calculated a mean across the two support providers.

Affect. Positive and negative affect were assessed using a nine-item measure of affect (Emmons 1992). Affect was assessed at every time point but we focus on baseline and 5 months. The measure comprised four positive ("joyful", "enjoyment/fun", "pleased", "happy") and five negative ("unhappy", "worried/anxious", "frustrated", "depressed", "angry/hostile") items. Participants were asked to indicate the extent to which they had experienced each item over the past 2 weeks using a slider on a scale with the anchors 0 ("not at all") and 6 ("very much"). Both positive and negative affect measures were reliable, alphas = .91 and .83, respectively.

Goal progress. At every follow-up, goal progress for each goal was assessed using three items: "I have made a lot of progress toward my goal", "I feel like I am on track with my goal plan",

and “I feel like I have achieved my goal”. Ratings were made on a 7-point Likert scale, ranging from 1 (strongly disagree) to 7 (strongly agree) (Koestner et al. 2002; Sheldon and Kasser 1998). Total self-reported goal progress at 7 months was calculated by taking the mean for all three goals. The measure of goal progress was reliable, alpha = .78.

Results

The analyses that are presented are those based on the 265 participants who completed all relevant measures across all time points. Table 1 presents the means and standard deviations for all of the study variables. The mean of personal standards perfectionism was higher than the mean of self-critical perfectionism ($t = 1.94$, $p = .053$). Repeated measures analyses of variance showed that goal motivation, goal autonomy support, and positive affect all worsened over the course of the school year whereas negative affect increased (all $p < .001$). The mean of ratings of goal progress at year-end were moderate. Self-critical perfectionism was positively correlated with personal standards perfectionism, ($r = .46$, $p < .001$). Goal motivation was significantly positively related to autonomy support ($r = .22$, $p < .001$).

Table 2 shows the partial correlations of self-critical perfectionism and personal standards perfectionism with goal motivation, autonomy support, negative affect, positive affect and goal progress, controlling for the other perfectionism variable. Self-critical perfectionism was significantly negatively related to goal motivation and autonomy support at all measured time points. Self-critical perfectionism was significantly negatively related to positive affect and significantly positively related to negative affect. Self-critical perfectionism was also significantly negatively related to goal progress over the year

Table 2 shows an opposing pattern of results for personal standards perfectionism, which was significantly positively related to goal motivation and autonomy support for goals. However,

these relations were less consistent over the various time points - specifically, there was no relation to goal motivation at baseline and there was no association with autonomy support at 5 months. Personal standard perfectionism also showed weak relations to affect with only one significant association emerging—a negative relation with negative affect at baseline. Importantly, a significant positive association was obtained between personal standards perfectionism and yearly goal progress.

Prospective Longitudinal Effects of Perfectionism on Outcomes

The multi-wave prospective nature of our design allowed us to examine whether self-critical and personal standards perfectionism exert a significant influence on how goal motivation, goal support, and affect change over the course of the school year. To examine the question of dynamic change we conducted partial correlation analyses in which the two forms of perfectionism predicted outcomes after controlling for baseline levels of the outcome variable. These analyses also controlled for the opposing form of perfectionism. The dependent variables were goal motivation at 3 months, goal motivation at 5 months, goal support at 5 months, negative affect at 5 months, and positive affect at 5 months. For each analysis we controlled for the baseline level of the dependent variable. (There was no baseline measure of goal support so we controlled for the 1 month measure when predicting 5 month levels). Preliminary analyses indicated that gender was unrelated to outcomes and also did not moderate the obtained relations, so we did not include this variable. Table 3 presents the partial correlations for the two forms of perfectionism across the various outcomes, along with the t-tests. It can be seen that self-critical perfectionism was significantly related to worsening levels of goal motivation, negative affect, and positive affect. Self-critical perfectionism was unrelated to change in autonomy support over the school year. By contrast, personal standard perfectionism was significantly related to

improvements in goal motivation over the school year but was unrelated to changes in goal support, or affect.

Prediction of end of year goal progress

A hierarchical multiple regression was used to examine the cumulative association of perfectionism, motivation, autonomy support, and affect on goal progress over the year. The two forms of perfectionism were entered together as a first set of variables. The two motivational variables derived from self-determination theory (goal motivation and autonomy support for goals) were entered together as a second set. For motivation we used measures taken at three months; for autonomy support we used the measures taken at 1 month. Finally, positive and negative affect measured at 5 months was entered as a final set of predictors. Preliminary analyses indicated that gender was unrelated to outcomes and also did not moderate the obtained relations, so we did not include this variable.

The results indicated that the predictor variables accounted for a highly significant multiple R of .455, $F(5,256) = 11.11$, $p < .001$. It can be seen on Table 4 that each pair of predictors were associated with a significant change in R^2. Both forms of perfectionism were unique predictors: self-critical perfectionism, beta = -.29, $t(262) = -3.94$, $p < .001$ and personal standards perfectionism, beta = .17, $t(260) = 2.45$, $p = .015$. Both motivational variables drawn from SDT were also significantly related to goal progress: goal motivation, beta = .23, $t(258) = 3.77$, $p < .001$; and autonomy support, beta = .20, $t(258) = 3.36$, $p < .001$. Finally, both forms of affect were significantly associated with goal progress, positive affect beta = .13, $t(257) = 1.99$, $p = .045$, and negative affect beta = -.15, $t(257) = 2.32$, $p = .021$.

Mediation analyses

The previous analyses suggest that goal progress is predicted by both forms of perfectionism, autonomy support, goal motivation, and by affect. The prospective analyses of the motivation and affective variables over the course of the year suggest a possible mediational role for goal motivation and affect in the relation of self-critical perfectionism to goal progress. For personal standard perfectionism there was no evidence of a possible role for affect, but there was evidence that goal motivation might mediate the relation between this form of perfectionism and goal progress.

Mediation analyses were performed in order to test whether motivational factors associated with goal motivation and negative affect would mediate the effects of perfectionism on goal progress. First, we planned to test whether goal motivation at 3 months and affect at 5 months mediated the relation of self-criticism at baseline to yearly goal progress. We planned to test three different models: (1) self-critical perfectionism at baseline → goal motivation at 3 months → goal progress at the end of the year; (2) self-critical perfectionism at baseline → negative affect at 5 months → goal progress at the end of the year; (3) self-critical perfectionism at baseline → goal motivation at 3 months → negative affect at 5 months → goal progress at the end of the year. We used the method outlined by Hayes (2012) to test this serial mediation model by estimating 95% confidence intervals (CI) of the indirect effect using bootstrap resampling (k = 10000) procedures. The betas in the following mediation analyses reflect the standardized coefficients. In these mediation analyses we controlled for baseline personal standards perfectionism. Results from the mediation analyses are presented in Figs. 1, 2, and 3. It can be seen that mediational pathway from self-critical perfectionism to both goal motivation at 3 months and to negative affect at 5 months were supported, suggesting that the effects of self-

critical perfectionism on yearly goal progress are mediated by both goal motivation and negative affect, separately. Importantly, the test of sequential mediation described in Fig. 3 showed the total indirect mediation effect through both goal motivation and negative affect was significant as well. The specific pathway from self-critical perfectionism at baseline → goal motivation at 3 months → negative affect at 5 months → goal progress at the end of the year was also significant at -.01, SE = .006, CI's -.03, -.003. The results shown on Fig. 3 illustrate that effects of self-critical perfectionism on goal progress were fully mediated by goal motivation and negative affect, as reflected by the fact that the confidence intervals for the direct effect now straddled zero.

We next tested whether goal motivation at 3 months mediated the relation of baseline personal standards perfectionism to yearly goal progress using the same bootstrap resampling procedure. In this mediation we controlled for baseline self-critical perfectionism. Results from the mediation analysis are presented in Fig. 4. It can be seen that goal motivation at 3 months appears to fully mediate the relations between personal standard perfectionism and yearly goal progress. Together, the mediational results for the two forms of perfectionism support our hypothesis that goal motivation mediates the relationship between personal standards perfectionism and end-of-year goal progress (see Fig. 4).

Discussion

The primary purpose of the study was to use self-determination theory to examine how self-critical and personal standards perfectionism influence the pursuit of personal goals. The study employed a large sample of participants and included five distinct time points in order to assess whether goal motivation and goal support change dynamically over the course of the year and whether these variables affect goal progress. A secondary purpose of the study was to

explore the role of affect on the relations among perfectionism, goal motivation, and goal progress. Specifically, we planned to explore whether self-critical perfectionism produced negative affect over time whereas personal standards perfectionism produced positive affect over time and whether these affective changes impact later goal progress.

The results supported our main hypotheses. First, self-critical perfectionism was associated with significantly worse goal progress over the course of the school year, whereas personal standards perfectionism was associated with significantly better goal progress over the course of the school year. As in previous studies, the negative effect of self-critical perfectionism on goal progress was more than twice as strong as the positive effects of personal standards perfectionism. This is the seventh consecutive study to show this pattern of effects (Powers et al. 2011, 2012).

There was considerable evidence that goal motivation served to mediate the impact of self-critical perfectionism on goal progress. Thus, the negative goal effects of self-critical perfectionism were shown to be mediated by low levels of autonomous goal motivation, as well as heightened negative affect. By contrast, there was evidence that the positive goal effects of personal standard perfectionism were mediated by high levels of autonomous goal motivation. Affect was not shown to mediate the effects of personal standards perfectionism on goal progress. These findings suggest that variations in feelings of autonomy and volition are central to understanding why the two forms of perfectionism have opposite effects on whether people are able to achieve their personal goals.

The present research was particularly interesting as it identified dynamic change over time in goal motivation as a function of levels of perfectionism. SDT research which has focused on goal motivation has typically used only baseline levels of these variables to predict later

outcomes. The repeated measures included in the present study allowed us to explore the extent to which goal motivation variables remain stable or change over time, and whether any such change is systematic. Our results for goal motivation were particularly interesting in that there was evidence for temporal change in motivation linked to the progression of the academic year. On average, goal motivation became less autonomous and more controlled as the school year wore on. However, there was also evidence that temporal changes in goal motivation were also associated with baseline levels of the two kinds of perfectionism. Personal standards perfectionism predisposed individuals to see their goals as becoming more interesting and meaningful over the course of the year whereas self-critical perfectionism predisposed participants to see their goals as becoming more pressured and to feel alienated from them. These results suggest that it may be useful for SDT researchers to more carefully consider dynamic patterns of change in levels of goal motivation.

Other research has recently identified autonomous versus controlled goal motivation as a possible mediator of the effects of perfectionism on goal progress. For example, Vansteenkiste et al. (2010) suggested an association between type of perfectionism—adaptive or maladaptive—and type of goal motivation—autonomous or controlled. Their study examined the motivation behind performance approach goals—goals centered on outperforming peers—in high school students. They determined that positive perfectionists were autonoumously motivated to puruse performance approach goals, whereas negative perfectionists were motivated to pursue the same goals for controlled reasons. Positive perfectionism was measured using the 7-item Personal Standards scale from the Multidimensional Perfectionism Scale (MPS) and negative perfectionism was measured using the Concerns over Mistakes scale and the Doubts about Actions scale also from the MPS. Although Vansteenkiste et al. (2010) were not specifically

examining self-critical and personal standards perfectionism, their conceptualization of adaptive and maladaptive perfectionism maps onto these constructs. This work suggests that while positive perfectionists are more likely to strive for goals that are personally fulfilling, maladaptive perfectionists focus on goals they feel obligated to achieve.

Our results suggest that over the course of the school year participants' positive affect decreased whereas negative affect increased. They also imply a dynamic relationship between self-critical perfectionism and affect, specifically increased negative affect and marginally decreased positive affect over the school year. It was surprising that no relationship was found between personal standards perfectionism and affect over time. Upon closer examination, it became apparent that our affect items were mainly assessing broad affective states. According to The Circumplex Model of Affect, emotions vary on a dimension of valence—pleasant versus unpleasant—and on a dimension of activation—activation versus deactivation (Posner et al. 2005). We hypothesize that our measure evaluated the valence dimension but failed to capture the activation dimension, which might be more goal-related. A measure such as the Positive and Negative Affect Scale (PANAS), which includes items such as "determined and "interested", seems to tap into the activation dimension and might allow for a closer investigation of goal-related affect. In addition, our results suggest a significant association between affect and goal progress. This is in line with research that suggests that affect might influence whether people actually make progress at their goals (Gendolla et al. 2007).

It is important to note some limitations of the present research. First, the sample was restricted to university students. Future research is needed in order to generalize these results to the broader population or to identify differences among groups. Second, only self-report measures were used, which is particularly limiting when measuring goal progress. This is

especially relevant when studying self-critical perfectionists who are thought to be more negative in their self-perceptions (Powers et al, 2015). It would be ideal for future research to include an objective measure of goal progress in addition to subjective self-report measures. However, Powers et al. (2011) used peer reports and objective measures and showed similar results as when using self-report measures. Third, it must be acknowledged that distinguishing the causal temporal relations between goal motivation, affect, and goal progress is quite challenging. We have suggested a sequence in which perfectionism leads to goal motivation which leads to affect and goal progress. It is likely that other pathways, including recursive one, are viable. Lastly, future research should consider using domain-specific measures of perfectionism (and affect) so that multi-level analyses could be used to explore within-person relations between perfectionism about certain goals and affect related to these goals.

The current research points to some implications for improving the treatment outcomes of self-critical perfectionists. The results suggest that self-critical perfectionism impedes goal progress through SDT variables and negative affect. Research has suggested that self-critical perfectionism also impacts progress in therapy. Work by Blatt et al. (1995) has illustrated self-critical perfectionism's role in the therapeutic process, demonstrating that it predicts negative outcomes in the short-term treatment of depression. Zuroff et al. (2000) later identified that this relationship was mediated by self-critical perfectionist's difficulty developing strong therapeutic alliances. It is possible that the therapeutic alliance reflects the extent to which a client feels that their autonomy is supported in the therapy relationship. Furthermore, a study with depressed patients found links between self-criticism and controlled motivation for therapy (Zuroff et al. 2010). Due to the fact that many therapeutic approaches involve goal setting and striving it is possible that self-critical perfectionism could also undermine therapy outcomes by affecting

motivation and perceptions of support, thus impeding progress towards goals. Therapeutic interventions aimed at fostering the experience of autonomy and decreasing negative affect may improve goal progress in therapy for self-critical perfectionists (Ryan and Deci 2008).

Despite these concerns, the present investigation makes an important contribution by pointing to the value of adopting a self-determination theory perspective to understand the role perfectionism plays in goal pursuits. The results of our 5-wave prospective longitudinal study showed that the opposite goal effects of self-critical and personal standards perfectionism could be largely explained by examining the role of autonomous goal motivation and autonomy support from significant others in relation to goal pursuit. The results highlight the importance of feeling volitional and supported by others as we pursue important personal goals in our life, and that shifting our perfectionistic tendencies from an emphasis on self-evaluation and self-criticism to one that focuses on self-defined achievement standards might foster improved success.

References Article 1

Bieling, P. J., Israeli, A. L., & Antony, M. M. (2004). Is perfectionism good, bad, or both? Examining models of the perfectionism construct. *Personality and Individual Differences, 36*(6), 1373-1385. doi:10.1016/s0191-8869(03)00235-6

Bieling, P. J., Israeli, A. L., Smith, J., & Antony, M. M. (2003). Making the grade: The behavioral consequences of perfectionism in the classroom. *Personality and Individual Differences, 35*, 1373-1385.

Blankstein, K. R., & Dunkley, D. M. (2002). *Evaluative concerns, self-critical, and personal standards perfectionism: A structural equation modeling strategy. In G. L. Flett & P. L. Hewitt (Eds.) Perfectionism: Theory, research and treatment (pp. 285-315)*. Washington, D.C.: American Psychological Association.

Blatt, S. J., D'Afflitti, J. P., & Quinlan, D. M. (1976). Experiences of depression in normal young adults *Journal of Abnormal Psychology, 85*, 383-389.

Blatt, S. J., Quinlan, D. M., Pilkonis, P. A., & Shea, M. T. (1995). Impact of Perfectionism and Need for Appoval on the Brief Treatment of Depression: The National Institute of Mental Health Treatment of Depression Collaborative Research Program Revisited. *Jounal of Consulting and Clinical Psychology, 63*(1), 125-132.

Blatt, S. J., & Zuroff, D. C. (1992). Interpersonal relatedness and self-definition: Two prototypes for depression. *Clinical Psychology Review, 12*(5), 527-562.

Chang, E. C., Watkins, A. F., & Banks, K. H. (2004). How adaptive and maladaptive perfectionism relate to positive and negative psychological functioning: Testing a stress-mediation model in black and white female college students. *Journal of Counseling Psychology, 51*, 93-102.

Cox, B. J., Enns, M. W., & Clara, I. P. (2002). The multidimensional structure of perfectionism in clinically distresses and college student samples. *Psychological Assessment, 14*, 365-373.

Diener, E., Suh, E. M., Lucas, R. E., & Smith, H. L. (1999). Subjective well-being: Three decades of progress. *Psychological Bulletin, 125*(2), 276-302.

Downie, M., Koestner, R., Horberg, E., & Haga, S. (2006). Exploring the relation of independent and interdependent self-construals to why and how people pursue personal goals. *Journal of Social Psychology, 146*, 517–531.

Dunkley, D. M., Blankstein, K. R., Halsall, J., Williams, M., & Winkworth, G. (2000). The relation between perfectionism and distress: Hassles, coping and perceived social support as mediators and moderators. *Journal of Counseling Psychology, 47*, 437-453.

Dunkley, D. M., Zuroff, D. C., & Blankstein, K. R. (2003). Self-critical perfectionism and daily affect: Dispositional and situational influences on stress and coping. *Journal of Personality and Social Psychology, 84*(1), 234-252. doi:10.1037/0022-3514.84.1.234

Dunkley, D. M., Zuroff, D. C., & Blankstein, K. R. (2006). Specific perfectionism components versus self-criticism in predicting maladjustment. *Personality and Individual Differences, 40*(4), 665-676. doi:10.1016/j.paid.2005.08.008

Emmons, R. A. (1992). Abstract versus concrete goals: Personal striving level, physical illness, and psychological well-being *Journal of Personality and Social Psychology, 62*, 292-300.

