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Let's play the blame game: The distinct effects of personal standards and self-critical perfectionism on attributions of success and failure during goal pursuit

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ABSTRACT

In the present study, we examined whether personal standards and self-critical perfectionism differentially related to how people attributed their success and failures in pursuing their personal goals. In two studies (Ns = 185 and 240), participants set three week-long (Study 1) and semester-long (Study 2) goals, and at the end of the week or semester answered questions about goal status, internal and external attributions, and likelihood to reset the goal. Mulitlevel analyses showed that self-critical perfectionism was related to attributing goal attainment to external sources; this was not the case for failure or abandonment. Conversely, personal standards perfectionism was related to attributing failure more to external sources. Overall, these results highlight differences in how perfectionism influences the use of the self-serving bias.

1. Introduction

Most people set goals and strive for success in all of their endeavors, but it is not possible to always be successful. Despite our best efforts, we sometimes fail. Whatever the outcome, we often then try to understand the reasons for that failure or success. Sometimes, people may arbitrarily assign blame or take credit for the outcome of an event to rationalize why that outcome has occurred. One of the more common strategies for handling ambiguous situations is the tendency to attribute success to one's self and to blame failure on other sources. This allows us to feel pride and worthiness in our accomplishments, while at the same time buffering against the negative consequences associated with failure (e.g., feelings of shame, disappointment). While there is certainly variability in the way that success and failure can be understood, could it be the case that some people use this self-serving bias less than others? In particular, when people set very high standards for themselves, would this then influence their use of the self-serving bias? At its core, perfectionism encompasses this tendency to set very high standards, and so the purpose of the present research was to examine the relation between perfectionistic tendencies and individuals' attributions of success or failure for personally important goals.

1.1. Self-serving attributions and their utility

People have a tendency to view themselves in a positive manner, especially when they find themselves in ambiguous situations (Heider, 1958). The self-serving bias is composed of three components: stability, globality, and internality (Heider, 1958). Internality describes whether the event is attributed to an internal cause (the self) or to an external one (e.g., other people) (Anderson, Krull, & Weiner, 1996). Stability refers to beliefs about whether an event will continue to happen in the future or if the event was an isolated incident. Finally, globality is the perception that an outcome is domain-specific, or translates across life domains (Heider, 1958). People have a tendency to attribute successes as reoccurring (stable), happening in multiple domains (global), and due to the self (internal), while failures are often thought of as non-recurrent, limited to one domain, and due to others. Although all three aspects of the self-serving bias are important, whether attributions are internal or external appears to be the focus of the self-serving bias literature, and have been termed the self-serving *attributional* bias (Mezulis, Abramson, Hyde, & Hankin, 2004).

The self-serving attributional bias is a tendency to attribute positive events to oneself while attributing negative events to some other, external cause (Heider, 1958; Miller & Ross, 1975). For example, a student may believe that getting an A on a test was due to their aptitude and effort (internal), whereas if they received a C, they would blame the failure on the difficulty of the

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course or on the instructor (external). Some previous research has treated internality as a continuum, or as a composite score contrasting internal and external attributions (Stoeber & Becker, 2008; Thompson, Kaslow, & Nolen-Hoeksema, 1998). Other researchers, however, keep these dimensions separate, examining both attribution to the self and to others as two separate constructs (Arkin, Appelman, & Burger, 1980; Rizley, 1978). For example, Rizley (1978) examined attributions through participants' ratings of effort and ability (internal) or luck and task difficulty (external), and found that depressed individuals attributed their failures, but not their successes, to internal causes. Another study asked participants to only rate effort and ability as possible reasons for their success or failure (internal causes). This study found that socially anxious individuals took more credit for success than for failure in non-social situations, but took significantly less credit for their success when there was more social pressure (Arkin et al., 1980). In the present research, we will similarly consider internal attributions as separate from external attributions to better understand the direction of the self-serving attributional bias. For example, do some people attribute success to external factors while minimizing their own contribution, or can they believe that this success is due to both external factors and to themselves?

Generally, using the self-serving attributional bias leads people to believe that they are the cause of their success, and that they are not to blame for their failures. Even though a diffusion of responsibility for negative events may not be desirable, the ability to disentangle oneself from bad outcomes leads people to be optimistic that they can succeed in the future (Taylor & Brown, 1988). The primary utility of the self-serving attributional bias is thus in protecting individuals from the psychological harm that can arise from a negative event (Taylor & Brown, 1988). This is adaptive, as individuals with more self-serving attributions tend to be more positive and happier, and to have increased well-being (McFarland & Ross, 1982; Rizley, 1978; Sweeney, Anderson, & Bailey, 1986). Importantly, a meta-analysis conducted by Mezulis et al. (2004) found that the tendency to use the self-serving bias was attenuated for individuals with various forms of psychopathology. Note, however, that there was no evidence of a reversal of the bias. Although people exhibiting pathological symptoms (as compared to general community samples) are less likely to attribute their success to themselves and failures to external factors, it is not the case that they attribute their success to others and failures to themselves (Mezulis et al., 2004).

While previous research has focused on the attenuation of the self-serving bias for individuals with anxiety, depression, and ADHD (see Mezulis et al., 2004), here we wondered if perfectionism, a non-pathological trait characteristic, could be related to the self-serving attributional bias. A perfectionist's self-concept is inherently tied to whether or not they succeed, and so it may be the case that different types of perfectionistic tendencies influence the extent to which an individual uses this self-serving bias.