Enns, M. W., Cox, B. J., Sareen, J., & Freeman, P. (2001). Adaptive and maladaptive perfectionism in medical students: A longitudinal investigation. *Medical Education, 35*, 1034-1042.

Flett, G.L. & Hewitt, P.L. (2006). The perils of perfectionism in sports and exercise.

Current Directions in Psychological Science, 14, 14-18.

Fredrickson, B. L. (2001). The Role of Positive Emotions in Positive Psychology. *American psychologist, 56*(3), 218-226.

Frost, R. O., Heimberg, R. G., Holt, C. S., Mattia, J. I., & Neubauer, A. L. (1993). A comparison of two measures of perfectionism. *Personality and Individual Differences, 14*(1), 119-126.

Frost, R. O., Marten, P., Lachart, C., & Rosenblate, R. (1990). The Dimensions of Perfectionism. *Cognitive Therapy and Research, 14*, 449-468.

Gendolla, G. H., Brinkmann, K., & Richter, M. (2007). Mood, motivation, and performance: An integrative theory, research, and applications. . *Mood and human performance: Conceptual, measurement, and applied issues*, 35-61.

Gorin, A. A., Powers, T. A., Koestner, R., Wing, R. R., & Raynor, H. A. (2014). Autonomy support, self-regulation, and weight loss. *Health psychology, 33*(4).

Harvey, B., Milyavskaya, M., Hope, N., Powers, T. A., Saffran, M., & Koestner, R. (2015). Affect variation across days of the week: influences of perfectionism and academic motivation. *Motivation and Emotion, 39*(4), 521-530.

Hayes, A. F. (2012). PROCESS: A versatile computational tool for observed variable mediation, moderation, and conditional process modeling.

Hewitt, P. L., & Flett, G. L. (1991). Perfectionism in the self and social contexts: Conceptualization, assessment, and association with psychopathology. *Journal of Personality and Social Psychology, Vol 60*(3), 456-470.

Hewitt, P. L., & Flett, G. L. (2004). *Multidimensional Perfectionism Scale (MPS): Technical manual.* . Toronto: Multi-Health Systems.

Hill, R. W., Huelsman, T. J., Furr, R. M., Kibler, J., Vicente, B. B., & Kennedy, C. (2004). A new measure of perfectionism: the Perfectionism Inventory. *Journal of Personality Assessment, 82*(1), 80-91.

Joussemet, M., Landry, R., & Koestner, R. (2008). A self-determination theory perspective on parenting. *Canadian Psychology/Psychologie canadienne, 49*(3), 194.

Judge, T. A., Bono, J. E., Erez, A., & Locke, E. A. (2005). Core self- evaluations and job and life satisfaction: The role of self-concordance and goal attainment. *Journal of Applied Psychology, 90*, 257–268.

Koestner, R., Horberg, E. J., Gaudreau, P., Powers, T., DiDio, P., Bryan, C., . . . Salter, N. (2006). Bolstering implementation plans for long haul: The benefits of simultaneously boosting self-concordance or self-efficacy. . *personality and Social Psychology Bulletin, 32*, 1547–1558.

Koestner, R., Lekes, N., Powers, T. A., & Chicoine, E. (2002). Attaining personal goals: self-concordance plus implementation intentions equals success *Journal of Personality and Social Psychology, 83*(1), 231-244.

Koestner, R., Otis, N., Powers, T. A., Pelletier, L., & Gagnon, H. (2008). Autonomous motivation, controlled motivation, and goal progress. *J Pers, 76*(5), 1201-1230. doi:10.1111/j.1467-6494.2008.00519.

Koestner, R., Powers, T. A., Carbonneau, N., & Milyavskaya, M. (2012). Distinguishing autonomous and directive forms of goal support: Their effects of goal progress relationship quality and personal well being. . *Personality & Social Psychology Bulletin, 38*. doi:10.1177/0146167212457075

Koestner, R., Powers, T. A., *Milyavskaya, M., Carbonneau, N., & Hope, N*. (2015). Goal internalization and persistence as a function of autonomous and directive forms of goal support. *Journal of personality*, 83(2), 179-190.

Merriam-Webster. (Ed.) (2015) In Merriam-Webster.com. Retrieved from http://www.merriam-webster.com/dictionary/perfectionism.

Milyavskaya, M., Harvey, B., Koestner, R., Powers, T., Rosenbaum, J., Ianakieva, I., & Prior, A. (2014). Affect across the year: How perfectionism influences the pattern of university students' affect across the calendar year. *Journal of Social and Clinical Psychology*, *33*(2), 124.

Milyavskaya, M., Inzlicht, M., Hope, N., & Koestner, R. (2015). Saying “no” to temptation: Want-to motivation improves self-regulation by reducing temptation rather than by increasing self-control. *Journal of Personality and Social Psychology, 109*(4).

Milyavskaya, M., Nadolny, D., & Koestner, R. (2014). Where Do Self-Concordanct Goals Come From? The Role of Domain-Specific Psychological Need Satisfaction. *personality and Social Psychology Bulletin, 40*(6), 700-711.

Posner, J., Russell, J. A., & Peterson, B. S. (2005). The circumplex model of affect: An integrative approach to affective neuroscience, cognitive development, and psychopathology. *Development and psychopathology, 17*(03), 715-734.

Powers, T. A., Koestner, R., & Zuroff, D. C. (2007). Self-Criticism, Goal Motivation, Goal Progress. *Journal of Social and Clinical Psychology, 26*, 814-828.

Powers, T. A., Koestner, R., Zuroff, D. C., Milyavskaya, M., & Gorin, A. G. (2011). The effects of self-critiism and self-oriented perfectionism on goal pursuit. *personality and Social Psychology Bulletin*, *37*(7), 964-975.

Powers, T. A., Milyavskaya, M., & Koestner, R. (2012). Mediating the effects of self-criticism and self-oriented perfectionism on goal pursuit. *Personality and Individual Differences, 52*, 765-770.

Powers, T. A., Zuroff, D. C., & Topciu, R. A. (2004). Covert and overt expressions of self-criticism and perfectionism and their relation to depression. *European Journal of Personality, 18,* 61-72.

Rice, K. G., Ashby, J. S., & Slaney, R. B. (1998). Self-esteem as a mediator between perfectionism and depression: A structural equation analysis. *Journal of Counseling Psychology, 45,* 304-314.

Rudich, Z., Lerman, S. F., Gurevich, B., Weksler, N., & Shahar, G. (2008). Patients' self-criticism is a stronger predictor of physician's evaluation of prognosis than pain diagnosis or severity in chronic pain patients. *The Journal of Pain*, *9*(3), 210-216.

Ryan. (1995). Psychological needs and the facilitation of integrative processes. *Journal of personality*, *63*(3), 397-427.

Ryan, R., & Deci, E. (1991). A Motivational Approach to Self: Integration in Personality. *Perspectives on motivation, 38*.

Ryan, R., & Deci, E. (2000). Intrinsic and extrinsic motivations: Classic definitions and new directions. Contemporary educational psychology. *Contemporary educational psychology*, *25*(1), 54-67.

Ryan, R. M., & Deci, E. L. (2008). A self-determination theory approach to psychotherapy: The motivational basis for effective change. *Canadian Psychology, 49*(3).

Ryan, R., & Deci, E. (2017). *Self-determination theory: Basic psychological needs in motivation, development and wellness.* NY: Guilford.

Shahar, G. (2015). *Erosion, self-made: The psychopathology of self-criticism*: Oxford University Press.

Shahar, G., Henrich, C. C., Blatt, S. J., Ryan, R., & Little, T. D. (2003). Interpersonal relatedness, self-definition, and their motivational orientation during adolescence: A theorical and empirical integration. *Developmental psychology, 39*(3).

Shahar, G., Kalnitzki, E., Shulman, S., & Blatt, S. J. (2006). Personality, motivation, and the construction of goals during the transition to adulthood. *Personality and Individual Differences*, *40*(1), 53-63.

Sheldon, K. M. (2014). Becoming oneself: The central role of self-concordant goal selection. *Personality and Social Psychology Review*, *18*(4), 349-365.

Sheldon, K. M., & Elliot, A. J. (1998). Not all personal goals are personal: Comparing autonomous and controlled reasons as predictors of effort and attainment. *personality and Social Psychology Bulletin, 24*, 546-557.

Sheldon, K. M., & Elliot, A. J. (1999). Goal striving, need satisfaction and longitudinal well-being: The self-concordance model. *Journal of Personality and Social Psychology, 76*, 482-497.

Sheldon, K. M., & Houser-Marko, L. (2001). Self-concordance, goal attainment and the pursuit of happiness: Can there be an upward spiral? *Journal of Personality and Social Psychology, 80*, 152-165.

Sheldon, K. M., & Kasser, T. (1998). Pursuing Personal Goals: Skills Enable Progress, but not all Progress is Beneficial. *personality and Social Psychology Bulletin, 24*, 1319-1331.

Shulman, S., Kalnitzki, E., & Shahar, G. (2009). Meeting developmental challenges during emerging adulthood: The role of personality and social resources. *Journal of Adolescent Research, 24*(2), 242-267.

Stoeber, J., & Gaudreau, P. (2017). The advantages of partialling perfectionistic strivings and perfectionistic concerns: Critical issues and recommendations. *Personality and Individual Differences, 104*, 379-386. doi:10.1016/j.paid.2016.08.039

Stoeber, J., & Otto, K. (2006). Positive Conceptions of Perfectionism: Approaches, Evidence, Challenges. *Personality and Social Psychology Review, 10*(4), 295-319.

Stumpf, H., & Parker, W. D. (2000). A hierarchical strucural analysis of perfectionism and its relation to other personality characteristics. *Personality and Individual Differences, 28*, 837-852.

Vansteenkiste, M., Smeets, S., Soenens, B., Lens, W., Matos, L., & Deci, E. L. (2010). Autonomous and controlled regulation of performance-approach goals: Their relations to perfectionism and educational outcomes. *Motivation and Emotion, 34*(4), 333-353.

Watson, D., Clark, L. A., & Tellegen, A. (1988). Development and validation of bried measures of positive and negative affect: The PANAS scales. *Journal of Personality and Social Psychology, 54*(6), 1063-1070.

Williams, G. C., Lynch, M. F., McGregor, H. A., Ryan, R. M., Sharp, D., & Deci, E. L. (2006). Validation of the "important other" climate questionnaire: Assessing autonomy support for health-related change. . *Families, Systems & Health, 24*, 179-194. doi:10.1037/1091-7527.24.2170

Zuroff, D. C., Blatt, S. J., Sotsky, S. M., Krupnick, J. L., Martin, D. J., Sanislow, C. A., & Simmens, S. (2000). Relation of therapeutic alliance and perfectionism to outcome in

brief outpatient treatment of depression. *Journal of Consulting and Clinical Psychology, 68*(1), 114-124.

Zuroff, D. C., Santor, D. A., & Mongrain, M. (2005). *Dependency, self-criticism, and maladjustment. In J.S. Auerbach, K.J. Levy, and C.E. Schaffer (Eds.), Relatedness, Self-definition and mental representation: Essays in honor of Sidney J. Blatt.* . London: Brunner-Routledge.

Tables and Figures Article 1

Table 1

Means, standard deviations and correlations for key variables

Key Variables	Mean	Standard Deviation	1	2	3	4	5	6	7	8	9	10	11	12
1. Personal standards perfectionism baseline	4.73	1.01	1											
2. Self-critical perfectionism baseline	4.87	1.06	.46**	1										
3. Goal motivation baseline	2.21	1.47	-.03	-.18**	1									
4. Goal motivation 3 months	1.78	1.5	.03	-.24**	.60**	1								
5. Goal motivation 5 months	1.67	1.53	.07	-.22**	.55**	.75**	1							
6. Autonomy support for goals 1 month	5.67	0.89	.02	-.20**	.15**	.21**	.21**	1						
7. Autonomy support for goals 5 months	5.46	1.01	-.08	-.22**	.19**	.19**	.22**	.58**	1					
8. Negative affect baseline	3.53	1.1	.08	.45**	-.18**	.22**	-.26**	-.19**	-.24**	1				
9. Negative affect 5 months	3.69	1.2	.14*	.36**	-.21**	-.24**	-.31**	-.13*	-.25**	.41**	1			
10. Positive affect baseline	5.17	1.03	-.08	-.31**	.16**	.25**	.24**	.23**	.33**	-.52**	-.33**	1		
11. Positive affect 5 months	4.9	1.21	-.02	-.23**	.25**	.27**	.33**	.21**	.30**	-.25**	-.46**	.46**	1	
12. Goal progress at the end of the year	4.29	1.18	.03	-.20**	.23**	.32**	.33**	.28**	.29**	-.30**	-.29**	.28**	.30**	1

Note. n = 265

Table 2

Partial correlations of self-critical and personal standard perfectionism with motivation, self-efficacy, relational support, affect and progress (controlling for the other personality variable)

Key Variables	Self-critical perfectionism	Personal standards perfectionism
Goal motivation baseline	-.23***	.06
Goal motivation 3 months	-.28**	.17**
Goal motivation 5 months	-.29**	.19**
Autonomy support for goals 1 month	-.25***	.18**
Autonomy support for goals 5 months	-.18**	.02
Negative affect baseline	.51***	-.18**
Negative affect 5 months	.36***	-.05
Positive affect baseline	-.34 **	.07
Positive affect 5 months	-.26***	.06
Goal progress at the end of the year	-.24***	.15**

Note. n = 265. * p < .05; ** p < .01; *** p < .001.

Table 3

Partial correlations of self-critical and personal standard perfectionism with motivation, autonomy support, affect and goal progress (controlling for baseline level of the outcome variable).

Key Variables	Self-critical perfectionism	Personal standards perfectionism
Goal motivation 3 months	-.23***	.17**
Goal motivation 5 months	-.21***	.19***
Autonomy support for goals 5 months	-.06	-.06
Negative affect 5 months	.18**	.01
Positive affect 5 month	-.12*	.07

Note. n = 265.* p < .05; ** p < .01; *** p < .001.

Table 4

Regression of year-long goal progress on perfectionism, self-determination and affect measure.

Step	Independent variable	*β*	*SE*	Unstandardized	R^2
1					.24
	Self-critical perfectionism	-.27***	.07	.-.29	
	Personal standards perf.	.17*	.08	.20	
					.40
2					
	Goal motivation 3 months	.23***	.05	.18	
	Goal support 2 months	.20***	.08	.27	
3					.46
	Negative affect 5 moths	-.15**	.06	-.15	
	Positive affect 5 months	.13*	.06	.13	

Note. * $p<0.05$; ** $p<.01$, *** $p<0.001$; β represents the standardized regression coefficients

Figure 1

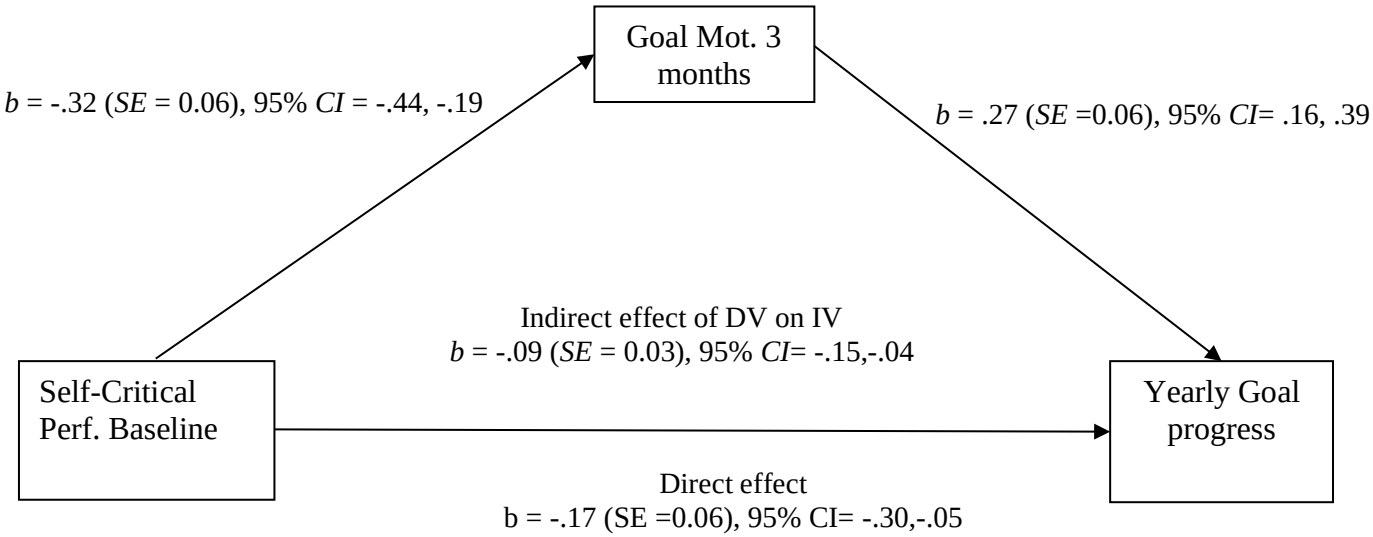

Figure 1. Direct and indirect effects of self-critical perfectionism on participants' end-of-year goal progress, controlling for personal standards perfectionism. Total effect of DV on IV: *b* = -.16, *SE* =0 .06, *t* = -4.11, *p* <0 .001).

Figure 2

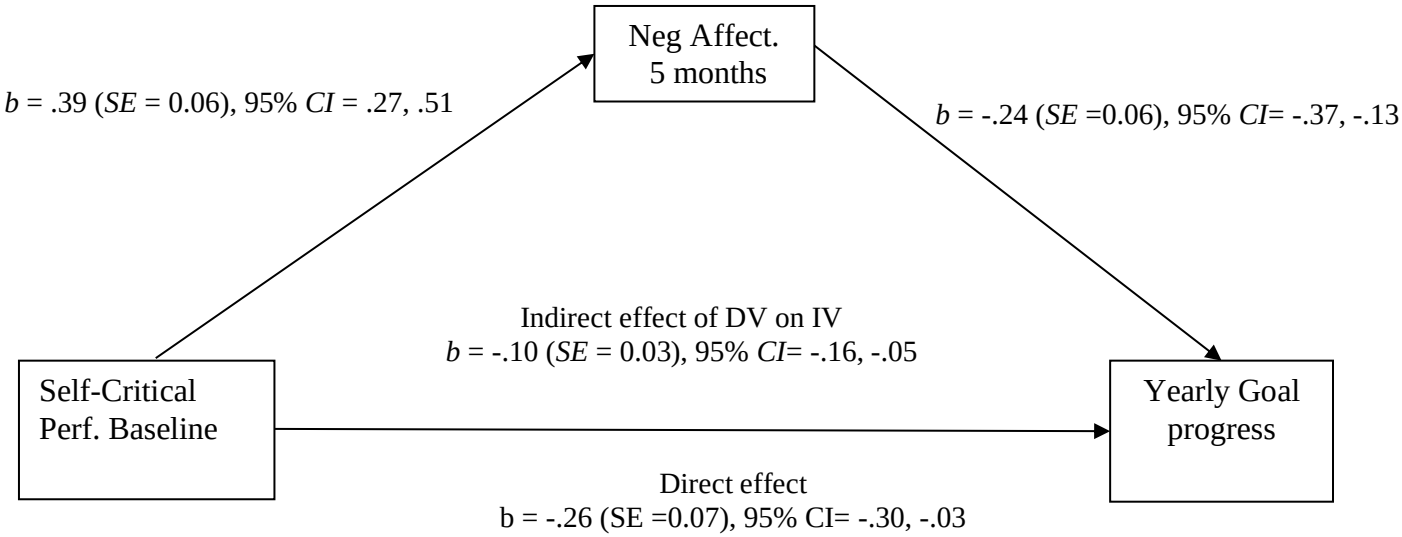

Figure 2. Direct and indirect effects of self-critical perfectionism on participants' end-of-year goal progress, controlling for personal standards perfectionism. Total effect of DV on IV: *b* = .16, *SE* =0 .06, *t* = 3.97, *p* <0 .001).

Figure 3

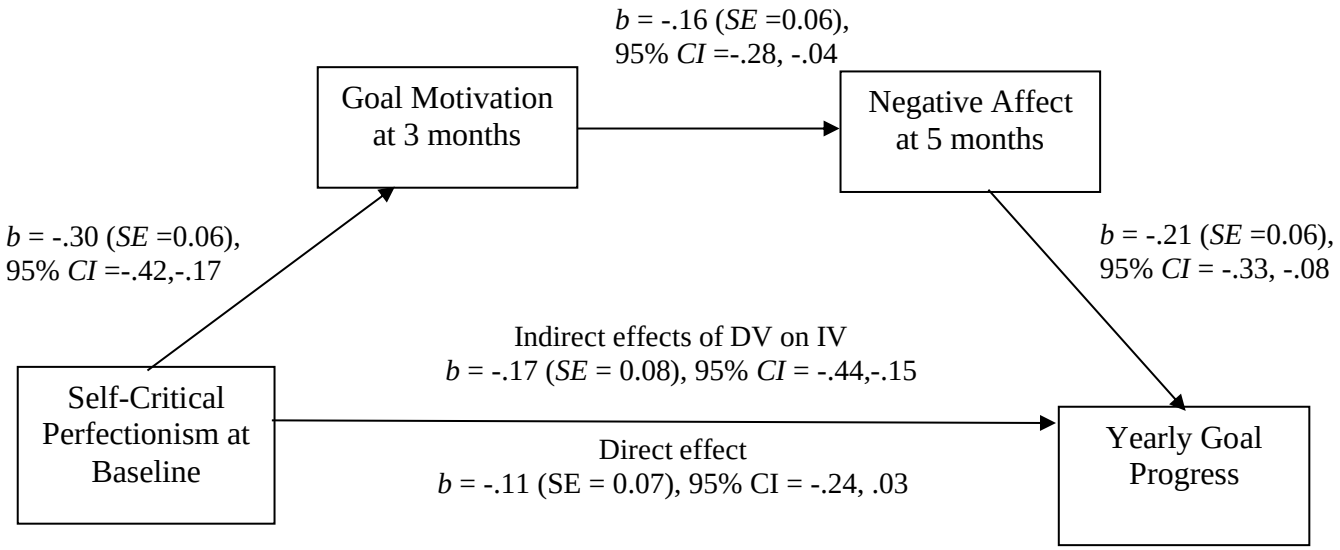

Figure 3. Direct and indirect effects of self-critical perfectionism on end-of-year goal progress controlling for personal standards perfectionism. Total effect of DV on IV: b = -.26, SE =0 .07, t = -3.97, p < 0 .001).

Figure 4

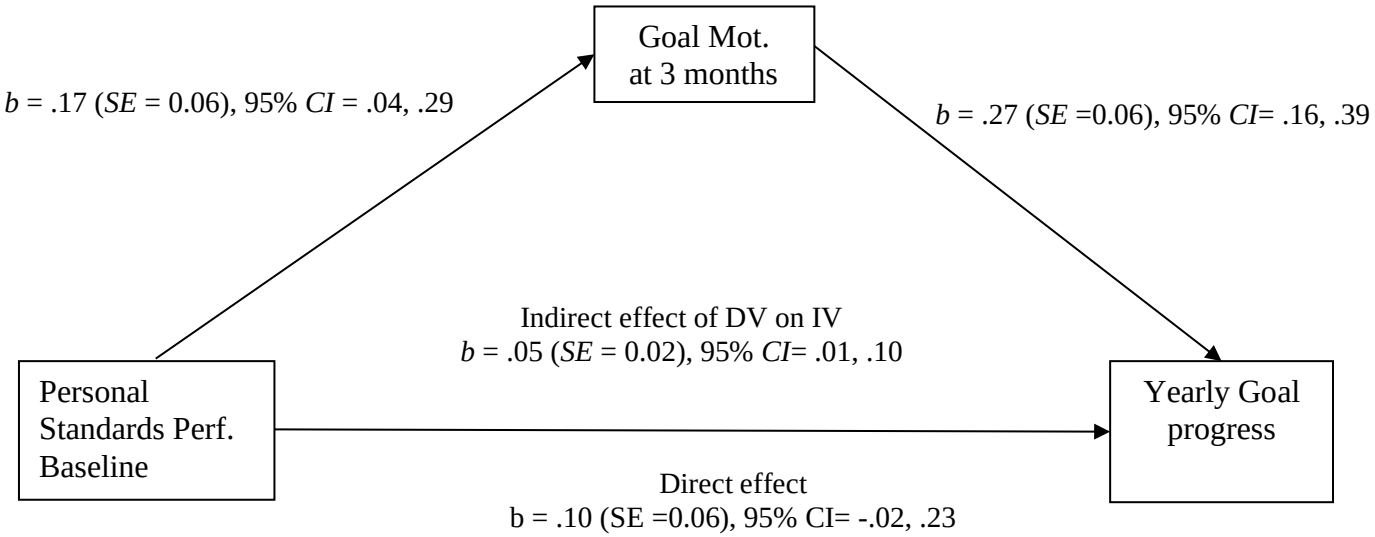

Figure 4. Direct and indirect effects of personal standards perfectionism on participants' end-of-year goal progress, controlling for self-critical perfectionism. Total effect of DV on IV: *b* = .15, *SE* =0 .07, *t* = 2.29, *p* <0 .05).

Bridge to Article 2

Article 1 employed a self-determination theory framework to examine how self-critical and personal standards perfectionism influence university students' goal motivation and progress on personal goals over the course of the academic year. The results revealed that self-critical perfectionism was associated with significantly worse goal progress, whereas personal standards perfectionism was associated with significantly better goal progress. Moreover, self-critical perfectionism was negatively related to autonomous goal motivation, whereas personal standards perfectionism was positively related. Most notably, our results indicated that goal-related autonomous motivation mediated the differential relationships between the two forms of perfectionism and progress on personal goals. Thus, Article 1 makes an important contribution by pointing to the value of adopting a self-determination theory perspective in attempts to understand the role of perfectionism throughout the process of goal pursuit. Overall, the results emphasize that volition during goal pursuit may bolster goal attainment.

To further develop these initial findings, Article 2 sought to expand our initial self-determination theory perspective to understanding the role perfectionism plays in the pursuance of goals by employing advanced multivariate statistical analysis. Specifically, we aimed to examine whether self-critical perfectionism and personal standards perfectionism would be differentially related to later depressive symptoms and whether goal-related motivation and goal progress would mediate these relationships in the context of an 8-month longitudinal study.

Article 2 similarly considers the impact of self-critical and personal standards perfectionism on goal outcomes prospectively, using a longitudinal design. However, it also builds on the opposite links between both dimensions of perfectionism, goal-related autonomous motivation and goal progress obtained in Article 1, by introducing a marker of ill-being,

depressive symptoms. Additionally, Article 2 makes use of more advanced statistical methodologies in order to thoroughly examine the structural relationships between the variables of interest. Moreover, Article 2 provided us the opportunity to examine the replicability of the results obtained in Article 1 in four large, multi-year samples.

Article 2

The Role of Goal-Related Autonomy: A Self-Determination Theory Analysis of Perfectionism, Poor Goal Progress and Depressive Symptoms[2]

Emily Moore, Anne C. Holding, Amanda Moore, Shelby L. Levine

Department of Psychology, McGill University

Theodore A. Powers

Department of Psychology, University of Massachusetts at Dartmouth

David C. Zuroff and Richard Koestner

Department of Psychology, McGill University

[2] Publication Citation:

Moore, E., Holding, A. C., Moore, A., Levine, S. L., Powers, T. A., Zuroff, D. C., & Koestner, R. (2020). The role of goal-related autonomy: A self-determination theory analysis of perfectionism, poor goal progress, and depressive symptoms. *Journal of Counseling Psychology*, *68*(1), 88.

Abstract Article 2

Adopting a self-determination theory perspective, this 3-wave longitudinal study explores the role of perfectionism in goal pursuit and the experience of depressive symptoms. The findings highlight the role of goal-related autonomy in mediating the opposite effects of self-critical and personal standards perfectionism on goal progress and depressive symptoms over the course of an academic year. The results suggest a way of understanding the pathway to depressive symptoms and poor goal progress in perfectionists. They point to a number of implications for clinical practice when working with self-critical perfectionists. Specifically, they indicate that interventions aimed at promoting autonomous motivation, may not only bolster goal progress but also act as a protective factor against depressive symptoms. Together, the results indicate that autonomous motivation is central to goal progress and suggest that low goal-related autonomy can be linked to negative outcomes.

Keywords: self-determination theory, goal pursuit, perfectionism, depression

Public Significance Statement: The results of this longitudinal study highlight the role of goal-related autonomy in mediating the opposite effects of self-critical and personal standards perfectionism on goal progress and depressive symptoms over the course of an academic year. This work is relevant to clinicians as it identifies autonomous motivation as an important mediator, proposing that interventions aimed at promoting autonomous motivation may bolster goal progress while simultaneously acting as a protective factor against depressive symptoms. These findings are relevant to the general public as they underline the negative effects of controlled motivation in this population and highlight the associated benefits of autonomous motivation with regards to goal pursuit and affect.

The Role of Goal-Related Autonomy: A Self-Determination Theory Analysis of Perfectionism, Poor Goal Progress and Depressive Symptoms

Exploring the relationship between perfectionism and depressive symptoms is especially relevant as there has been an alarming increase in rates of mental illness among young people in recent years (World Health Organization, 2017). A new representative survey of Americans noted a 63% increase in rates of major depressive disorder in the last decade in young adults, however this trend was not apparent in adults over 26 (Twenge, Cooper, Joiner, Duffy, & Binau, 2019). This has led to an increased need for mental health services and intense pressure on service providers. The demand has been especially significant at universities where campus mental health clinics are struggling to cope with the sheer number of students requiring care. This increase in perfectionism and associated psychopathology emphasizes the need to equip therapists with a thorough understanding of the pathways through which depressive symptoms can occur, as this will improve conceptualization and treatment planning. Recent work by Curran and Hill (2019) suggests that this mental illness epidemic coincides with a dramatic increase in perfectionism rates, highlighting a potential association. In their large sample meta-analysis that tested for birth cohort differences in college students, significant increases in perfectionism scores over the last few decades were observed. These findings remained when controlling for gender and country differences in perfectionism scores. The authors posit that this increase in perfectionism may be due to a cultural shift towards neoliberalism, meritocracy and controlling parental practices. They indicate that this rise in perfectionism may explain the increase in psychopathology among young adults, as perfectionism is a core vulnerability to a variety of psychological symptoms and disorders. A previous meta-analysis by Hill and Curran (2016) reported positive correlations between perfectionism scores and burnout symptoms in

three domains, work, sport and education, providing further evidence for the potential negative effects of this personality trait.

In the current investigation, we were interested in studying perfectionism and its relationship to depressive symptoms in the university context. We used a Stoeber and Otto (2006) conceptualization, which includes a negative form of perfectionism—self-critical perfectionism, but also a positive form of perfectionism— personal standards perfectionism. Personal standards perfectionism involves "active striving for high standards and goals that one sets for one self"; Self-critical perfectionism by contrast involves "constant and harsh self-scrutiny and self-evaluation, chronic concerns about others' criticism, and the tendency to engage in defensive interpersonal strategies that perpetuate a vulnerable sense of self" (Dunkley, Blankstein, Zuroff, Leece & Hui, 2006, p. 410). This is in contrast to work by (Curran & Hill, 2019; Hill & Curran, 2016) who approached perfectionism using the Hewitt and Flett (2004) conceptualization, consisting of no positive forms but three negative ones—self-oriented, socially prescribed and other-oriented.

Several recent studies have demonstrated that the two dimensions of perfectionism are associated with goal progress in opposite ways. Self-critical perfectionism has been reliably associated with poor progress on ones' personal, academic, and health goals (Harvey et al., 2015; Moore et al., 2018; Powers, Koestner, Lacaille, Kwan, & Zuroff, 2009; Powers, Koestner, Zuroff, Milyavskaya, & Gorin, 2011; Powers, Milyavskaya, & Koestner, 2012) whereas personal standards perfectionism has been associated with greater progress on the same goals. These results are consistently obtained when researchers statistically control for the overlap between the two dimensions of perfectionism. Notably, the negative effects for self-critical perfectionism are generally stronger than the positive effects for personal standards perfectionism.

It is important to understand why goal progress relates to self-critical and personal standards perfectionism. We previously proposed that self-determination theory offers a theoretical framework by which to understand how perfectionism impacts goal selection and pursuit (Moore et al., 2018). Self-determination theory (SDT) emphasizes the importance of autonomy in adaptive functioning, which refers to the experience of freedom in initiating and endorsing behaviors (Joussemet, Landry, & Koestner, 2008). Within the domain of personal goals, the theory suggests that goal pursuit will be successful when individuals feel autonomous about their goals (Sheldon, 2014) and when they feel their autonomy is supported by important people in their lives (Williams et al., 2006).

Individuals are considered autonomously motivated to the extent that they experience goals and decisions to be self-generated and freely chosen, rather than controlled by external or internal pressures (Ryan & Deci, 2000; Vansteenkiste et al., 2010). Goal motivation is assessed by asking individuals to rate their reasons for pursuing their goal. Autonomous goal motivation refers to goal setting that reflects personal interests and values and goals that are typically undertaken volitionally (Koestner, Otis, Powers, Pelletier, & Gagnon, 2008). By contrast, controlled motivation refers to goals that individuals feel obligated to accomplish because of internal or external pressures (Koestner et al., 2008). Research has demonstrated that autonomously motivated goals are related to enhanced goal progress in various domains (Holding, Hope, Harvey, Marion Jetten, & Koestner, 2017; Judge, Bono, Erez, & Locke, 2005; Koestner, Lekes, Powers, & Chicoine, 2002; Milyavskaya, Inzlicht, Hope, Koestner, 2015;Sheldon, 2014; Sheldon & Houser-Marko, 2001).

A recent study used SDT to examine how self-critical and personal standards perfectionism influence university students' motivation and progress on personal goals over the

course of the school year (Moore et al., 2018). The study used a large sample of university participants and included five distinct time points in order to assess whether goal motivation and goal support changes dynamically over the course of the year. The results yielded three important findings. First, self-critical perfectionism was associated with significantly worse goal progress over the course of the school year whereas personal standards perfectionism was associated with significantly better goal progress. Second, self-critical perfectionism was significantly negatively related to autonomous goal motivation, whereas personal standards perfectionism was significantly positively related. Finally, there was evidence that goal-related autonomy mediated the relations between the two forms of perfectionism and progress on yearly goals.

In addition to predicting worse goal outcomes, evidence has also suggested a link between self-critical perfectionism and negative affect (Stoeber & Otto, 2006). Self-critical perfectionism has been associated with depressive symptoms in diverse samples (Dunkley, Zuroff, et al., 2006; Harris, Pepper, & Maack, 2008; McGrath et al., 2012; Moroz & Dunkley, 2015). The existence of this relationship highlights the importance of improved understanding of self-critical perfectionism from a therapeutic lense as it relates to psychopathology. A variety of potential mediators have been investigated including low self-esteem, experiential avoidance and avoidant coping; however, the potential role of goal progress has not been considered. Research suggests that the management of personal goals can be beneficial to a person's subjective well-being, because goals create structure and keep individuals involved in the pursuit of meaningful actions which contribute to constructing a successful life (Carver & Scheier, 1981). On the other hand, research suggests the risk of negative psychological effects related to goal pursuit, most notably in individuals who are struggling to make progress on their goals or those individuals

who have difficulty tolerating failure (Carver & Scheier, 1990; Pomerantz, Saxon, & Oishi, 2000). Self-critical perfectionists tend to report intense fear of failure and a relentless need for flawlessness; therefore, we would expect them to experience difficulty coping with poor goal progress and in turn be at high risk for negative psychological effects, such as depressive symptoms. Alternatively, it is possible that poor goal progress or perceived failure could activate self-critical perfectionistic traits and in turn lead to depression. However, it seems the literature supports the notion that self-critical perfectionism is a precursor to depression (Dunkley, Zuroff, et al., 2006; Harris et al., 2008; McGrath et al., 2012; Moroz & Dunkley, 2015). Additionally, poor goal progress triggering perfectionism would challenge the temporal sequence assumed with regards to personality variables.