1.2. Perfectionism and attribution of success and failure

Perfectionism is a multifaceted trait, composed of both positive and negative aspects (Frost, Marten, Lahart, & Rosenblate, 1990). Although previous research has used multiple terms to denote both the maladaptive (i.e. self-critical, concerns over mistakes, socially prescribed perfectionism) and adaptive (personal standards, perfectionist striving) aspects, for the purpose of this research we distinguish between personal standards and self-critical perfectionism (Dunkley, Zuroff, & Blankstein, 2003). Personal standards perfectionism involves striving to achieve the high standards and goals an individual has set for themselves (Blankstein & Dunkley, 2002; Frost et al., 1990). Self-critical perfectionism is composed of high personal striving, as well as harsh self-evaluation, fear of failure and concerns over mistakes (Dunkley & Blankstein, 2000). Self-critical perfectionists have increased levels of negative affect, anxiety, and depression, compared to personal standards perfectionists and non-perfectionists (Harvey et al., 2015; Milyavskaya et al., 2014; Sherry, Richards, Sherry, & Stewart, 2014). Self-critical perfectionists are also more likely to use maladaptive coping strategies, such as avoidant coping and self-blame, which leads to less daily satisfaction and more daily stress (Stoeber & Janssen, 2011). Conversely, personal standards perfectionists use more adaptive coping strategies, such as problem solving or seeking social support (Mofield, Peters, & Chakraborti-Ghosh, 2016). Overall, personal standards perfectionism appears to be more adaptive, while self-critical perfectionism is more maladaptive and consistently linked to poor mental health.

Perfectionism at its core is a trait related to the setting of high standards and lofty goals (Hanchon, 2010). If perfectionism is so highly entangled in positive achievement, then it can be reasoned that perfectionists take success and failure more seriously. For example, both personal standards and self-critical facets of perfectionism are related to increased negative affect and shame after failure (Besser, Flett, & Hewitt, 2004; Stoeber, Kempe, & Keogh, 2008). Self-critical perfectionists also report significantly more psychological distress when recalling past failure (Sagar & Stoeber, 2009). This increased negative affectivity may provide evidence that perfectionists take even past failures more personally, or that perhaps an inability to diffuse responsibility leads self-critical perfectionists to associate this failure as part of their identity (Sagar & Stoeber, 2009). Although it can be expected that one would be upset after failure, it appears that perfectionists are hypervigilant to negative performance feedback. Additionally, although self-critical perfectionists feel that they will only be accepted if they succeed, they do not feel pride even when they do succeed (Stoeber et al., 2008). The inability to feel accomplished suggests that self-critical perfectionists may feel that they are not the reason for their success – that is, they may not demonstrate a self-serving attributional bias.

Compared to self-critical perfectionists, those high on personal standards perfectionism react to success and failure more adaptively (Besser et al., 2004). Those high in personal standards perfectionism experience more pride after success, whereas self-critical perfectionists do not (Stoeber et al., 2008). This illustrates that personal standards perfectionists can appreciate what they have accomplished, and perhaps their role in achieving that accomplishment. For example, it was found that students who exhibited greater tendencies for personal standards perfectionism experienced greater satisfaction with their GPA, even though their GPA was no better than that of self-critical perfectionists. This shows that personal standards perfectionists might be able to appreciate and realize their accomplishments more than self-critical perfectionists (Grzegorek, Slaney, Franze, & Rice, 2004). However, even personal standards perfectionists experience more psychological distress when they fail to achieve the exacting standards that they have placed upon themselves (Accordino, Accordino, & Slaney, 2000). It is important to consider if personal standards perfectionists are more adaptive when dealing with success and failure, and if that is partially due to how they utilize the self-serving bias.

Stoeber and Becker (2008) provide preliminary evidence that self-critical perfectionists have an abnormal self-serving attributional bias. In a study on student athletes, when self-critical perfectionists were asked to think about a game that they had won or lost, they attributed success to external sources and failure to the self, whereas personal standards perfectionists were able to use the self-serving bias (Stoeber & Becker, 2008). This lack of a self-serving bias among self-critical perfectionists may create a sense of ambivalence toward success and a hyperawareness of failure, which would subsequently impact well-being. However, in that study (Stoeber & Becker, 2008), the recall of success or failure was restricted to one domain (sports), rather than to one's general pursuits. Nevertheless, that study provides initial evidence that self-critical perfectionism may be inversely related to the self-serving bias. Given that self-critical perfectionists are more prone to depression and anxiety (Sherry et al., 2014), and that those with depression or anxiety are less likely to utilize a self-serving bias, we sought to directly examine the effects of self-critical (and personal standards) perfectionism on self-serving attributional bias. We propose that self-critical perfectionists will attribute successful goal attainment to external sources and failure or abandonment of a goal to the self (internal source). However, we expect that personal standards perfectionists will be able to use the self-serving bias to attribute success internally and failure externally. Although previous research has not found any evidence for a negative or reversed self-serving bias among anxious or depressed individuals (Mezulis et al., 2004), we wanted to examine directly whether such a reversal was possible among personal standards and self-critical perfectionists by looking at their attributions for their successes and failures.