In contrast, personal standards perfectionism has been associated with positive affect (Frost, Heimberg, Holt, Mattia, & Neubauer, 1993; Stoeber & Otto, 2006). Additionally, a number of findings indicate that personal standards perfectionism is linked with lower fear of failure, and instead related to hope of success (Frost & Henderson, 1991; Kaye, Conroy, & Fifer, 2008; Stoeber & Becker, 2008). With regards to progress, some work has demonstrated that personal standards perfectionism predicts more positive affect after failure and less fear of experiencing negative emotions such as, embarrassment and shame (Sagar & Stoeber, 2009).

This investigation was designed to expand the self-determination theory analysis of perfectionism and goal pursuit in two novel and important ways. First, we sought to examine whether goal progress mediated the relationship between self-critical perfectionism and later depressive symptoms. While previous research has connected self-critical perfectionism to depressive symptoms, goal progress has not yet been explored as a potential mediating mechanism. Second, we sought to replicate the original model we proposed which highlighted

autonomous motivation as a key mediator in the relationship between both forms of perfectionism and later goal progress.

Present Investigation

The present investigation aimed to use SDT to understand how the two forms of perfectionism relate to autonomous motivation and goal progress, and, in turn, how these impact depressive symptoms. We assessed perfectionism, goal motivation, and goal progress and depressive symptoms over time in a sample of university students (n = 1361) The study began at the start of the academic school year when participants would be likely to naturally generate goals and included 3 waves of data collection over the course of the academic year.

Four hypotheses were offered:

1. Self-critical perfectionism would be associated with significantly worse goal progress, whereas personal standards perfectionism would be associated with significantly better goal progress over the course of the year.
2. Self-critical perfectionism would be associated with low levels of autonomous goal motivation, whereas personal standards perfectionism would be associated with higher levels of autonomous goal motivation.
3. The opposite effects of self-critical and personal standards perfectionism on goal progress were expected to be mediated by autonomous goal motivation.
4. There would be a relationship between self-critical perfectionism and subsequent depressive symptoms that would be mediated by goal progress and there would be no relationship between personal standards perfectionism and depressive symptoms.

Method

Participants

The sample consisted of 1,361 students (80% female, 64% White, 26% Asian, 4% Middle Eastern, 2% Hispanic, 2% Black) whose ages ranged from 18 to 54 years (M_{age}= 20.59, SD = 3.22). The number of participants varied per year ($n_{2014/15}$ = 198; $n_{2015/16}$ = 425; $n_{2016/17}$ = 507; $n_{2017/18}$ =231). The students were recruited at a large public university in North America. The sample included both undergraduate students and students enrolled in graduate or professional programs (83% undergraduates).

Demographic similarity between the four samples was assessed. A chi-square test of independence was performed to examine the relation between year of data collection and gender. The relation between these variables was not significant, $X^2(9, N = 1361) = 14.69$, $p = .100$. A one-way between subjects' ANOVA was conducted to compare the effect of data collection year on participant age. There was a significant effect of data collection year on participant age ($F(3, 1355) = 12.91$, $p < .001$).. Post hoc comparisons using Tukey's honest significant difference (HSD) test indicated that the mean age for the 2014-2015 data collection year ($M = 20.89$, $SD = 3.20$) was significantly different than the 2017-2018 data collection year ($M = 19.81$, $SD = 2.36$). The mean age for the 2015-2016 data collection year ($M = 20.20$, $SD = 2.32$) was significantly different than the 2016-2017 data collection year ($M = 21.16$, $SD = 4.00$). Additionally, the mean age for the 2016-2017 data collection year *(*$M = 21.16$, $SD = 4.00$) was significantly different than the 2017-2018 data collection year ($M = 19.81$, $SD = 2.36$).

Statistical tests were performed to compare participants who completed each follow-up survey with those who did not in terms of the key baseline measures. We used t-tests to compare the 139 participants who dropped out with the 1220 participants who complete all follow-ups on

gender, age, self-critical perfectionism, personal standards perfectionism and depressive symptoms. The two groups did not differ on gender, self-critical perfectionism or depressive symptoms. However, participants who dropped out were found to be younger (M = 19.99, SD = 0.43) than participants who completed all surveys (M = 20.66, SD =0.41), $t(1357) = 2.32$, p = 0.19, d = 1.59. Dropouts were also significantly lower on personal standards perfectionism (M = 4.79, SD = 1.00) than completers (M = 4.57, SD = 0.97), $t(1357) = 2.39$, p = .017, d = 0.22.

Procedure

Each year, for 4 years, participants were recruited to participate in a year-long study on personal goals. Primary recruitment methods included poster advertisements and class announcements. Posters were placed in a large number of easily viewed locations within campus buildings frequented by a high volume of both undergraduate and graduate students. Class announcements were made by professors upon request to a number of undergraduate and graduate classes. It is important to note that the data presented in this manuscript is from studies conducted in 2014-2015, 2015-2016, 2016-2017, 2017-2018. The results published in Moore et al. (2018) were based on data collected in our 2013-2014 study.

The independence of the samples was ensured using a three-pronged approach. First, study advertisements clearly indicated that previous participation in our study excluded students from participating in the current year of data collection. Subsequently, during the participant screening process, participants were asked whether they had previously participated. If they stated yes, they were thanked for their interest but told they could not participate. Finally, to guarantee independence of samples our lab maintains a document that contains the identifying information of each individual who has participated in our yearly goal study since its inception. After initial screening, the name, email address and birthdate of each student that met our

inclusion criteria was cross referenced against our master list to confirm whether they had previously participated.

At the beginning of the academic year (T1) participants received an online survey to complete via the online platform Qualtrics. They were prompted to identify three personal goals that they planned to pursue over the course of the academic year. They were also asked to rate their motivation for each goal, complete the perfectionism questionnaires and a measure of depressive symptoms. Once participants had received the survey link, they had 1 week to complete the survey online. Over the course of the school year, participants completed follow-up surveys assessing goal progress, goal motivation and depressive symptoms. A total of five follow up surveys were completed, but for this study, we focus on the follow-ups completed at baseline (T1), 3 months (T2), and 7 months (T3). We did not consider the other two follow-ups because our key variables were not measured. Key measures that were assessed at each time point include: *baseline*, perfectionism, goal motivation, and depressive symptoms; *3 months*, goal motivation, goal progress, depressive symptoms; *7 months*, goal motivation, goal progress, depressive symptoms. The completion rate for each of the surveys was high (3 months: 90%, 7 months: 86%). The study was approved by the McGill University Research and Ethics Board. Participants were compensated $50 for completing the study. Payment was prorated over the course of the academic year. Participants were given the option to receive an initial payment at approximately the midpoint of the study. A few weeks prior to completing the final survey, participants received the remaining amount they were owed.

Measures

Perfectionism. Perfectionism was assessed at baseline. To assess self-critical perfectionism, we used 11 items from the Depressive Experiences Questionnaire (DEQ; Blatt, D'

Afflitti, & Quinlan, 1976). The items were chosen because they loaded highest on the self-criticism factor of the DEQ. Sample items include "I tend to be very self-critical" and "There is a significant gap between who I am today and who I would like to be." The 11 item scale correlates above .85 with the full DEQ self-criticism scale. In our study the alpha of the self-criticism scale was .85.

To measure personal standards perfectionism, all 15 items from the Self-oriented Perfectionism dimension of the Multidimensional Perfectionism Scale (MPS) were used (Hewitt & Flett, 1991; Hewitt & Flett, 2004). The scale includes items, such as, "One of my goals is to be perfect in everything I do" and "I strive to be the best at everything I do". The Cronbach's α was .78 for the personal standards perfectionism measure.

The items for self-critical and personal standards perfectionism were interspersed and rated on a 7-point scale, ranging from 1 (*strongly disagree*) to 7 (*strongly agree*); higher scores reflect greater levels of perfectionism. This combination of items has successfully been used to assess self-critical and personal standards perfectionism in previous research (Harvey et al., 2015; Milyavskaya, Nadolny, et al., 2014; Powers et al., 2011, 2012).

Goal motivation. Goal motivation was assessed at baseline, 3 months and 7 months. Participants were asked to rate their motivation for pursuing their goal using five items that assessed external, introjected, identified, integrated and intrinsic reasons for goal pursuit (Sheldon & Kasser, 1998). Sample items include "because somebody else wants you to, or because you'll get something from somebody if you do" for external regulation and "because you really believe that it is an important goal to have—you endorse it freely and value it wholeheartedly" for integration. All responses were made on a 7-point scale of 1 (*not at all for this reason*) to 7 (*completely for this reason*). The motivation scales were reliable, autonomy

motivation, α = .81; control motivation α = .77.

As in previous research, autonomous motivation was calculated as the mean of intrinsic, integrated and, identified ratings, whereas controlled motivation was calculated as the mean of external and introjected regulation (Koestner et al., 2008). As is often done in the SDT literature, an index of autonomous versus controlled motivation was created by subtracting the mean of the controlled items from that of the autonomous items (Ryan & Deci, 2000; Sheldon, 2014).

Personal Goal Progress. Participants responded for each of their three chosen personal goals. Personal goal progress was assessed at each follow-up using three items for each goal (e.g., Koestner, Powers, Carbonneau, Milyavskaya, & Chua, 2012). For example, "*I have made a lot of progress toward this goal*". All ratings were made on a 7-point scale ranging from 1 (*strongly disagree*) to 7 (*strongly agree*). At each time point, goal progress for each goal was computed by calculating participants mean score across the three goal progress items. We then computed our variable of interest by calculating participants mean goal progress across their three goals. This measure of goal progress has been consistently used in previous work and demonstrated high reliability (Holding et al., 2017; Moore et al., 2018)

Depressive Symptoms. At all time points, we used the 10-item Centre for Epidemiologic Studies Depression Scale Revised (CESD-R 10; Andresen, Malmgren, Carter, & Patrick, 1994) to assess symptoms of depression. The CESD-R 10 is a validated self-report measure of depression symptoms which focuses on the affectivity component of depressed mood. The scale includes ten items such as "I could not get going" and "I was bothered by things that usually don't bother me" using a e-point Likert scale ranging from *rarely or none of the time (<1 day)" to "most or all the time (5-7 days)*. This scale showed adequate reliability at T1 (α = .80) and T3 (α = .83).

Results

Preliminary Analyses

Table 1 presents the means, standard deviations and correlations for all study variables. Self-critical perfectionism was moderately correlated with personal standards perfectionism, as has been found in previous work. Significant negative associations were found between self-critical perfectionism and both goal motivation and goal progress at all time points. In contrast, significant positive associations were found between self-critical perfectionism and depressive symptoms at all time points. Personal standards perfectionism was also related to depressive symptoms at all time points, albeit less strongly. Goal motivation measured at baseline (T1), 3 months (T2) and 7 months (T3) was negatively related to depressive symptoms at all time points, and positively related to goal progress.

Personal standards perfectionism scores were significantly higher (M = 4.77, SD = 1.05) than self-critical perfectionism scores (M = 4.49, SD = 0.97), $t(1359) = -10.00$, $p < .001$, d = 0.28. There was a significant decrease in students' goal motivation from initial assessment to final assessment (T1: M = 2.19, SD = 1.46; T3: M = 1.83, SD =1.75; $t(1152) = 7.84$ $p < .001$, d = 0.22). In contrast, students' reported a significant increase in goal progress (T2: M =4.12, SD = 1.08; T3: M = 4.66, SD =1.34; $t(1123) = -14.10$ $p < .001$, d = 0.44). Students' reported significantly greater depressive symptoms at the end of the academic year (M = 11.82, SD =5.98) than at baseline (M =10.68, SD = 5.31), $t(1257) = -6.97$, $p < .001$, d = 0.20.

Preliminary analyses revealed that neither age, gender, nor program level significantly predicted variance in our outcomes of interest (i.e., change in end of year depressive symptoms or goal progress). In addition, our key predictors of self-critical perfectionism, personal standards perfectionism, and motivation, remained significantly related to the outcomes after controlling for these covariates.

Structural Equation Model

To examine whether perfectionism differentially predicted goal progress, motivation and depression, and to test whether these variables were interrelated over time, a fully unconstrained structural equation model was created using *MPlus* software (Muthen & Muthen, 2015). Please see Figure 1 below for a full representation of the model. The model had adequate fit: $\chi^2(16) = 222.70$, $p < .001$, root mean square error of approximation (RMSEA) = .097, 95% confidence interval [CI: .086, .109], comparative fit index (CFI) = .943, standardized root mean square residual (SRMR) = .049. Table 2 below summarizes the associations between the variables represented in Figure 1. Self-critical perfectionism was negatively associated with goal motivation and goal progress over time, while it was positively associated with depressive symptoms. In other words, those higher in self-critical perfectionism made less goal progress and pursued goals for more controlled reasons. Personal standards perfectionism was positively associated with goal motivation and goal progress, and negatively associated with depressive symptoms. Those higher in personal standards perfectionism were less likely to report feeling depressed and were more autonomously motivated during goal pursuit. Goal motivation at Time 1 was positively associated with goal progress at Time 2, but this effect was not seen from Time 2 motivation to Time 3 goal progress. Goal motivation was associated decreased depressive symptoms at each following time point. Depressive symptoms were associated with decreased goal motivation at each following time point.

To follow up these analyses, indirect effects were tested using the bootstrap method to determine if any of the variables of interest partially explained the relation between perfectionism and an outcome variable. Using *MPlus* software, the model indirect command was executed while the ML estimator was used and the model was bootstrapped 1,000 times. The

standardized values are reported. Goal motivation mediated the relation between self-critical perfectionism and end of year goal progress (b = -.01, SE = .01, p = .007). Students higher in self-critical perfectionism were less likely to make goal progress because they pursued goals for controlled reasons. Depressive symptoms mediated the relation between self-critical perfectionism and end of year goal progress (b = -.04, SE = .01, p < .001). Students higher in self-critical perfectionism were less likely to make goal progress because they felt depressed while pursuing their goals. Goal motivation mediated the relation between personal standards perfectionism and end of year goal progress (b = .004, SE = .00, p = .022). Students higher in personal standards perfectionism were more likely to make goal progress because they pursued goals for less controlled reasons. Depressive symptoms mediated the relation between personal standards perfectionism and end of year goal progress (b = .01, SE = .00, p = .009). Students higher in personal standards perfectionism were more likely to make greater goal progress because they felt less depressed while pursuing their goals. Goal motivation mediated the relation between self-critical perfectionism and end of year depressive symptoms (b = .03, SE = .01, p < .001). Students higher in self-critical perfectionism were more likely to report feeling depressed because they pursued goals for controlled reasons. Motivation mediated the relation between personal standards perfectionism and end of year depressive symptoms (b = -.01, SE = .01, p = .003). Students higher in personal standards perfectionism were less likely to report feeling depressed because they pursued goals for more autonomous reasons. Depressive symptoms mediated the relation between self-critical perfectionism and end of year goal motivation (b = -.05, SE = .01, p < .001). Students higher in self-critical perfectionism were more likely to report pursuing goals for controlled reasons when they reported depressive symptoms. Depressive symptoms mediated the relation between personal standards perfectionism and end of

year motivation (b = .01, SE = .00, p = .004). Students higher in personal standards perfectionism were less likely to report pursuing goals for controlled reasons because they reported fewer depressive symptoms. Goal motivation, goal progress and depressive symptoms are highly related over the course of an academic year, and by examining the relation between these variables over time, a full narrative can be created to understand how a young adult experiences depression, reduced motivation and lack of progress over time.

Summary of results

The results of study supported the utility of adopting a self-determination theory perspective to understand the relationships between perfectionism, goal motivation, goal progress and depressive symptoms. Our first three hypotheses were confirmed. Self-critical perfectionism was associated with significantly worse goal progress whereas personal standards perfectionism was associated with significantly better goal progress over the course of the year. Self-critical perfectionism was associated with lower levels of autonomous goal motivation whereas personal standards perfectionism was associated with higher levels of autonomous goal motivation. Moreover, the opposite effects of self-critical and personal standards perfectionism on goal progress were mediated by goal-related autonomy. In contrast, our last hypothesis was challenged by our results, highlighting the mediating role of autonomous motivation and not goal progress. We identified a significant relationship between self-critical perfectionism and subsequent depressive symptoms that was mediated by goal-related autonomy. In addition, a relationship between personal standards perfectionism and fewer depressive symptoms was established and the mediational role of goal-related autonomy in this relationship was also established. We also identified other dynamic relationships between our variables of interest and demonstrated how they interact over the course of an academic year.

Discussion

The primary purpose of the study was to expand the self-determination theory analysis of perfectionism and goal pursuit by examining whether poor goal progress might mediate the relationship between self-critical perfectionism and depressive symptoms. A secondary purpose was to assess replicability of Moore et al. (2018) findings. This study employed a large sample of participants and included multiple time points to examine the intricate relationships between both types of perfectionism, goal motivation, goal progress and depressive symptoms.