1.3. Present study

The objective of the present research is to examine whether people with personal standards and self-critical perfectionistic tendencies differentially attribute success and failures for their personal goals. This research is unique in that we examine goal status (success, progress, achievement and abandonment) longitudinally instead of examining perceived or imagined success and failure (Stoeber & Becker, 2008; Stoeber et al., 2008). Perfectionists are highly motivated and it is important to understand how success and failure in commonly pursued short and medium-term goals may impact perfectionists. In addition to assessing goal standing, we assessed satisfaction, attribution to self, to external factors, and to the goal itself, along with whether they would reset the goal again. We generally expected self-critical perfectionism to be related to a less self-serving attributional style, and personal standards perfectionism to be related to higher levels of self-serving attributional bias. As we were unsure about the exact way that this would look like in our analyses (e.g., when failing at a goal would self-critical perfectionism relate to greater attribution to self, lower attribution to external factors, or both), we conducted a first exploratory study, and then used a second dataset to see whether the results from the first dataset would replicate.

2. Study 1

This first study examined how people attribute their successes and failures in pursuing short-term goals. Participants were asked to set multiple week-long goals, and then one week later, they were asked about goal progress, satisfaction, attribution and likelihood to set the goal again. We generally expected self-critical perfectionism to be related to less self-serving bias, and higher levels of personal standards perfectionism to be related to higher levels of self-serving bias. However, as we were unsure about the specific pattern of results that could be expected, this first study was considered exploratory.

2.1. Method

2.1.1. Participants and procedure

Participants were 196 psychology students who completed both time 1 and time 2 questionnaires as part of a larger week-long study on personality and goal pursuit as a part of a larger study (please see OSF for more details; https://osf.io/c9843/). For this larger study, we had aimed to collect approximately 300 participants (consistent with previous longitudinal goal studies of this kind, e.g., Milyavskaya & Inzlicht, 2017; Werner, Milyavskaya, Foxen-Craft, & Koestner, 2016; Werner & Milyavskaya, 2017), and while 288 participants completed the initial survey, due to attrition we had useable data from both time points from 196 participants; this rate of attrition is consistent with previous longitudinal goal studies (e.g., Milyavskaya & Inzlicht, 2017; Stoycheff, 2016) During the initial assessment, participants were asked to identify 3 goals that they planned to pursue over the following week. They also completed a comprehensive battery of personality questionnaires, including perfectionism. Then, one week later, participants were reminded of the goals that they identified and were asked to complete a series of questionnaires including their standing on each goal, how satisfied they were with their standing on the goal, their attribution of their success or failure, and whether or not they would continue pursuing each goal (see OSF for items). Throughout the initial survey, we also incorporated a series of attention checks (see OSF for details), of which 11 participants failed, resulting in a final sample of 185 participants and 555 goals (70% female, $M_{age} = 21.80$, $SD_{age} = 6.17$).

2.2. Measures

2.2.1. Perfectionism

The Frost Multidimensional Perfectionism Scale (FMPS; Frost et al., 1990) was used to assess characteristics associated with both self-critical and personal standards perfectionism. Personal standards perfectionism was based on the personal standards subscale (7-items; e.g., "I set higher goals than most people"), whereas self-critical perfectionism was based on concerns over mistakes and doubts over action (13-items; e.g., "I should be upset if I make a mistake").[1] Ratings were made on a 5-point Likert scale ranging from 1 (strongly disagree) to 5 (strongly agree). Each scale was reliable, $\alpha = 0.90$ for self-critical perfectionism and $\alpha = 0.85$ for personal standards perfectionism. The two types of perfectionism were moderately correlated ($r = 0.33$, 95%CI [0.25, 0.40]).

2.2.2. Goal descriptions

Participants were asked to list three personal goals that they planned to pursue during the week using the following instructions (e.g., Koestner, Otis, Powers, Pelletier, & Gagnon, 2008): "Personal goals are projects and concerns that people think about, plan for, carry out, and sometimes (though not always) complete or succeed at. They may be more or less difficult to implement; require only a few or a complex sequence of steps; represent different areas of a person's life; and be more or less time consuming, attractive, or urgent. Please think of your three most important personal goals that you plan to pursue over this coming week" Examples of goals listed by participants include "finish a school assignment," "go to the gym at least twice," "eat healthy," and "finish job applications."

2.2.3. Goal standing

At the follow-up survey, participants were asked, for each goal, "Where do you currently stand on this goal?" The response options were "I achieved the goal", "I made some progress but did not achieve the goal", "I failed at this goal" or "I abandoned this goal".

[1] 'Concern over mistakes' and 'Doubts about actions' are subscales that both load highly on to a factor representing a maladaptive type of perfectionism, self-critical perfectionism (Bieling, Israeli, & Antony, 2004; Dunkley et al., 2003).

2.2.4. Satisfaction with goal progress

Using a single item, participants were asked to rate the extent to which they were satisfied with the progress they made on each of their goals (i.e., "How satisfied are you with the progress you made toward this goal?"). Ratings were made on a 7-point Likert scale ranging from extremely dissatisfied to extremely satisfied.

2.2.5. Goal attribution

Participants were asked to rate the extent to which they attributed their success or failure on each goal to different sources. The instructions stated, "The reason I did or did not achieve this goal is..." with the subsequent sources being external factors (i.e., "totally due to other people or circumstances"), the self (i.e., "totally due to me"), and the goal (i.e., "totally due to the goal itself"). Ratings for each item were made on a 7-point Likert scale ranging from strongly disagree to strongly agree, with a midpoint score of 4 representing neither agree or disagree.