Results from this investigation support the heuristic value of adopting a self - determination theory perspective to understand the relations of perfectionism to goal progress. A reliable pattern of results emerged in which self-critical and personal standards perfectionism were associated with goal progress over time in opposite ways, and the divergent relations could in turn be explained by differences in the experience of goal-related autonomous motivation. Self-critical perfectionism was reliably associated with poor goal progress in university students. By contrast, personal standards perfectionism was associated with increased goal progress for university students. These findings are consistent with previous work in this area (Moore et al., 2018; Powers et al., 2009; Powers, Koestner, & Zuroff, 2007), confirming the impact of perfectionism on goal progress and the crucial role of autonomous motivation in goal pursuit. Structural equation modeling displayed that the goal progress of self-critical perfectionists is undermined by their lack of autonomous goal motivation and that the goal progress of personal standards perfectionists is bolstered by their tendency to select autonomous goals. These findings are in line with previous work by Powers et al. (2009) who found a negative relationship between self-critical perfectionism and autonomous motivation and Moore et al. (2018) who examined the role of autonomous motivation in the relationships between both forms of

perfectionism and progress on personal goals. Together, these findings strongly support the SDT notion regarding the importance of autonomous motivation within the process of goal pursuit.

Our results suggest that goal motivation is not the only mediator at play in the relationship between perfectionism and goal progress. Depressive symptoms were found to mediate the relationship between both forms of perfectionism and discrepant goal progress. Students higher in self-critical perfectionism felt depressed while pursuing their goals which partially explained why they were less likely to make goal progress. In contrast, students higher in personal standards perfectionism felt less depressed while pursuing their goals and were therefore more likely to make progress. These findings are somewhat consistent with our earlier work which illustrated that the effects of self-critical perfectionism on goal progress were fully mediated by the combination of goal motivation and negative affect (Moore et al., 2018). They also offer further support to Gendolla, Brinkmann, and Richter (2007) who suggested that high levels of negative affect may alter individual's perception of the feasibility of their goals, resulting in decreased goal pursuit. With regards to the opposite relationship for personal standards perfectionists, some research has suggested that positive affect can improve the process of goal pursuit. Fredrickson (2001) broaden-and-build theory of positive emotions posits that positive emotions such as interest and enjoyment broaden one's awareness and encourage novel, varied and exploratory thoughts and actions. It is thought that over time, this expanded behavioral repertoire will build skills and develop resources which will aid in effective goal pursuit. Thus, is makes sense that personal standards perfectionists have less negative affect and in turn experience more success in goal pursuit.

The present investigation broke new ground by directly linking self-critical perfectionists' low autonomous motivation with a vulnerability to developing depressive

symptoms. We demonstrated that the association of self-critical perfectionism with greater depressive symptoms over time is partly mediated by goal-related autonomous motivation during goal pursuit. This is in contrast to what we originally hypothesized. We predicted goal progress would act as a mediator in this relationship based on previous work that has identified negative affective experiences (e.g. low mood, fear of failure, guilt etc.) in self-critical perfectionists when experiencing perceived or objective difficulty pursuing meaningful goals. Therefore, our results were unexpected, but upon reflection not surprising. SDT positions autonomous motivation as a fundamental need and our work emphasizes its significance. Our results demonstrate that low autonomous motivation is detrimental to affect, and that this appears to occur without the involvement of poor goal progress.

This finding builds upon previous work that has found a relationship between self-critical perfectionism and depressive symptoms, by identifying autonomous motivation as an important mediator (Dunkley, Blankstein, Zuroff, et al., 2006; Harris et al., 2008; McGrath et al., 2012; Moroz & Dunkley, 2015). This finding is also in line with work by Curran and Hill (2019) that revealed an increase in perfectionism scores in recent decades in tandem with rising rates of psychopathology among young adults. Our work provides empirical evidence for the relationship posited in their recent meta-analysis by linking self-critical perfectionism with later depressive symptoms (Curran & Hill, 2019). SDT proposes that the thwarting of fundamental psychological needs makes individuals vulnerable to depressive symptoms. Our studies suggest that self-critical perfectionism negatively impacts satisfaction of each of the three fundamental needs highlighted by SDT. The competence of self-critical perfectionists is foiled by their failure to achieve goal success; their autonomy is frustrated by their tendency to select goals that are

controlled rather than autonomous; and their relatedness is opposed by their failure to elicit or perceive goal support from friends and family (Moore et al., 2018).

The identified relationship between personal standards perfectionism and less depressive symptoms, mediated by goal-related autonomy also challenged our initial hypotheses. While some work has suggested a relationship between personal standards perfectionism and positive affect (Frost et al., 1993; Stoeber & Otto, 2006), we assumed it was not sufficient to predict that personal standards perfectionism would be associated with reduced depressive symptoms. This finding builds upon previous work that has identified personal standards perfectionism as associated with positive outcomes, specifically positive affect and hope for success, suggesting not only an increase in positive affect but a decreased in negative emotions (Frost et al., 1993; Kaye et al., 2008; Stoeber & Becker, 2008; Stoeber & Otto, 2006). It also indicates the positive consequences of autonomous motivation, as initially posited by Ryan & Deci (2000) and confirmed by more recent research. Together, these results emphasize the adaptive side of personal standards perfectionism.

Our results suggest a way of understanding the pathway to depressive symptoms and point to a number of implications for clinical practice when working with self-critical perfectionists. The results suggest that interventions aimed at promoting autonomous motivation, may not only bolster goal progress but also act as a protective factor for depressive symptoms. It appears that fostering autonomous motivation could be related to reduced depression risk in this population. Informed by these findings, clinicians can focus on interacting with patients who display self-critical tendencies in autonomy supportive ways while providing psychoeducation on autonomous motivation and its positive effects on goal related outcomes and mood. In addition, therapists can actively work on helping patients to evaluate and select autonomously

held goals in line with their intrinsic values. Acceptance Commitment Therapy is one example of a popular therapy that could be viewed as actively helping patients to move towards autonomously motivated goals as it focuses on identifying the individual's values and helping them act in accordance with them. Our work suggests that therapists may benefit from incorporating aspects of SDT into their therapeutic work as aspects of this theory of motivation may be beneficial to patients in this population and could provide a framework for therapeutic work. Ryan and Deci (2008) have suggested that SDT can be easily applied to psychotherapy as a key goal of the therapeutic process is to support the client in autonomously exploring, initiating and sustaining a process of change, as our work suggests this may be more difficult among self-critical perfectionists the application of this theory may be even more pertinent in this population.

Some important limitations of the present research must be noted. First, only self-report measures were used which is limiting when studying goal progress and self-critical perfectionism, as it can be difficult to objectively assess one's own progress and self-critics are thought be more negative in their self-perceptions (Harvey et al., 2015). Nevertheless, work by Powers et al. (2011) demonstrated the value of self-report by showing that peer reports and objective measures garnered similar results to self-report measures. Future research could consider taking a multimodal approach to measuring goal progress, including both objective measures in addition to the more subjective self-report measures. Second, the use of brief scales must be highlighted. While these measures have been successfully used in a number of studies (Holding et al., 2017; Moore et al., 2018; Koestner et al., 2012) they nevertheless are potentially limited in their ability to fully capture the intricacies of the construct they are designed to assess. Future research should include more complex measures of the variables of interest, if time

constraints and participant burden will allow for it. Additionally, we only assessed perfectionism at baseline which limited our ability to fully understand the dynamic interaction of perfectionism with our other key variables. Future research would benefit from the addition of repeated measurement of perfectionism. Lastly, the sample was limited to North American participants. A sample that included participants from diverse cultures and countries would have been advantageous. The cultural generalizability of the above results will remain unclear until future research examines these relationships in culturally distinct samples.

Future research can build upon the present investigation in a number of ways. First, it would be interesting to examine health functioning in self-critical perfectionists who are experiencing motivation frustration during goal pursuit. Our work suggests that self-critical perfectionists who experience low autonomous motivation make poor goal progress while simultaneously being prone to the development of depressive symptoms, but these two outcomes could be one among many other potential negative effects of motivation frustration. For example, poorer physical health, impacted immune functioning and dysregulated cortisol levels have been linked to problematic goal pursuit in normal samples (Wrosch, Miller, Scheier, & De Pontet, 2007). Second, future research can examine the effects of perfectionism across the full goal action sequence runs from goal selection to goal pursuit and, often, to goal disengagement (Heckhausen, Wrosch, & Schulz, 2010). It would be particularly interesting to observe the effects of perfectionism on action crises and judgements about goal disengagement. Third, future research should consider other self-determination theory variables that might play a role in perfectionism and goal pursuit. For example, recent research has highlighted the specific role that need frustration appears to play in mediating the effects of self-critical perfectionism on

maladaptive behaviors such as binge eating (Boone, Vansteenkiste, Soenens, der Kaap-Deeder, & Verstuyf, 2014).

Despite these concerns, the present investigation corroborates our earlier proposition (Moore et al., 2018) that there is significant value in adopting a self-determination theory perspective to understanding the role perfectionism plays in the pursuance of goals. The results of this longitudinal study highlight the role of autonomous motivation and depressive symptoms in mediating the opposite effects of self-critical and personal standards perfectionism on goal progress. In addition, the results suggest relationships between self-critical perfectionism, personal standards perfectionism and depressive symptoms that are mediated by autonomous motivation. Together, the results confirm that autonomous motivation plays a key role in goal progress and suggest that low goal-related autonomy can be linked to negative outcomes in certain groups.

References Article 2

Andresen, E. M., Malmgren, J. A., Carter, W. B., & Patrick, D. L. (1994). Screening for depression in well older adults: Evaluation of a short form of the CES-D. *American Journal of Preventive Medicine, 10*(2), 77-84.

Blatt, S. J., D'Afflitti, J. P., & Quinlan, D. M. (1976). Experiences of depression in normal young adults *Journal of Abnormal Psychology, 85*, 383-389.

Boone, L., Vansteenkiste, M., Soenens, B., der Kaap-Deeder, V., & Verstuyf, J. (2014). Self-critical perfectionism and binge eating symptoms: A longitudinal test of the intervening role of psychological need frustration. *Journal of counseling psychology, 61*, 3.

Carver, C. S., & Scheier, M. F. (1981). The self-attention-induced feedback loop and social facilitation. *Journal of Experimental Social Psychology 17*(6), 545-568.

Carver, C. S., & Scheier, M. F. (1990). Origins and functions of positive and negative affect: a control-process view. *Psychological review, 97*(1).

Curran, T., & Hill, A. P. (2019). Perfectionism is increasing over time: A meta-analysis of birth cohort differences from 1989 to 2016. *Psychological Bulletin, 145*(4), 410.

Dunkley, D. M., Blankstein, K. R., Zuroff, D. C., Lecce, S., & Hui, D. (2006). Self-Critical and Personal Standards factors of perfectionism located within the five-factor model of personality. *Personality and Individual Differences, 40*(3), 409-420.

Dunkley, D. M., Zuroff, D. C., & Blankstein, K. R. (2006). Specific perfectionism components versus self-criticism in predicting maladjustment. *Personality and Individual Differences, 40*(4), 665-676.

Fredrickson, B. L. (2001). The role of positive emotions in positive psychology: The broaden-and-build theory of positive emotions. *American psychologist, 56*(3).

Frost, R. O., Heimberg, R. G., Holt, C. S., Mattia, J. I., & Neubauer, A. L. (1993). A comparison of two measures of perfectionism. *Personality and individual differences, 14*(1), 119-126.

Frost, R. O., & Henderson, K. J. (1991). Perfectionism and reactions to athletic competition. *Journal of Sport and Exercise Psychology, 13*(4), 323-335.

Gendolla, G. H., Brinkmann, K., & Richter, M. (2007). *Mood, motivation, and performance: An integrative theory, research, and applications.*

Harris, P. W., Pepper, C. M., & Maack, D. J. (2008). The relationship between maladaptive perfectionism and depressive symptoms: The mediating role of rumination. Personality and Individual differences, 44(1), 150-160. *Personality and Individual Differences, 44*(1), 150-160.

Harvey, B., Milyavskaya, M., Hope, N., Powers, T. A., Saffran, M., & Koestner, R. (2015). Affect variation across days of the week: influences of perfectionism and academic motivation. *Motivation and Emotion, 39*(4), 521-530.

Heckhausen, J., Wrosch, C., & Schulz, R. (2010). A motivational theory of life-span development. Psychological review, 117(1), 32. *Psychological review, 117*(1), 32.

Hewitt, P. L., & Flett, G. L. (1991). Perfectionism in the self and social contexts: Conceptualization, assessment, and association with psychopathology. *Journal of Personality and Social Psychology, Vol 60*(3), 456-470.

Hewitt, P. L., & Flett, G. L. (2004). *Multidimensional Perfectionism Scale (MPS): Technical manual.* Toronto: Multi-Health Systems.

Hill, A. P., & Curran, T. (2016). Multidimensional Perfectionism and Burnout: A Meta-Analysis. Personality and Social Psychology Review. *Personality and Social Psychology Review, 20*, 269-288.

Holding, A. C., Hope, N. H., Harvey, B., Marion Jetten, A. S., & Koestner, R. (2017). Stuck in limbo: Motivational antecedents and consequences of experiencing action crises in personal goal pursuit. . *Journal of Personality, 85*(6), 893-905.

Joussemet, M., Landry, R., & Koestner, R. (2008). A self-determination theory perspective on parenting. *Canadian Psychology, 49*(3), 194.

Judge, T. A., Bono, J. E., Erez, A., & Locke, E. A. (2005). Core selfevaluations and job and life satisfaction: The role of self-concordance and goal attainment. *Journal of Applied Psychology,, 90*, 257-268.

Kaye, M. P., Conroy, D. E., & Fifer, A. M. (2008). Individual differences in incompetence avoidance. . *Journal of Sport and Exercise Psychology, 30*(1), 110-132.

Koestner, R., Lekes, N., Powers, T. A., & Chicoine, E. (2002). Attaining personal goals: Self-concordance plus implementation intentions equals success. *Journal of Personality and Social Psychology, 83*(1), 231-244.

Koestner, R., Otis, N., Powers, T. A., Pelletier, L., & Gagnon, H. (2008). Autonomous motivation, controlled motivation, and goal progress. *Journal of Personality, 76*(5), 1201–1230.

McGrath, D. S., Sherry, S. B., Stewart, S. H., Mushquash, A. R., Allen, S. L., Nealis, L. J., & Sherry, D. L. (2012). Reciprocal relations between self-critical perfectionism and depressive symptoms: Evidence from a short-term, four-wave longitudinal study. *Canadian Journal of Behavioural Science/Revue canadienne des sciences du comportement, 44*(3).

Milyavskaya, M., Inzlicht, M., Hope, N., & Koestner, R. (2015). Saying “no” to temptation: Want-to motivation improves self-regulation by reducing temptation rather than by increasing self-control. *Journal of Personality and Social Psychology,109*(4).

Milyavskaya, M., Nadolny, D., & Koestner, R. (2014). Where Do Self-Concordanct Goals Come From? The Role of Domain-Specific Psychological Need Satisfaction. *Personality and Social Psychology Bulletin, 40*(6), 700-711.

Moore, E., Holding, A. C., Hope, N. H., Harvey, B., Powers, T. A., Zuroff, D., & Koestner, R. (2018a). Perfectionism and the pursuit of personal goals: A self-determination theory analysis. *Motivation and Emotion, 42*(1), 37-49. doi:10.1007/s11031-017-9654-2

Moroz, M., & Dunkley, D. M. (2015). Self-critical perfectionism and depressive symptoms: Low self-esteem and experiential avoidance as mediators. *Personality and Individual Differences, 87,* 174-179.

Pomerantz, E. M., Saxon, J. L., & Oishi, S. (2000). The psychological trade-offs of goal investment. *Journal of Personality and Social Psychology, 79*(4).

Powers, T. A., Koestner, R., Lacaille, N., Kwan, L., & Zuroff, D. C. (2009). Self-criticism, motivation, and goal progress of athletes and musicians: A prospective study. *Personality and Individual Differences, 47*(4), 279-283. doi:10.1016/j.paid.2009.03.012

Powers, T. A., Koestner, R., & Zuroff, D. C. (2007). Self-Criticism, Goal Motivation, Goal Progress. *Journal of Social and Clinical Psychology, 26*, 814-828.

Powers, T. A., Koestner, R., Zuroff, D. C., Milyavskaya, M., & Gorin, A. G. (2011). The effects of self-critiism and self-oriented perfectionism on goal pursuit. *Personality and Social Psychology Bulletin, 37*(7), 964-975.

Powers, T. A., Milyavskaya, M., & Koestner, R. (2012). Mediating the effects of self-criticism and self-oriented perfectionism on goal pursuit. *Personality and Individual Differences, 52*, 765-770.

Ryan, R., & Deci, E. (2000). Intrinsic and extrinsic motivations: Classic definitions and new directions. *Contemporary Educational Psychology, 25*(1), 54-67.

Ryan, R. M., & Deci, E. L. (2008). A self-determination theory approach to psychotherapy: The motivational basis for effective change. *Canadian Psychology/Psychologie canadienne, 49*(3).

Sagar, S. S., & Stoeber, J. (2009). Perfectionism, fear of failure, and affective responses to success and failure: The central role of fear of experiencing shame and embarrassment. *Journal of Sport and Exercise Psychology, 31*(5), 602-627.

Sheldon, K. M. (2014). Becoming oneself: The central role of selfconcordant goal selection. *Personality and Social Psychology Review, 18*(4), 349–365.

Sheldon, K. M., & Houser-Marko, L. (2001). Self-concordance, goal attainment and the pursuit of happiness: Can there be an upward spiral? *Journal of Personality and Social Psychology, 80*, 152-165.

Stoeber, J., & Becker, C. (2008). Perfectionism, achievement motives, and attribution of success and failure in female soccer players. *International Journal of Psychology, 43*(6), 980-987.

Stoeber, J., & Otto, K. (2006). Positive conceptions of perfectionism: Approaches, evidence, challenges. *Personality and Social Psychology Review, 10*(4), 295-319.

Twenge, J. M., Cooper, A. B., Joiner, T. E., Duffy, M. E., & Binau, S. G. (2019). Age, period, and cohort trends in mood disorder indicators and suicide-related outcomes in a

nationally representative dataset, 2005–2017. *Journal of Abnormal Psychology*, *128*(3), 185-199.