2.2.6. Goal re-engagement

For each goal, participants were asked to indicate whether or not they were interested in pursuing the goal again in the future (i.e., "I would set this goal again for myself in the future"). Ratings were made on a 7-point Likert scale ranging from strongly disagree to strongly agree.

2.3. Results

2.3.1. Preliminary analyses

Means, standard deviations, and intraclass correlations (ICCs) of all variables are reported in Table 1. The ICCs suggest that there was non-negligible variance on both the within and between-person levels on all goal variables, with most of the variance at the goal level (within-person) and only 11–41% between-people. This is in line with other research suggesting that most of the variance in goal-related variables is goal (rather than person) specific (Milyavskaya, Inzlicht, Hope, & Koestner, 2015; Werner et al., 2016). Out of the 555 goals that were set, 219 (39.7%) were achieved, progress was made on 253 (45.9%), 55 (10%) were failed, and 24 (4.4%) were abandoned; data was missing for 4 goals (0.7%). There were no differences in self-critical or personal standards perfectionism across goal standing, suggesting that in this study perfectionism did not play a role in whether a person achieved, progressed, failed, or abandoned their goals (see OSF for details about these analyses).

Before proceeding to our key analyses examining the interactions of goal status and perfectionism, we first tested main effects for all study variables by entering reported goal status (achieved, some progress, failed, or abandoned) as a categorical variable, and both types of perfectionism as continuous variables (all fixed), along with a random intercept in a multilevel model in SPSS using the MIXED command (see all output on OSF at https://osf.io/c9843/).

Status was a significant predictor of attribution to the self, $F(3,475.95) = 5.10$, $p = 0.002$, attribution to the goal, $F(3,500.27) = 5.18$, $p = 0.002$, and satisfaction $F(3,528.41) = 187.76$, $p < 0.001$, but unrelated to attribution to others or external factors, $F(3,509.98) = 1.42$, $p = 0.237$, or setting the goal again, $F(3,524.94) = 0.493$, $p = 0.237$. This is displayed visually in supplemental Fig. 1 (see OSF), where the mean for each dependent variable is compared by status category. There were no main effects of either type of perfectionism on any of the dependent variables (see OSF for all output).

2.3.2. Main analyses

For our key analyses examining the interaction between the two dimensions of perfectionism and goal standing,[2] we conducted five multilevel MIXED models with standing as a categorical variable,[3] self-critical and personal standards perfectionism as continuous variables (mean-centered), and two interaction terms: between goal standing and self-critical perfectionism, and between goal standing and personal standards perfectionism. Due to theoretical considerations, all effects were treated as fixed. Entering both types of perfectionism into the same model leads to the interactions representing the unique effects of each type of perfectionism (when the other type is held constant at the average; see Stoeber & Gaudreau, 2017 for a further reasoning on the importance of including both types of perfectionism in models examining the effects of each). Results for the interactions from all five models are reported in Table 2 (see full output on OSF). Interaction effects emerged in only one of the five models, for attribution to external factors, including a significant interaction of status by self-critical perfectionism, $F(3, 501.24) = 3.88$, $p = 0.009$ and a significant interaction of status by personal standards perfectionism, $F(3, 495.48) = 3.46$, $p = 0.016$. Together, the interactions explained an additional 2.5% of the variance in attribution to external factors. These interactions are illustrated in Fig. 1. We then probed these interactions using an online tool for probing interactions in multilevel models (http://www.quantpsy.org/interact/hlm2.htm; Preacher, Curran, & Bauer, 2006; all output on OSF).[4] Table 3 reports the results.

These results suggest that self-critical perfectionism was positively related to attributing achievement to others or circumstance. The results did not change when controlling for the other attribution styles (attribution to self or to the goal); see OSF for output. Participants high is self-critical perfectionism appear to use a more external attribution for success. Personal standards perfectionism, on the other hand, was only related to external attributions when a goal was abandoned, such that those high in personal standards perfectionism were more likely to use external attributions than those lower on personal standards perfectionism.[5] When controlling for neuroticism and conscientiousness the results remain essentially unchanged. Please see OSF outputs for the correlations with these traits and the supplementary analyses.

2.4. Brief discussion

Study 1 provides results consistent with our general expectations. Those high in self-critical perfectionism attributed success and progress more to others or external circumstances. This external attribution of success may be an unhealthy cognitive bias, and

[2] This analysis was also run with goal standing as a dichotomous variable for either completing or failing to complete the goal. Both types of perfectionism interacted with goal attainment, such that individuals higher on personal standards perfectionism were more likely to attribute to others & circumstances when they failed to attain their goal (compared to when they attained them), while self-criticism was associated with lower attributions to external factors when the goal was not attained (compared to attained). There were no other significant interactions on the other DVs.

[3] SPSS automatically dummy-codes categorical variables such that the last category (in this case, abandoned goal), serves as the references category.

[4] We also checked whether there were any three-way interactions (among status, PS, and SC perfectionism). Two three-way interactions emerged, for attributions to the goal, and for resetting the goal. As these interactions were not expected, and were not significant in Study 2 (and not consistent across studies), we do not interpret them further, but output can be found on OSF.

[5] Note there were some significant interactions of goal status by the other perfectionism subscales (organization and parental pressure). For attributing progress to the goal, there was an interaction of goal status by the parental pressure perfectionism subscale ($F(487.10) = 5.05$, $p = 0.002$). However, these subscales of the FMPS are much less used in studies examining the adaptive and maladaptive effects of perfectionism, because of this, and a lack of theoretical predictions as to why these subscales would significantly interact with goal status we have decided to not comment on them any further. The outputs are included on OSF.