Vansteenkiste, M., Smeets, S., Soenens, B., Lens, W., Matos, L., & Deci, E. L. (2010). Autonomous and controlled regulation of performance-approach goals: Their relations to perfectionism and educational outcomes. . *Motivation and Emotion, 34*(4), 333-353.

Williams, G. C., Lynch, M. F., McGregor, H. A., Ryan, R. M., Sharp, D., & Deci, E. L. (2006). Validation of the "important other" climate questionnaire: Assessing autonomy support for health related change. . *Families, Systems & Health*, *24*(179-194).

Wrosch, C., Miller, G. E., Scheier, M. F., & De Pontet, S. B. (2007). Giving up on unattainable goals: Benefits for health? . *Personality and Social Psychology Bulletin 33*(2), 251-265.

Tables and Figures Article 2

Table 1

Correlations, means, and standard deviations for all key variables

	1	2	3	4	5	6	7	8	9	10	*M*	*SD*
1. Self-Critical Perfectionism		.48***	-.30***	-.30***	-.27***	.56***	.46***	.44***	-.20***	-.20***	4.49	1.05
2. Personal Standards Perfectionism	.48***		.05	.05	.09**	.19***	.18***	.15***	.01	-.02	4.77	0.97
3. Motivation T1	-.30***	-.05		.66***	.54***	-.29***	-.23***	-.22***	.15***	.10***	2.18	1.49
4. Motivation T2	-.30***	-.05	.66***		.63***	-.30***	-.31***	-.25***	.21***	.13***	1.72	1.56
5. Motivation T3	-.27***	-.09**	.54***	.63***		-.24***	-.23***	-.25***	.10**	.21***	1.83	1.75
6. Depressive Symptoms T1	.56***	.19***	-.29***	-.30***	-.24***		.58***	.47***	-.20***	-.17***	10.64	5.29
7. Depressive Symptoms T2	.46***	.18***	-.23***	-.31***	-.23***	.58***		.48***	-.29***	-.18***	12.26	5.88
8. Depressive Symptoms T3	.44***	.15***	-.22***	-.25***	-.25***	.47***	.48***		-.16***	-.22***	11.85	6.00
9. Goal Progress T2	-.20***	.01	.15***	.21***	.10**	-.20***	-.29***	-.16***		.47***	4.12	1.08
10. Goal Progress T3	-.20***	-.02	.10***	.13***	.21***	-.17***	-.18***	-.22***	.47***		4.66	1.33

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

Table 2

A summary of the structural equation model pathways between different variables

Pathways	*b*(SE)	*p*	Pathways	*b*(SE)	*P*
Dep1 → Dep2	**.57 (.02)**	**< .001**	Dep1 → Prog 2	**-.13 (.03)**	**<.001**
Dep 2 → Dep 3	**.45 (.02)**	**<.001**	Dep 2 → Prog 3	-.04 (.03)	.124
Mot 1 → Mot 2	**.62 (.02)**	**<.001**	Prog 2 → Dep 3	-.01 (.03)	.824
Mot 2 → Mot 3	**.63 (.02)**	**<.001**	Prog 2 → Mot 3	-.04 (.02)	.059
Prog 2 → Prog 3	**.45 (.03)**	**<.001**	SC → Dep1	**.61 (.02)**	**<.001**
Mot 1 → Prog 2	**.08 (.03)**	**.005**	SC → Mot1	**-.36 (.03)**	**<.001**
Mot 2 → Prog3	.03 (.03)	.228	SC → Prog 2	**-.13 (.04)**	**.001**
Mot1 → Dep 2	**-.07 (.02)**	**.002**	PS → Dep1	**-.09 (.02)**	**<.001**
Mot 2 → Dep 3	**-.12 (.03)**	**<.001**	PS → Mot 1	**.12 (.03)**	**<.001**
Dep 1 → Mot 2	**-.12 (.02)**	**<.001**	PS → Prog 2	**.12 (.03)**	**<.001**
Dep 2 → Mot 3	**-.05 (.02)**	**.035**			

Note: Dep = depressive symptoms, Mot = goal motivation, Prog = goal progress, SC = self-critical perfectionism, PS = personal standards perfectionism. Significant values are bolded. The standardized coefficient (STDYX) values are reported.

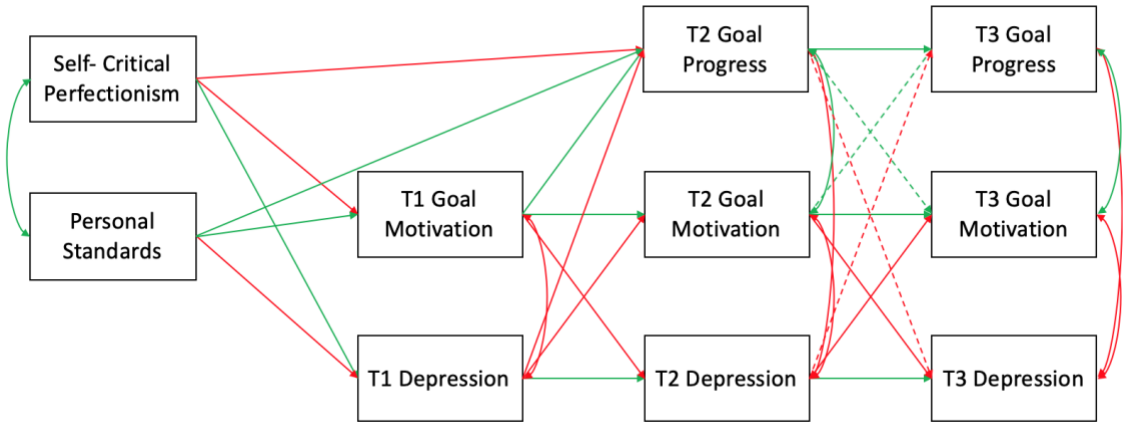

Figure 1. A representation of the structural equation model examining the relation between perfectionism, motivation, depressive symptoms and goal progress over an academic year. Green lines represent a positive association, and red lines represent a negative association. Solid lines represent significant relations, while dashed lines represent non-significant trends. See the online article for the color version of this figure.

General Discussion

"What lies behind us and what lies before us are tiny matters compared to what lies within us" —Ralph Waldo Emerson

The quote above, penned by American Philosopher, Ralph Waldo Emerson, succinctly highlights the importance of bringing awareness towards the self. He suggests that the elements within us—our hopes, dreams, motivations and goals—are key to creating a meaningful life. The essence of this quote reflects the findings of the present thesis. The results obtained in this doctoral thesis support Emerson's suggestion that pursuing goals that reflect our underlying interests and core values is an important matter.

This thesis examined how goal-related autonomous motivation might relate to perfectionistic personality characteristics and other key variables within the context of goal pursuit. Self-determination theory (SDT) advances the importance of autonomous motivation in supporting goal achievement and contributing to good quality of life (Ryan & Deci, 2017). A substantial body of research has linked self-critical perfectionism with hindered goal progress and personal standards perfectionism with bolstered progress. However, little research has considered whether SDT's concept of autonomous motivation may play a mediating role in this relationship. The articles of this thesis integrate SDT with perfectionism literature by conducting longitudinal examinations of the relation of both dimensions of perfectionism to autonomous motivation and other important variables, throughout the process of goal pursuit.

The findings in Article 1 and Article 2 present a reliable pattern of results demonstrating that self-critical perfectionism is negatively related to goal progress when personal standards

perfectionism is controlled, whereas personal standards perfectionism is positively related to goal progress when self-critical perfectionism is controlled. These results are consistent with previous research that has identified opposite relationships between both dimensions of perfectionism and goal progress. (Powers, Koestner, & Zuroff, 2007; Powers et al., 2011; Powers et al., 2012). Over the course of the school year, self-critical perfectionism was associated with significantly worse goal progress whereas personal standards perfectionism was associated with significantly better goal progress. Across all studies and over time, a reliable pattern of results emerged in which self-critical perfectionism demonstrated a detrimental impact on goal progress while personal standards perfectionism displayed a constructive influence.

While the differential relationships between the two dimensions of perfectionism and goal progress are well established, the findings of Article 1 point to a novel mediator: autonomous motivation. Specifically, we found that these opposite relations were explained by differences in the experience of goal-related autonomous motivation. This thesis presents considerable evidence that goal-related motivation mediates the impact of self-critical perfectionism and personal standards perfectionism on goal progress. While low levels of autonomous goal motivation mediated the relationships between self-critical perfectionism and negative goal effects, the positive goal effects of personal standards perfectionism were mediated by high levels of autonomous goal motivation. Therefore, variations in feelings of volition appear to be vital to understanding the opposite effects of the two dimensions of perfectionism on personal goal pursuit. Article 2 replicated and extended our original finding, by revealing the role of autonomous motivation as an important mediator not only in the relationship between perfectionism and goal progress but also subsequent depressive symptoms. Structural equation modeling demonstrated that the goal progress of self-critical perfectionists is undermined by

their lack of autonomous goal motivation, while the goal progress of personal standards perfectionists is bolstered by their tendency to select autonomous goals.

The present findings build upon previous work in this area that has considered the relationship between concordant motivation and self-criticism (Powers et al., 2009; Powers et al., 2007; Shahar, Henrich, Blatt, Ryan, & Little, 2003). Additionally, while reaffirming the impact of perfectionism on goal progress, it highlights the central role of autonomous motivation in goal pursuit. Moreover, it expands prior work by Vansteenkiste et al. (2010) that explored motivation for academic performance goals in high school students and found that some perfectionists were autonomously motivated while others experienced controlled motivation. Despite being examined in a distinct context and implementing a unique conceptualization of perfectionism, this parallels the work of the present thesis suggesting that certain perfectionists are more likely to strive for goals they find inherently interesting or meaningful, while other perfectionists strive for goals they feel obligated to achieve. Self-critical perfectionists appear more likely to engage in goal pursuit driven by external and internal pressures, while personal standards perfectionists pursue goals driven by interest, values and internalized meaning. Our work suggests that the adverse impact of self-critical perfectionism and the beneficial impact of personal standards perfectionism on goal progress is due to fluctuations in autonomous motivation. Overall, these findings strongly support the SDT notion regarding the importance of autonomous motivation throughout the process of goal pursuit.

A particularly thought-provoking finding of the present thesis was the detection of dynamic change in goal motivation and autonomy support over time as a function of perfectionism. This addresses an important gap in the literature as previous research has merely assessed goal motivation at baseline. The longitudinal design of the studies of this thesis offered

the opportunity to consider the extent to which motivation constructs remain stable or vary over time, and whether any such change is systematic. The results of both articles included in the present thesis suggest temporal change in motivation linked to the progression of the academic year, specifically decreases in autonomous goal motivation as the school year proceeded. Moreover, in Article 1, the two dimensions of perfectionism predicted unique temporal changes in goal motivation. Self-critical perfectionists were inclined to see their goals as becoming less internalized and more controlled, whereas personal standards perfectionists tended to see their goals as becoming more internalized and meaningful over the course of the year. This clearly depicts the ongoing interaction between personality characteristics and goal-related motivation and suggests the value of integrating SDT into research on perfectionism. Given these findings, future research exploring the role of goal motivation in various contexts would benefit from systematic consideration of dynamic patterns of change in goal motivation.

The present thesis portrays a pathway by which perfectionism generates goal motivation which leads to goal progress. However, it is likely that other pathways, including a recursive one, are viable. While the studies in the present thesis included repetitive measurement of goal motivation, due to follow-up constraints, perfectionism was only assessed at baseline. This limited our ability to thoroughly examine the dynamic interaction of perfectionism with goal motivation. Future longitudinal research would benefit from the addition of repeated measurement of perfectionism in tandem with repeated assessment of other key variables (i.e. goal motivation, goal progress). This would allow the examination of reciprocal relationships between goal motivation and both dimensions of perfectionism. In turn, this would offer further clarity on dynamic interactions and support the fine-tunning of interventions.

A principal finding of the present thesis is the identification of an affective component in the pathway between perfectionism and goal progress. The results of Article 1 indicated that positive affect decreased while negative affect increased over the course of the school year. Moreover, they revealed a dynamic relationship between self-critical perfectionism and affect. As the academic year progressed, self-critical perfectionists experienced increased negative affect and marginally decreased positive affect. In contrast, personal standards perfectionism was unrelated to affect over the academic year. Correspondingly, the findings in Article 2 suggest that depressive symptoms, in addition to goal-related autonomous motivation, mediated the relationship between both dimensions of perfectionism and goal progress. Structural equation modeling implied that the relationships between both forms of perfectionism and discrepant goal progress were mediated by depressive symptoms. This is important in that it indicates that goal-related motivation is not the only mediator operating in the relationship between perfectionism and goal progress. These findings are reminiscent of the findings from Article 1 which indicated that a combination of goal motivation and negative affect fully mediated the relationship between self-critical perfectionism and goal progress. Moreover, they are consistent with previous research that has proposed that affect influences whether people actually make progress at their goals (Gendolla, Brinkmann, & Richter, 2007).

Moving past goal outcomes and towards measures of ill-being, the investigation described in Article 2 was noteworthy in that it directly linked self-critical perfectionists' low autonomous motivation with a vulnerability to developing depressive symptoms. Specifically, our results revealed that throughout goal pursuit, the longitudinal relationship between self-critical perfectionism and depressive symptoms is partially mediated by goal-related autonomous motivation. This was in contrast to our initial prediction that goal progress would act as a

mediator in this relationship, based on prior research by Powers et al. (2009) that suggested a contingent relationship between goal progress and negative affect in self-critics. However, autonomous motivation's role as an important mediator is logical given its importance in SDT. The results of Article 2 clearly demonstrated and emphasized the impact of autonomous motivation. The findings suggest that low autonomous motivation is detrimental to affect, independent of the involvement of poor goal progress. By identifying autonomous motivation as an important predictor, Article 2 builds upon prior literature that has established a relationship between self-critical perfectionism and depressive symptoms (Dunkley, Blankstein, Zuroff, et al., 2006; Harris, Pepper, & Maack, 2008; McGrath et al., 2012; Moroz & Dunkley, 2015). Furthermore, in linking self-critical perfectionism with subsequent symptoms of psychopathology, Article 2 also offers empirical evidence for the relationship between increasing rates of perfectionism and psychopathology in young adults posited by Curran and Hill (2019).

The findings of the present thesis also bolster the SDT proposition that when psychological needs are unfulfilled individuals are vulnerable to psychopathology. The present work may point to self-critical perfectionism as a barrier to satisfaction of the three fundamental needs—autonomy, relatedness, competence—described in SDT. The autonomy of self-critical perfectionists appears to be frustrated by their tendency to select goals that are controlled rather than autonomous; their competence appears to be foiled by their failure to achieve goal success; and their relatedness is opposed by their difficulty eliciting perceived goal support from friends and family. Future research might more thoroughly explore the experience of self-critical perfectionists with regards to the needs of competence and relatedness which were not a focus of the present thesis.

In contrast, the findings in Article 2 point to autonomous motivation mediating the relationship between personal standards perfectionism and decreased depressive symptoms. This finding bolsters SDT's conviction that the fulfillment of the psychological needs is closely related to the experience of well-being. This finding was somewhat unexpected as only a small amount of literature has suggested a relationship between personal standards perfectionism and positive affect (Frost et al., 1993; Stoeber & Otto, 2006) and no previous work has suggested a reduced risk of depressive symptoms in this group. Moreover, this finding further differentiates personal standards perfectionism from self-critical perfectionism. Our results advocate for the conceptualization of personal standards perfectionism as a unique and potentially adaptive dimension of perfectionism. Furthermore, this work contributes to prior research that has established a relationship between personal standards perfectionism and a range of positive outcomes (Kaye, Conroy, & Fifer, 2008; Stoeber & Becker, 2008; Stoeber & Otto, 2006). The identified relationship between autonomous motivation and lessened depressive symptoms clearly highlights the positive power of autonomous motivation as suggested by Ryan and Deci (2000) and reinforced by more recent research on this topic. In sum, with regards to personal standards perfectionism, the results of Article 2 are important in contributing to the ongoing debate on perfectionism and underlining the adaptive side of personal standards perfectionism.

Overall, the present thesis employed self-determination theory to examine how self-critical and personal standards perfectionism influence the pursuit of personal goals (Article 1) and contribute to the development of ill-being (Article 2). Goal-related autonomous motivation emerged as an important mediator. The findings of the thesis highlight the heuristic value of adopting a self-determination theory perspective to understand perfectionisms' relationship with positive and negative outcome variables during personal goal pursuit.

Clinical Implications

The findings of this thesis indicate a number of implications for clinical practice when working with self-critical perfectionists. They also suggest the potential benefit of designing and implementing interventions intended to support the internalization process and bolster autonomous motivation. These interventions would offer important clinical advantage for clinicians providing services to self-critical perfectionists in general and especially those coping with psychopathology, arduous goal pursuit and life transitions. The results presented in this thesis suggest that in self-critical perfectionism, supporting autonomous motivation may not only bolster goal progress but also act as a protective factor for depressive symptoms. Moreover, results indicate that enhancing autonomous motivation could be related to reduced depression risk in this population.

Clinical efforts to foster autonomous motivation may be a promising approach to mitigating adverse outcomes in patients with self-critical tendencies. Autonomous motivation has been proposed as a new common factor in psychotherapy subsequent to work by Zuroff et al. (2007) which found that autonomous motivation was a robust predictor of treatment outcome in a clinical sample of depressed patients. Unsurprisingly, autonomous engagement in therapy appears to enhance the impact of psychological treatment. Subsequent analyses indicated that perceived therapist autonomy support was associated with greater autonomous motivation in depressed participants (Zuroff, Koestner, Moskowitz, McBride, & Bagby, 2012). Future research might build upon these findings by examining whether autonomous engagement in therapy is similarly important in patients demonstrating self-critical perfectionism. In addition, future research could explore how therapists can provide autonomy support to self-critics throughout the psychotherapeutic process given the present findings suggesting the importance of

autonomous motivation in this group. Moreover, works optimizing how clinicians can guide these patients in selecting autonomously motivated therapeutic objectives and personal goals to minimize the risk of depressive symptoms, poor goal outcomes and possible other negative consequences. A related body of research has identified self-critical perfectionism as a barrier to the therapeutic process. Blatt (1995) demonstrated that self-critical perfectionism predicted negative outcomes in brief psychotherapy for depression. Complementarily, Zuroff et al. (2000) suggested that this relationship was mediated by difficulty developing strong therapeutic alliances. Efforts to foster the therapeutic alliance via careful attention to providing autonomy support to self-critical perfectionists' may bolster the therapy relationship and in turn progress in psychotherapy.

All in all, clinical intervention requires comprehensive and nuanced attention to both personality factors, motivation quality and autonomy support. The findings of the present thesis advocate for the integration of the motivational constructs in SDT into psychotherapy as these components offer a framework for therapeutic intervention and appear important for perfectionistic patients. Fortunately, the application of SDT to therapeutic work is relatively simple given the compatibility between the theory and existing therapeutic orientations. Specifically, the theory integrates well with psychotherapy given that a central goal of the therapeutic process is to assist the client in autonomously exploring, initiating and sustaining a process of change (Ryan & Deci, 2008). The findings of the present thesis suggest that the application of SDT may be even more pertinent in this population given that self-critical perfectionists experience hindered autonomous motivation.

Limitations and Future Directions

Notable strengths of the present thesis include (1) a robust methodology composed of 5 large multi-wave prospective studies, (2) the integration of a prominent motivation theory—SDT—to explain differences between two dimensions of perfectionism and (3) convincing replications of differential associations between goal-related autonomous motivation and both dimensions of perfectionism. Further strengths include (4) the use of lengthy longitudinal designs, (5) the dynamic assessment of motivational variables, and (6) large sample sizes. However, it is important to note that there are certain limitations of the present work. The limitations include (1) reliance on self-report assessment of key variables, (2) lack of experimental design, and (3) homogeneity of participants.

The present thesis' survey method and associated reliance on self-report measures to assess key study variables is a limitation. Self-report offers abundant benefits, including capturing subjective emotions, unobservable cognitions, and other mental events. In addition, self-report supports anonymity while being a simple and cost-effective method of data collection. This has become especially true with the introduction of online questionnaire delivery. Consequently, self-report is unsurprisingly is a primary method of assessment in social and personality psychology research. Despite ongoing efforts to develop novel approaches to assess unobservable human processes, self-report currently remains the only method of assessing a wide range of mental events. Nonetheless, collecting information through self-report is accompanied by certain issues and disadvantages. The measurement of key study variables via self-report may have introduced biases including socially desirable responding (Braun, Jackson, & Wiley, 2001), introspective ability (Nisbett & Wilson, 1977), distorted self-perceptions, or acquiescence (Winkler, Kanouse, & Ware, 1982) that resulted in systematic error. Moreover, we

have to consider the issue of common method variance (Campbell & Fiske, 1959; Podsakoff, MacKenzie, Lee, & Podsakoff, 2003). However, the prospective longitudinal design of all studies included in the present thesis overcomes a portion of the limitations of common method variance through the temporal separation of self-report measures. The inclusion of alternative data collection methods, including clinical interview, experience sampling and behavioral assessment would improve future research. Subsequent work in this area may also consider incorporating a multimodal approach consisting of: informant reports of perfectionism and goal motivation as well as an objective measure of goal progress to corroborate subjective self-report assessments.

Due to the lack of experimental design incorporated in our research, inferring causality or ruling out third variables remains impossible. The longitudinal design of the studies contained in this thesis offer many advantages, nevertheless the findings presented are correlational in nature. While the study of personality is typically associated with correlational techniques, examining causal relationships through the use of experimental methods is possible albeit challenging. Experimental control would offer the opportunity to make statements about causality and exclude alternative explanations. It may be feasible for certain components of our model to be tested by employing an experimental design. For example, future research would benefit from experimentally manipulating perfectionists' goal-related autonomous motivation in order to consider whether the pathways identified in this thesis replicate in an experimental setting. Despite this limitation, given previous work by Sheldon and Elliot (1999), we remain assured that the longitudinal, goal-based methodology we used to explore our questions is an effective framework for studying the process of goal pursuit.

Finally, this work is somewhat limited by the homogeneity of the participants included in the studies. All participants were university students residing in a major Canadian city. Our study samples reflected the population from which they were drawn. Therefore, they were disproportionately white and female. However, given the cultural diversity present in the city where the research took place, a significant proportion of participants were from ethnic minorities (34% of the sample in Article 2). The generalizability of our findings beyond Canadian university students is uncertain given the homogeneity of participants. Future research should endeavour to replicate the current findings in other populations to determine whether the pathway identified is present beyond the group examined in this thesis. Replication in clinical samples, non-Canadian samples, older adults, children and adolescents is warranted. This would be of value in understanding the role of autonomous motivation in diverse groups of perfectionists and contribute to the identification of differences.

Given the results of the present thesis, future research should examine additional self-determination theory constructs in an effort to understand the complex relationships between the dimensions of perfectionism and the gamut of adaptive and problematic outcomes. While the work of the present thesis focused specifically on the role of autonomous and controlled motivation, other SDT concepts could be relevant for understanding self-critical perfectionism and personal standards perfectionism. Careful consideration of competence and relatedness may be important. Basic Psychological Needs Theory (BPNT) is a SDT mini-theory that focuses on the antecedents to human thriving and well-being. BPNT posits that when the three fundamental psychological needs—autonomy, competence and relatedness—are satisfied, well-being is fostered, but when they are frustrated ill-being ensues (Ryan & Deci, 2019). The theory has important consequences for healthy development given that the basic needs being fulfilled is

crucial to fostering intrinsic motivation and the process of internalization which are essential to psychological expansion (Ryan, 1995). Previous work in this area has suggested that prolonged or intense thwarting of the three needs generates various negative outcomes including psychopathology (Vansteenkiste & Ryan, 2013). Self-critical perfectionism is likely to challenge basic psychological need satisfaction and increase basic psychological need thwarting as external excessive standards are likely to destabilize autonomy, confront competence, and impede relatedness. It seems feasible that self-critical perfectionists may encounter challenges in the satisfaction of their basic psychological needs and that this ongoing frustration could contribute to adverse outcomes throughout goal pursuit and other domains. For instance, Boone, Vansteenkiste, Soenens, der Kaap-Deeder, and Verstuyf (2014) demonstrated that self-critical perfectionism was associated to increased psychological need frustration, which was subsequently associated to increased binge eating symptoms. The same research group has suggested that need frustration represents a transdiagnostic risk factor that explains the comorbidity between depressive symptoms and eating disorder symptoms in self-critical perfectionists. Clarifying the contribution of each of the three needs to these effects and understanding whether one is driving the relationships would be important. This would support the development of interventions targeted towards addressing the most relevant components.

By contrast, personal standards perfectionism is likely to predict enhanced basic psychological need satisfaction, and less basic psychological need thwarting because standards are internalized and endorsed. However, unsubstantial work has considered whether personal standards perfectionism may also contribute to need frustration or alternatively whether need satisfaction may be optimized in this group. At this time, this question has only been examined within the domain of athletics. Mallinson and Hill (2011) found that both dimensions of

perfectionism were associated with need thwarting in adolescent sports participants. In contrast, Jowett, Hill, Hall, and Curran (2016) findings suggest a positive relationship between personal standards perfectionism and need satisfaction that mediated the relationship between perfectionism and decreased athlete burnout. Future research might endeavour to address the role of SDT related intervening processes, such as need satisfaction that might explain the relationship between personal standards perfectionism and a range of adaptive outcome.

Conclusion and Summary

The studies presented in this thesis highlight the value in adopting a self-determination theory perspective to understand the role perfectionism plays in goal pursuit. Overall, the articles support the benefit of connecting self-determination theory to personality research on perfectionism as the motivational factors described in SDT appear to play an important role in explaining the relationships. The present work also adds to our understanding of perfectionism by clarifying differential relationships between self-critical perfectionism, personal standards perfectionism and a range of outcomes.

General References

Abu-Bader, S. H. (2010). *Advanced & multivariate statistical methods for social science research with a complete SPSS guide.* Chicago, IL: Lyceum Books.

Angyal, A. (1941). *Foundations for a science of personality.*

Austin, J. T., & Vancouver, J. B. (1996). Goal constructs in psychology: Structure, process, and content. *Psychological Bulletin, 120*(3).

Bandura, A. (1986). The explanatory and predictive scope of self-efficacy theory. *Journal of social and clinical psychology, 4*(3), 359-373.

Bandura, A. (1989). Human agency in social cognitive theory. *American psychologist, 44*(9), 1175.

Baumeister, R. F., & Leary, M. R. (1995). The need to belong: desire for interpersonal attachments as a fundamental human motivation. *Psychological Bulletin, 117*(3).

Békés, V., Dunkley, D. M., Taylor, G., Zuroff, D. C., Lewkowski, M., Foley, J. E., & Westreich, R. (2015). Chronic stress and attenuated improvement in depression over 1 year: The moderating role of perfectionism. *Behavior Therapy, 46*(4), 478-492.

Bieling, P. J., Israeli, A. L., & Antony, M. M. (2004). Is perfectionism good, bad, or both? Examining models of the perfectionism construct. *Personality and Individual Differences, 36*(6), 1373-1385. doi:10.1016/s0191-8869(03)00235-6

Bieling, P. J., Israeli, A. L., Smith, J., & Antony, M. M. (2003). Making the grade: The behavioral consequences of perfectionism in the classroom. *Personality and Individual Differences, 35*, 1373-1385.

Blatt, S. J. (1974). Levels of object representation in anaclitic and introjective depression. *The psychoanalytic study of the child, 29*(1), 107-157.

Blatt, S. J. (1995). The destructiveness of perfectionism: Implications for the treatment of depression. *American Psychologist, 50(12), 1003., 50*(12).

Boone, L., Vansteenkiste, M., Soenens, B., der Kaap-Deeder, V., & Verstuyf, J. (2014). Self-critical perfectionism and binge eating symptoms: A longitudinal test of the intervening role of psychological need frustration. *Journal of Counseling Psychology, 61*, 3.

Bowlby, J. (1979). *The making and breaking of aflectional bonds*. London: Tavistock.

Braun, H. I., Jackson, D. N., & Wiley, D. E. (2001). *The role of constructs in psychological and educational measurement.*: Routledge.

Brunstein, J. C. (1993). Personal goals and subjective well-being: A longitudinal study. *Journal of Personality and Social Psychology, 65*(5).

Burns, D. (1980). *The perfectionist's script for self-defeat., Psychology Today*, 34-51.

Campbell, D. T., & Fiske, D. W. (1959). Convergent and discriminant validation by the multitrait-multimethod matrix. *Psychological Bulletin, 56*(2).

Campbell, J. D., & Paula, A. D. (2002). Perfectionistic self-beliefs: Their relation to personality and goal pursuit. *In G. L. Flett & P. L. Hewitt (Eds.), Perfectionism. Theory, research and treatment*, 181-198. doi:10.1037/10458-007

Carver, C. S., & Scheier, M. F. (2001). *On the self-regulation of behavior* : Cambridge University Press.

Chang, E. C., Watkins, A. F., & Banks, K. H. (2004). How adaptive and maladaptive perfectionism relate to positive and negative psychological functioning: Testing a stress-mediation model in black and white female college students. *Journal of Counseling Psychology, 51*, 93-102.

Cox, B. J., Enns, M. W., & Clara, I. P. (2002). The multidimensional structure of perfectionism in clinically distresses and college student samples. *Psychological Assessment, 14*, 365-373.

Curran, T., & Hill, A. P. (2019). Perfectionism is increasing over time: A meta-analysis of birth cohort differences from 1989 to 2016. *Psychological Bulletin, 145*(4), 410.

de Charms, R., & Carpenter, V. (1968). Measuring motivation in culturally disadvantaged school children. *The Journal of Experimental Education, 37*(1), 31-41.

Deci, E. L., & Ryan, R. M. (2000). The" what" and" why" of goal pursuits: Human needs and the self-determination of behavior. . *Psychological inquiry*, *11*(4), 227-268.

DiBartolo, P. M., Li, C. Y., & Frost, R. O. (2008). How do the dimensions of perfectionism relate to mental health? *Cognitive Therapy and Research, 32*(3), 401-417.

Dunkley, D. M., Blankstein, K. R., Halsall, J., Williams, M., & Winkworth, G. (2000). The relation between perfectionism and distress: Hassles, coping and perceived social support as mediators and moderators. *Journal of Counseling Psychology, 47*, 437-453.

Dunkley, D. M., Blankstein, K. R., Masheb, R. M., & Grilo, C. M. (2006). Personal standards and evaluative concerns dimensions of "clinical" perfectionism: A reply to Shafran et al.(2002, 2003) and Hewitt et al.(2003). *Behaviour research and therapy, 44*(1), 63-84.

Dunkley, D. M., Blankstein, K. R., Zuroff, D. C., Lecce, S., & Hui, D. (2006). Self-Critical and Personal Standards factors of perfectionism located within the five-factor model of personality. *Personality and Individual Differences, 40*(3), 409-420.

Dunkley, D. M., Sanislow, C. A., Grilo, C. M., & McGlashan, T. H. (2006). Perfectionism and depressive symptoms 3 years later: Negative social interactions, avoidant coping, and perceived social support as mediators. *Comprehensive psychiatry, 47*(2), 106-115.

Dunkley, D. M., Sanislow, C. A., Grilo, C. M., & McGlashan, T. H. (2009). Self-criticism versus neuroticism in predicting depression and psychosocial impairment for 4 years in a clinical sample. *Comprehensive psychiatry, 50*(4), 335-346.

Dunkley, D. M., Zuroff, D. C., & Blankstein, K. R. (2003). Self-critical perfectionism and daily affect: Dispositional and situational influences on stress and coping. *Journal of Personality and Social Psychology, 84*(1), 234-252. doi:10.1037/0022-3514.84.1.234

Dunkley, D. M., Zuroff, D. C., & Blankstein, K. R. (2006). Specific perfectionism components versus self-criticism in predicting maladjustment. *Personality and Individual Differences, 40*(4), 665-676.

Egan, S. J., Wade, T. D., & Shafran, R. (2011). Perfectionism as a transdiagnostic process: A clinical review. *Clinical psychology review, 31*(2), 203-212.

Emmons, R. A. (1989). The personal striving approach to personality. In L. A. Pervin (Ed.), *Goal concepts in personality and social psychology* (pp. 87-126): Lawrence Erlbaum Associates, Inc.

Emmons, R. A. (2003). Personal goals, life meaning, and virtue: wellsprings of a positive life. In C. L. M. Keyes & J. Haidt (Eds.), *Flourishing: Positive psychology and the life well-lived* (pp. 105–128): American Psychological Association.

Enns, M. W., & Cox, B. J. (2002). The nature and assessment of perfectionism: A critical analysis. In G. L. Flett & P. L. Hewitt (Eds.), *Perfectionism: Theory, research, and treatment* (pp. 33-62). Washington, DC, US: American Psychological Association.

Enns, M. W., Cox, B. J., Sareen, J., & Freeman, P. (2001). Adaptive and maladaptive perfectionism in medical students: A longitudinal investigation. *Medical Education, 35*, 1034-1042.

Flett, G. L., & Hewitt, P. L. (2002). *Perfectionism: Theory, research, and treatment*: American Psychological Association.

Flett, G. L., & Hewitt, P. L. (2005). The perils of perfectionism in sports and exercise. *Current directions in psychological science, 14*(1), 14-18.

Flett, G. L., Hewitt, P. L., & Dyck, D. G. (1989). Self-oriented perfectionism, neuroticism, and anxiety. *Personality and Individual Differences, 10*, 731-735.

Friedman, M. (2003). *Autonomy, gender, politics.* : Oxford University Press.

Frisch, M. B. (1998). Quality of life therapy and assessment in health care. *Clinical psychology: Science and practice, 5*(1), 19-40.

Frost, R. O., Heimberg, R. G., Holt, C. S., Mattia, J. I., & Neubauer, A. L. (1993). A comparison of two measures of perfectionism. *Personality and Individual Differences, 14*(1), 119-126.

Frost, R. O., Marten, P., Lahart, C., & Rosenblate, R. (1990). The dimensions of perfectionism. *Cognitive Therapy and Research, 14*(5), 449-468.

Gaudreau, P. (2018). On the distinction between personal standards perfectionism and excellencism: A theory elaboration and research agenda. Perspectives on Psychological Science, 14(2), 197-215.

Gaudreau, P., Franche, V., Kljajic, K., & Martinelli, G. (2018). The 2 x 2 model of perfectionism: Assumptions, trends, and potential developments. In J. Stoeber (Eds.), The Psychology of Perfectionism: Theory, Research, Applications (pp. 44–67). New York: Routledge.

Gendolla, G. H., Brinkmann, K., & Richter, M. (2007). Mood, motivation, and performance: An integrative theory, research, and applications. In A. M. Lane (Ed.), *Mood and human*

performance: Conceptual, measurement, and applied issues (pp. 35–61): Nova Publishers.

Gollwitzer, P. M., & Sheeran, P. (2006). Implementation intentions and goal achievement: A meta-analysis of effects and processes. *Advances in experimental social psychology, 38*, 69-119.

Gotwals, J. K., Stoeber, J., Dunn, J. G., & Stoll, O. (2012). Are perfectionistic strivings in sport adaptive? A systematic review of confirmatory, contradictory, and mixed evidence. . *Canadian Psychology/Psychologie canadienne, 53*(4).

Grewal, R., Cote, J. A., & Baumgartner, H. (2004). Multicollinearity and measurement error in structural equation models: Implications for theory testing. *Marketing science, 23*(4), 519-529.