Table 1
Descriptive statistics of study 1 and 2 variables.

	Study 1			Study 2		
	M	SD	ICC	M	SD	ICC
Person-level						
SC perfectionism	3.03	0.81		3.82	1.24	
PS perfectionism	3.57	0.78		4.55	1.41	
# Goals attained	1.18	1.01		0.68	0.79	
# Goals progress	1.37	1.02		1.45	0.98	
# Goals failed	0.30	0.51		0.33	0.56	
# Goals abandoned	0.13	0.37		0.16	0.39	
Goal-level						
Attribution to external factors	3.50	1.94	0.26	3.67	1.91	0.28
Attribution to self	5.26	1.59	0.41	5.61	1.31	0.28
Attribution to goal	4.07	1.88	0.29	4.03	1.73	0.22
Resetting goal	5.29	1.44	0.17	6.18	1.13	0.28
Satisfaction	4.70	2.00	0.11			
Goal Difficulty[a]	4.45	1.72				
Goal Commitment[b]	5.09	1.75				

[a] Neither personal standards or self-critical perfectionism were correlated with goal difficulty, (r = 0.10, 95%CI [−0.05, 0.24], r = 0.12, 95%CI [0.03, 0.26]).
[b] Neither personal standards or self-critical perfectionism were correlated with goal commitment, (r = 0.14, 95%CI [−0.01, 0.28], r = −0.08, 95%CI −0.22, 0.07]).

Table 2
Results from test of interactions between perfectionism and all dependent variables for study 1 and study 2.

DV	Study 1			Study 2		
	Denominator df	F	p	Denominator df	F	p
Satisfaction						
Status * PS	521.08	0.796	0.497	–	–	–
Status * SC	520.31	0.723	0.538	–	–	–
Attribution to external factors						
Status * PS	**495.48**	**3.464**	**0.026**	**554.49**	**4.070**	**0.007**
Status * SC	**501.24**	**3.877**	**0.009**	**568.04**	**3.686**	**0.012**
Attribution to self						
Status * PS	460.54	0.359	0.783	552.32	0.257	0.857
Status * SC	468.16	1.10	0.348	566.06	2.126	0.096
Attribution to goal						
Status * PS	486.89	0.881	0.451	579.38	0.874	0.454
Status * SC	493.55	0.130	0.942	589.99	0.064	0.979
Setting goal in the future						
Status * PS	515.36	0.364	0.779	**557.74**	**7.109**	**<0.001**
Status * SC	517.15	0.681	0.564	571.22	1.741	0.157

Note: values in bold are significant at the $p < 0.05$ level. PS – personal standards perfectionism; SC – self-critical perfectionism.

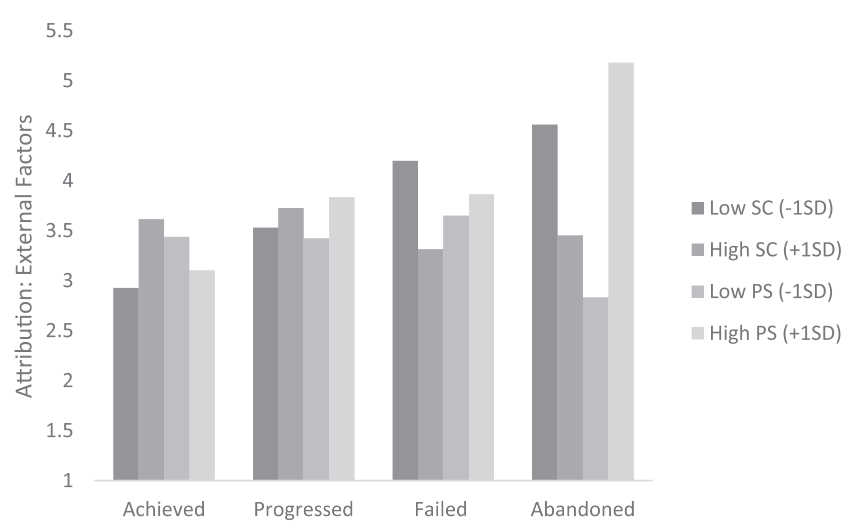

Fig. 1. The interaction plot of goal status by self-critical (SC) and personal standards (PS) perfectionism for attribution to external factors study 1.

may partially explain why self-critical perfectionists are ambivalent to success. Those higher in personal standards perfectionism attributed abandonment more to external sources, but did not appear to differ from those lower in personal standards perfectionism in external attributions for success, progress and failure. Attributions to the self or to the goal were both unrelated to

Table 3
Results from simple slopes analyses examining the interaction between perfectionism and goal standing on attributions to external factors in Study 1 and 2.

	Goal standing	Study 1				Study 2			
		b(se)	z	p	df	b(se)	z	p	df
PSP	Achieved	−0.21(0.19)	−1.12	0.26	118.17	−0.07(0.13)	−0.54	0.59	112.99
	Progressed	0.26(0.19)	1.41	0.16	138.61	−0.06(0.10)	0.64	0.52	182.44
	Failed	0.14(0.32)	0.42	0.67	52	**0.42(0.18)**	**2.33**	**0.02**	**64.53**
	Abandoned	**1.50(0.58)**	**2.59**	**0.01**	**21**	**0.61(0.26)**	**2.35**	**0.019**	**33.32**
SCP	Achieved	**0.42(0.18)**	**2.39**	**0.017**	**118.43**	**0.54(0.15)**	**3.53**	**<0.001**	**98.52**
	Progressed	0.12(0.16)	0.75	0.45	126.92	0.03(0.11)	0.32	0.75	175.37
	Failed	−0.54(0.29)	−1.89	0.06	52	−0.12(0.20)	−0.60	0.55	62.84
	Abandoned	−0.07(0.51)	−1.34	0.18	21	0.06(0.28)	0.20	0.84	33.35

Note: values in bold are significant at the $p < 0.05$ level. PSP – personal standards perfectionism; SCP – self-critical perfectionism. All values represent the unique effects of one type of perfectionism while th other one is held constant.

perfectionism, which suggests that the self-serving attributional bias is not completely distorted in perfectionists – that is, everyone attributed success to the self to a larger extent than failure, with neither self-critical nor personal standards perfectionism moderating these results.

3. Study 2

The objective of Study 2 was to determine if the unique pattern of external attributions of self-critical perfectionists could be replicated. While the general procedure was the same as Study 1, there are three notable exceptions. First, in this study we examined semester-long goals, whereas Study 1 focused on week-long goals. This extension is particularly interesting because there is opportunity for individuals to become more invested in their goals, which may affect their attributions of both success and failure. The second modification is that in each study we used different measures of perfectionism. While this study uses slightly different measures to distinguish between personal standards and self-critical perfectionism, research suggests the perfectionism measures used load highly onto those two factors and assess the same general constructs (Bieling et al., 2004). Therefore, this should not influence the results of the present study. The third difference is that in this study the satisfaction with goal standing was not assessed.

Overall, we expected this study to replicate our previous findings. We hypothesized that we would again find interactions between goal standing and both types of perfectionism on attribution to external factors, such that self-critical perfectionistic tendencies would be related to more external attributions of success. Conversely, we expected that individuals higher in personal standards perfectionism would attribute abandonment to external factors to a greater extent than those lower on this trait. As we did not find any interactions between goal standing and perfectionism for attributions to self, to the goal, or goal resetting, we did not expect these interactions to emerge in this study.

3.1. Method

3.1.1. Participants and procedure

Participants were 240 undergraduate students (72% female, $M_{age} = 20.2$) who took part in a year-long study on goal pursuit.[6] At the beginning of each term, participants were asked to identify three goals they were going to pursue and rated a series of characteristics associated with each goal (e.g., reasons, difficulty). Goal status and attribution of success or failure was assessed at the end of the semester. For the purposes of the present study, we focused only goals set in the first term and progress at the end of the term. Only participants who completed the end-of-term questionnaire (N = 210) were included in the analyses.

[6] Other research with this sample has examined the role of domain need satisfaction in autonomous goals (Milyavskaya, Nadolny, & Koestner, 2014), goal support (Koestner, Powers, Milyavskaya, Carbonneau, & Hope, 2015) trait perfectionism and changes in affect (Milyavskaya et al., 2014), changes in identity and intimacy development as a function of changes in values (Hope, Milyavskaya, Holding, & Koestner, 2014), and the aspirational content of goals on goal progress and vitality (Hope et al., 2014), There is no overlap between the content and the hypotheses of the present study and the other studies that have used this sample.

3.2. Measures

3.2.1. Perfectionism

For this study, self-critical perfectionism was measured using a 12-item subscale from the Depressive Experiences Questionnaire (DEQ; Blatt, D'afflitti, & Quinlan, 1976), whereas personal standards perfectionism was assessed with the five-item self-oriented perfectionism subscale from the Multidimensional Perfectionism Scale (MPS; Hewitt & Flett, 1991). Ratings were made on a 1 (Strongly disagree) to 7 (Strongly agree) Likert Scale. Each scale was reliable, $\alpha = 0.91$ for self-critical perfectionism and $\alpha = 0.86$ for personal standards perfectionism. Personal standards and self-critical perfectionism were moderately correlated ($r = 0.56$).

3.2.2. Goal descriptions

At the beginning of the semester, participants were asked to list three personal goals that they planned to pursue during the semester. The instructions were the same as in study1, but referred to goals that they planned to carry out over the semester (instead of over the coming week). Examples of goals listed by participants include "get a good GPA," "volunteer in the community," "go to the gym 3× a week," and "improve my French."

3.2.3. Goal standing, attributions and re-engagement

Using the same items as in Study 1, we assessed where participants stood on their goal (achieved, progressed, failed, or abandoned), whether participants attributed their success or failure to themselves, to external factors, or to the goal, and whether or not they were willing to set the same goal again in the future.

3.3. Results

3.3.1. Preliminary analyses

Means, standard deviations, and ICCs of all variables are reported in Table 1. Data was available for 630 goals. Out of these, 165 (26.2%) were achieved, progress was made on 348 (55.2%), 78 (12.4%) were failed, and 39 (6.2%) were abandoned. The ICCs again suggest that there was non-negligible variance on both the within and between-person levels on all goal variables, with most of the variance at the goal level (within-person). Personal standards perfectionism was unrelated to goal standing; however, self-criticism was weakly positively related with the number of abandoned goals (r = 0.14, 95%CI[0.01;0.26] p = 0.03,), suggesting that participants higher on self-critical perfectionism were slightly more likely to say that they abandoned a goal. However, when we entered both self-critical and personal standards together as IVs in the same poisson regression, the effects disappeared, suggesting that the effects were due to the shared variance between the two types of perfectionism (rather than because of anything unique to self-criticism per se).[7]

We again started by testing the main effects of all variables of interest by entering reported goal status (achieved, some progress, failed, or abandoned) as a categorical variable, and both types of perfectionism as continuous variables, along with a random intercept. Status was a significant predictor of attribution to the self, $F(3,565.21) = 10.03$, $p < 0.001$, and of setting the goal again, $F(3,574.91) = 10.14$, $p < 0.001$, but unrelated to attribution to external factors, $F(3,572.03) = 0.06$, $p = 0.982$, or attribution to the goals, $F(3,591.83) = 2.08$, $p = 0.102$. This is displayed visually in Fig. 3, the mean for each dependent variable is compared by status categories. There were no main effects of either type of perfectionism on any of the dependent variables (see OSF for all output).