Grzegorek, J. L., Slaney, R. B., Franze, S., & Rice, K. G. (2004). Self-Criticism, Dependency, Self-Esteem, and Grade Point Average Satisfaction Among Clusters of Perfectionists and Nonperfectionists. *Journal of Counseling Psychology, 51*(2).

Hamachek, D. E. (1978). Psychodynamics of normal and neurotic perfectionism. *Psychology, 15*, 27-33.

Harari, D., Swider, B. W., Steed, L. B., & Breidenthal, A. P. (2018). Is perfect good? A meta-analysis of perfectionism in the workplace. *Journal of Applied Psychology,, 103*(10), 1121.

Harkin, B., Webb, T. L., Chang, B. P., Prestwich, A., Conner, M., Kellar, I., & Sheeran, P. (2016). Does monitoring goal progress promote goal attainment? A meta-analysis of the experimental evidence. *Psychological Bulletin, 142*(2).

Harris, P. W., Pepper, C. M., & Maack, D. J. (2008). The relationship between maladaptive perfectionism and depressive symptoms: The mediating role of rumination. Personality and Individual differences, 44(1), 150-160. *Personality and Individual Differences, 44*(1), 150-160.

Harvey, B., Milyavskaya, M., Hope, N. H., Powers, T. A., Saffran, M., & Koestner, R. (2015). Affect variation across days of the week: influences of perfectionism and academic motivation. *39*(4), 521-530. doi:10.1007/s11031-015-9480-3

Heckhausen, J., Wrosch, C., & Schulz, R. (2010). A motivational theory of life-span development. *Psychological review, 117*(1).

Hewitt, P. L., & Flett, G. L. (1991). Perfectionism in the self and social contexts: Conceptualization, assessment, and association with psychopathology. *Journal of Personality and Social Psychology, Vol 60*(3), 456-470.

Hewitt, P. L., & Flett, G. L. (2004). *Multidimensional perfectionism scale (MPS): Technical manual.*Toronto: Multi-Health Systems Inc.

Hewitt, P. L., Mittelstaedt, W., & Wollert, R. (1989). Validation of a measure of perfectionism. *Journal of Personality Assessment, 53*, 133-144.

Hill, A. P. (2014). Perfectionistic strivings and the perils of partialling. *International Journal of Sport and Exercise Psychology, 12*(4), 302-315.

Hill, A. P. (2017). Real and imagined perils: A reply to Stoeber and Gaudreau. *Personality and Individual Differences, 108*, 220-224.

Hill, R. W., Huelsman, T. J., Furr, R. M., Kibler, J., Vicente, B. B., & Kennedy, C. (2004). A new measure of perfectionism: the Perfectionism Inventory. *Journal of Personality Assessment, 82*(1), 80-91. doi:10.1207/s15327752jpa8201_13

Hollender, M. H. (1965). Perfectionism. *Comprehensive psychiatry, 6*(2), 94-103.

Horney, K. (1951). *Neurosis and human growth: The struggle toward self-realization*. London: Routledge and Keagan Paul.

Inzlicht, M., Schmeichel, B. J., & Macrae, C. N. (2014). Why self-control seems (but may not be) limited. *Trends in cognitive sciences, 18*(3), 127-133.

Jowett, G. E., Hill, A. P., Hall, H. K., & Curran, T. (2016). Perfectionism, burnout and engagement in youth sport: The mediating role of basic psychological needs. . *Psychology of Sport and Exercise, 24*, 18-26.

Kaye, M. P., Conroy, D. E., & Fifer, A. M. (2008). Individual differences in incompetence avoidance. *Journal of Sport and Exercise Psychology, 30*(1), 110-132.

Klinger, E. (1987). Current concerns and disengagement from incentives. . In F. Halisch & J. Kuhl (Eds.), *In Motivation, intention, and volition* (pp. 337-347). Berlin: Spring.

Klinger, E. (1998). *The search for meaning in evolutionary perspective and its clinical implications.* : Lawrence Erlbaum Associates Publishers.

Kljajic, K., Gaudreau, P., & Franche, V. (2017). An investigation of the 2× 2 model of perfectionism with burnout, engagement, self-regulation, and academic achievement. . *Learning and Individual Differences, 57*, 103-113.

Koestner, R. (2008). Reaching one's personal goals: A motivational perspective focused on autonomy. . *Canadian Psychology/Psychologie canadienne, 49*(1).

Koestner, R., & Hope, N. (2014). A self-determination theory approach to goals. In M. Gagne (Ed.), *The Oxford handbook of work engagement, motivation, and self-determination theory* (pp. 400-413). New York: Oxford University Press.

Koestner, R., Lekes, N., Powers, T. A., & Chicoine, E. (2002). Attaining personal goals: Self-concordance plus implementation intentions

equals success. *Journal of Personality and Social Psychology, 83*(1), 231-244.

Koestner, R., Otis, N., Powers, T. A., Pelletier, L., & Gagnon, H. (2008). Autonomous motivation, controlled motivation, and goal progress. *Journal of Personality, 76*(5), 1201–1230.

Limburg, K., Watson, H. J., Hagger, M. S., & Egan, S. J. (2017). The relationship between perfectionism and psychopathology: A meta-analysis. *Journal of clinical psychology, 73*(10), 1301-1326.

Little, B. R. (1983). Personal projects: A rationale and method for investigation. *Environment and behavior, 15*(3), 273-309.

Mallinson, S. H., & Hill, A. P. (2011). The relationship between multidimensional perfectionism and psychological need thwarting in junior sports participants. *Psychology of Sport and Exercise, 12*(6), 676-684.

Markus, H., & Ruvolo, A. (1989). Possible selves: Personalized representations of goals. In L. A. Pervin (Ed.), *Goal concepts in personality and social psychology* (pp. 211-241): Lawrence Erlbaum Associates, Inc.

McAdams, D. P. (1996). Personality, modernity, and the storied self: A contemporary framework for studying persons. . *Psychological inquiry, 7*(4), 295-321.

McGrath, D., Sherry, S., Stewart, S., Mushquash, A., Allen, S., Nealis, L., & Sherry, D. (2012). Reciprocal relations between self-critical perfectionism and depressive symptoms: Evidence from a short-term, four-wave longitudinal study. *Canadian Journal of Behavioral Science / Revue canadienne des sciences du behavior 44*(3).

Missildine, W. H. (1963). *Your Inner Child of the Past*. New York: Simon and Schuster.

Mitchelson, J. K., & Burns, L. R. (1998). Career mothers and perfectionism: Stress at work and at home. *Personality and Individual Differences, 25*(3), 477-485.

Moroz, M., & Dunkley, D. M. (2015). Self-critical perfectionism and depressive symptoms: Low self-esteem and experiential avoidance as mediators. *Personality and Individual Differences, 87*, 174-179.

Mouratidis, A., & Michou, A. (2011). Perfectionism, self-determined motivation, and coping among adolescent athletes. *Psychology of Sport and Exercise, 12*(4), 355-367.

Nisbett, R. E., & Wilson, T. D. (1977). Telling more than we can know: verbal reports on mental processes. *Psychological review, 84*(3).

Ocampo, A. C. G., Wang, L., Kiazad, K., Restubog, S. L. D., & Ashkanasy, N. M. (2020). The relentless pursuit of perfectionism: A review of perfectionism in the workplace and an agenda for future research. . *Journal of Organizational Behavior, 41*(2), 144-168.

Osenk, I., Williamson, P., & Wade, T. D. (2020). Does perfectionism or pursuit of excellence contribute to successful learning? A meta-analytic review. *Psychological assessment, 32*(10).

Pacht, A. R. (1984). Reflections on perfection. *American psychologist, 4*.

Parker, W. D., & Stumpf, H. (1995). An examination of the Multidimensional Perfectionism Scale with a sample of academically talented children. *Journal of Psychoeducational Assessment, 13*, 372-383.

Podsakoff, P. M., MacKenzie, S. B., Lee, J. Y., & Podsakoff, N. P. (2003). Common method biases in behavioral research: a critical review of the literature and recommended remedies. *Journal of Applied Psychology, 88*(5).

Powers, T. A., Koestner, R., Lacaille, N., Kwan, L., & Zuroff, D. C. (2009). Self-criticism, motivation, and goal progress of athletes and musicians: A prospective study. *Personality and Individual Differences, 47*(4), 279-283. doi:10.1016/j.paid.2009.03.012

Powers, T. A., Koestner, R., & Topciu, R. A. (2005). Implementation intentions, perfectionism, and goal progress: perhaps the road to hell is paved with good intentions. *Pers Soc Psychol Bull, 31*(7), 902-912. doi:10.1177/0146167204272311

Powers, T. A., Koestner, R., & Zuroff, D. C. (2007). Self–criticism, goal motivation, and goal progress. *Journal of Social and Clinical Psychology, 26*(7), 826-840.

Powers, T. A., Koestner, R., Zuroff, D. C., Milyavskaya, M., & Gorin, A. G. (2011). The effects of self-critiism and self-oriented perfectionism on goal pursuit. *Personality and Social Psychology Bulletin, 37*(7), 964-975.

Powers, T. A., Milyavskaya, M., & Koestner, R. (2012). Mediating the effects of self-criticism and self-oriented perfectionism on goal pursuit. *Personality and Individual Differences, 52*(7), 765-770. doi:10.1016/j.paid.2011.12.031

Powers, T. A., Zuroff, D. C., & Topciu, R. A. (2004). Covert and overt expressions of self-criticism and perfectionism and their relation to depression. *European Journal of Personality, 18*, 61-72.

Ranieri, W. F., Steer, R. A., Lavrence, T. L., Rissmiller, D. J., Piper, G. E., & Beck, A. T. (1987). Relationships of depression, hopelessness, and dysfunctional attittudes to suicide ideation in psychiatric patients. *Psychological Reports, 61*, 967-975.

Rasmussen, S. A., & Eisen, J. L. (1992). The epidemiology and clinical features of obsessive compulsive disorder. *Psychiatric Clinics of North America, 15*, 743-758.

Rhéaume, J., Freeston, M. H., Ladouceur, R., Bouchard, C., Gallant, L., Talbot, F., & Vallières, A. (2000). Functional and dysfunctional perfectionists: are they different on compulsive-like behaviors? *Behaviour Research and Therapy, 38*(2), 119-128.

Rice, K. G., Ashby, J. S., & Slaney, R. B. (1998). Self-esteem as a mediator between perfectionism and depression: A structural equation analysis. *Journal of Counseling Psychology, 45*, 304-314.

Rosen, A. M., Murkofsly, C. A., Steckler, N. M., & Skolnick, N. J. (1989). A comparison of psychological and depressive symptoms among restricting anorexic, bulimic-anorexic, and normal-weight bulimic patients. *International Journal of Eating Disorders, 8*, 657-663.

Ryan, R. M. (1993). Agency and organization: Intrinsic motivation, autonomy, and the self in psychological development. . In *In J. E. Jacobs (Ed.), Current theory and research in motivation, Vol. 40. Nebraska Symposium on Motivation, 1992: Developmental perspectives on motivation (p. 1–56).* : University of Nebraska Press.

Ryan, R. M. (1995). Psychological needs and the facilitation of integrative processes. *Journal of Personality, 63*(3), 397-427.

Ryan, R. M., & Connell, J. P. (1989). Perceived locus of causality and internalization: examining reasons for acting in two domains. . *Journal of Personality and Social Psychology, 57*(5).

Ryan, R. M., & Deci, E. L. (2000). Intrinsic and extrinsic motivations: Classic definitions and new directions. *Contemporary Educational Psychology, 25*(1), 54-67.

Ryan, R. M., & Deci, E. L. (2008). A self-determination theory approach to psychotherapy: The motivational basis for effective change. *Canadian Psychology/Psychologie canadienne, 49*(3).

Ryan, R. M., & Deci, E. L. (2017). *Self-determination theory: Basic psychological needs in motivation, development, and wellness.* : Guilford Publications.

Ryan, R. M., & Deci, E. L. (2019). Brick by brick: The origins, development, and future of self-determination theory. . In A. J. Elliot (Ed.), *In Advances in motivation science (Vol. 6)* (pp. 111-156): Elsevier.

Sanderson, C. A., & Cantor, N. (1999). A life task perspective on personality coherence: Stability versus change in tasks, goals, strategies, and outcomes. In D. Cervone & Y. Shoda (Eds.), *The coherence of personality: Social-cognitive bases of consistency, variability, and organization* (pp. 372–392): Guilford Press.

Shahar, G., Henrich, C. C., Blatt, S. J., Ryan, R., & Little, T. D. (2003). Interpersonal relatedness, self-definition, and their motivational orientation during adolescence: A theorical and empirical integration. *Developmental psychology*, *39*(3).

Sheldon, K. M. (2014). Becoming oneself: The central role of selfconcordant goal selection. *Personality and Social Psychology Review, 18*(4), 349–365.

Sheldon, K. M., & Elliot, A. J. (1998). Not all personal goals are personal: Comparing autonomous and controlled reasons for goals as predictors of effort and attainment. *Personality and Social Psychology Bulletin, 24*(5), 546-557.

Sheldon, K. M., & Houser-Marko, L. (2001). Self-concordance, goal attainment and the pursuit of happiness: Can there be an upward spiral? Journal of Personality and Social Psychology, 80,152–165. *Journal of Personality and Social Psychology, 80*, 152-165.

Smith, M. M., Sherry, S. B., Rnic, K., Saklofske, D. H., Enns, M., & Gralnick, T. (2016). Are perfectionism dimensions vulnerability factors for depressive symptoms after controlling

for neuroticism? A meta-analysis of 10 longitudinal studies. *European Journal of Personality, 30*(2), 201-212.

Smith, M. M., Vidovic, V., Sherry, S. B., Stewart, S. H., & Saklofske, D. H. (2018). Are perfectionism dimensions risk factors for anxiety symptoms? A meta-analysis of 11 longitudinal studies. *Anxiety, Stress, & Coping, 31*(1), 4-20.

Stoeber, J. (2011). The dual nature of perfectionism in sports: Relationships with emotion, motivation, and performance. *International review of sport and exercise psychology, 4*(2), 128-145.

Stoeber, J. (2012). *Perfectionism and performance. In S. M. Murphy (Ed.), Oxford handbook of sport and performance psychology* New York: Oxford University Press.

Stoeber, J. (2018). The psychology of perfectionism: Critical issues, open questions, and future directions. . In J. Stoeber (Ed.), *The psychology of perfectionism: Theory, research, applications* (pp. 333-352). London: Routledge.

Stoeber, J., & Becker, C. (2008). Perfectionism, achievement motives, and attribution of success and failure in female soccer players. *International Journal of Psychology, 43*(6), 980-987.

Stoeber, J., Davis, C. R., & Townley, J. (2013). Perfectionism and workaholism in employees: The role of work motivation. *Personality and Individual Differences, 55*(7), 733–738.

Stoeber, J., & Gaudreau, P. (2017). The advantages of partialling perfectionistic strivings and perfectionistic concerns: Critical issues and recommendations. *Personality and Individual Differences, 104*, 379-386.

Stoeber, J., & Otto, K. (2006). Positive conceptions of perfectionism: Approaches, evidence, challenges. *Personality and Social Psychology Review, 10*(4), 295-319.

Stoeber, J., & Stoeber, F. S. (2009). Domains of perfectionism: Prevalence and relationships with perfectionism, gender, age, and satisfaction with life. *Personality and Individual Differences, 46*(4), 530-535.

Stumpf, H., & Parker, W. D. (2000). A hierarchical strucural analysis of perfectionism and its relation to other personality characteristics. *Personality and Individual Differences, 28*, 837-852.

Suddarth, B. H., & Slaney, R. B. (2001). An investigation of the dimensions of perfectionism in college students. *Measurement and Evaluation in Counseling and Development, 34*, 157-165.

Suh, H., Gnilka, P. B., & Rice, K. G. (2017). Perfectionism and well-being: A positive psychology framework. *Personality and Individual Differences, 111*, 25-30.

Thompson, D. A., Berg, K. M., & Shatford, L. A. (1987). The heterogeneity of bulimic symptomatology: Cognitive and behavioral dimensions. *International Journal of Eating Disorders, 6*, 215-234.

Tzelgov, J., & Henik, A. (1991). Suppression situations in psychological research: Definitions, implications, and applications. *Psychological Bulletin, 109*(3).

Vansteenkiste, M., & Ryan, R. M. (2013). On psychological growth and vulnerability: basic psychological need satisfaction and need frustration as a unifying principle. *Journal of psychotherapy integration, 23*(3).

Vansteenkiste, M., Smeets, S., Soenens, B., Lens, W., Matos, L., & Deci, E. L. (2010). Autonomous and controlled regulation of performance-approach goals: Their relations to perfectionism and educational outcomes. *Motivation and Emotion, 34*(4), 333-353.

White, R. W. (1959). Motivation reconsidered: The concept of competence. *Psychological review, 66*(5).

Winkler, J. D., Kanouse, D. E., & Ware, J. E. (1982). Controlling for acquiescence response set in scale development. *Journal of Applied Psychology, 67*(5).

Zuroff, D. C., Blatt, S. J., Sotsky, S. M., Krupnick, J. L., Martin, D. J., Sanislow III, C. A., & Simmens, S. (2000). Relation of therapeutic alliance and perfectionism to outcome in brief outpatient treatment of depression. *Journal of consulting and clinical psychology, 68*(1).

Zuroff, D. C., Koestner, R., Moskowitz, D. S., McBride, C., & Bagby, R. M. (2012). Therapist's autonomy support and patient's self-criticism predict motivation during brief treatments for depression. *Journal of social and clinical psychology, 31*(9), 903-932.

Zuroff, D. C., Koestner, R., Moskowitz, D. S., McBride, C., Marshall, M., & Bagby, M. R. (2007). Autonomous motivation for therapy: A new common factor in brief treatments for depression. *Psychotherapy Research, 17*(2), 137-147.

Zuroff, D. C., Stotland, S., Sweetman, E., Craig, J. A., & Koestner, R. (1995). Dependency, self-criticism and social interactions. . *British Journal of Clinical Psychology, 34*(4), 543-553.