3.3.2. Main analyses

We conducted our main analyses to examine the interaction between the two dimensions of perfectionism and goal standing.[8] Four multilevel MIXED models were conducted, with standing as a categorical variable, mean-centered self-critical and personal standards perfectionism as continuous variables, and two interaction terms: between goal standing and self-critical perfectionism, and between goal standing and personal standards perfectionism. Results for all interactions are reported in Table 2 (see full output on OSF); note that in this study we specifically predicted that only one of the four models (with external factors as the dependent variable) to yield significant interactions. As in Study 1 and consistent with our hypotheses, both interactions were significant for attribution to external factors, $F(3, 568.05) = 3.69$, $p = 0.012$, for the goal standing by self-critical perfectionism interaction, and $F(3, 554.49) = 4.07$, $p = 0.007$, for the goal standing by personal standards perfectionism interaction, explaining an additional 4.1% of the within-person variance in attribution to external factors. These interactions are illustrated in Fig. 2. For self-critical perfectionists, there appears to only be a difference for attribution of success and failure, such that those high in self-critical perfectionism are more likely to attribute success to others or circumstance. For personal standards perfectionists, there appears to be a difference for failed or abandoned goals, such that those high in self-critical perfectionism are more likely to blame external factors. Probing these interactions (using the same online tool as in study 1; Preacher et al., 2006) showed that personal standards perfectionism was significantly positively related to attributions to external factors when a goal was abandoned (and marginally when a goal was failed), while self-critical perfectionism was positively related to external attributions when a goal was attained (see Table 3). Results remained unchanged when controlling for other attribution styles (attribution to self or to the goal; see OSF for output).

As expected, none of the interactions were significant for the analyses with attribution to self or attribution to goal as dependent variables (see Table 2). However, unexpectedly, the goal standing by personal standards perfectionism interaction was significant for resetting the goal, $F(3,557.74) = 7.11$, $p < 0.001$, see Fig. 3. The model with the interactions explained an additional 4.1% in within-person variance in resetting the goal. There appears to be a difference in willingness to reset a goal for personal standards perfectionists only when they stated they have abandoned their goal. Probing these interactions showed that personal standards perfectionism was only (negatively) related resetting goals when the goal was abandoned, $b = -0.58$ [-1.115; -0.052], $t(34.37) = -2.23$, $p = 0.032$; see Table 4. When controlling for neuroticism and conscientiousness the results remain essentially unchanged. Please see OSF outputs for the correlations with these traits and the supplementary analyses.

3.4. Brief discussion

Study 2 replicated the key findings from Study 1. Self-critical perfectionism was again related to a greater attribution to others or circumstance when goals were attained, such that those high in self critical perfectionism blame external factors more for their successes. Conversely, those high in personal standards perfectionism appear to use the self-serving bias and attribute failure or abandonment of goals to external sources. Additionally, there was an unexpected interaction of goal status by personal standards perfectionism for willingness to reset a goal. It appears that in this study those high in personal standards perfectionism were less likely to reset a goal that they have abandoned; this may be adaptive for goals that are abandoned because they are distressing or impractical. However, given that this interaction was not found in Study 1, it should be interpreted with caution.

4. General discussion

The present studies provide further evidence that perfectionists may use the self-serving attributional bias in a distorted manner, while fine-tuning the direction of this distortion. Both studies provide evidence that individuals that are high in self-critical perfectionism are more likely to attribute their successes to external factors, compared to those lower on self-critical perfectionism. This suggests that self-critical perfectionists believe that their successes are due to external reasons. For example, a self-critical perfectionist may attribute success on an exam to the class being easy (rather than on their own intelligence or effort). However, if that same self-critical perfectionist did poorly on the exam, they would not blame course difficulty or other external factors. Without the ability to use this basic and adaptive cognitive distortion, self-critical perfectionists may be poorer at disentangling themselves from their failures. On the other hand, personal standards perfectionism appears to be more adaptive. Those high in personal standards perfectionism blame external factors less for success and more for failure. The ability for personal standards perfectionists to use the self-serving bias in an adaptive manner provides more evidence that some aspects of perfectionism can be positive.

Both study 1 and 2 did not find any significant results for attribution of goal status to self or the goal. One could expect that there would be a reciprocal effect, such that if people are blaming external factors more then they would blame themselves less (and vice versa). This inconsistency warrants future research, as one previous study did find that perfectionists had a significant change in attribution to the self, depending on perceived success or failure (Stoeber & Becker, 2008). However, our results do not appear to be inconsistent with the self-serving attributional bias literature,

[7] Results for the poisson regressions further showed unique positive effects of personal standards perfectionism and negative effects of self-critical perfectionism on the number of goals attained. No other effects were significant, see OSF for all output.

[8] This analysis was also run with goal standing as a dichotomous variable for either completing or failing to complete a goal. Self-critical perfectionism interacted with goal attainment, such that individuals higher in self-critical perfectionism were less likely to make attributions to external factors when the goal was not attained (compared to attained). In addition, personal standards perfectionism interacted with goal attainment, such that those higher in personal standards perfectionism were less likely to reset a goal they had not attained. There were no other significant interactions for any of the DV's.

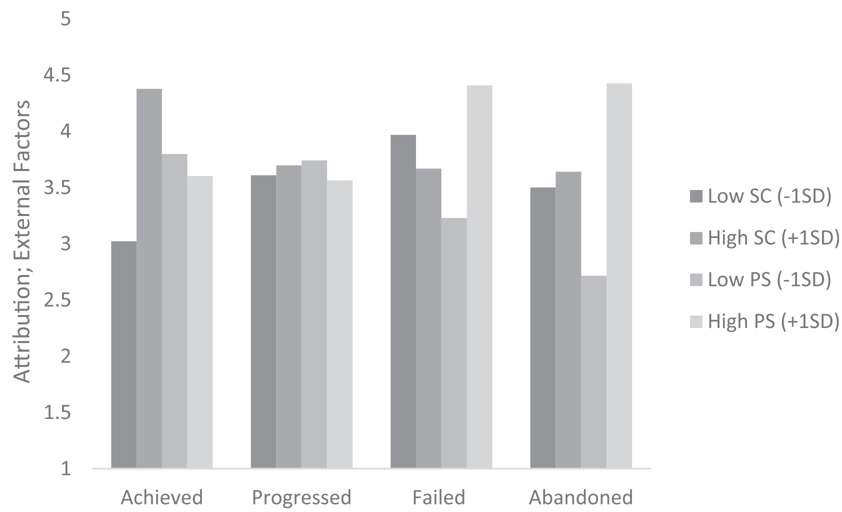

Fig. 2. The interaction plot of goal status by self-critical (SC) and personal standards (PS) perfectionism for attribution to external factors study 2.

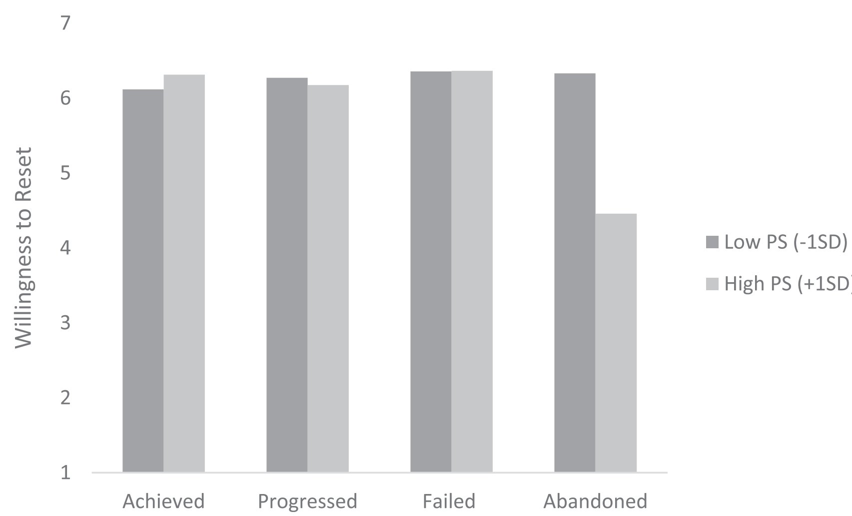

Fig. 3. The interaction plot of goal status by personal standards perfectionism for willingness to reset a goal.

Table 4
Results from simple slopes analyses examining the interaction between perfectionism and goal standing on willingness to reset the goal again in Study 2.

Goal standing	Personal standards perfectionism			
	b(se)	Z	p	df
Achieved	0.07(0.08)	0.92	0.36	112.99
Progressed	−0.03(0.05)	−0.06	0.54	182.44
Failed	0.003(0.10)	0.02	0.98	64.53
Abandoned	**−0.67(0.15)**	**−4.47**	**<0.001**	**33.32**

Note: Bolded values represent $p < .05$.

which does not provide strong evidence that a complete inverse in the self-serving bias occurs (Mezulis et al., 2004). The controversial question of whether the self-serving bias can be reversed still warrants further research. It is still unclear whether internal and external attributions can both be reversed from the self-serving bias, for example, could success be attributed to external sources fully, and failure to internal sources purely. Perhaps, as our findings provide evidence for, attributions are more grey than black and white, and people may have a tendency to blame both internal and external sources for events, not one or the other. Our different findings for attributions to self and external factors also have implications for how these attributions are understood and studied. In the present research, we considered internal attributions separately from external attributions. This is consistent with some past attribution literature where external and internal attribution were studied separately, not on a continuum (Rizley, 1978). However, this has not always been the case – for example, in the Stoeber and Becker (2008) paper, attribution scores were computed by adding the internal and external attribution scores. Additionally, some attributional scales create composite scores for the self-serving bias as high or low with sub-scales for internality, globality and stability of attribution (Thompson et al., 1998). Looking at internality as a continuum versus separate scales does not change how the concept is defined, but does affect the specificity of the conclusions. By examining internal and external attributions separately, research can more clearly pinpoint any differences in attributions that may be found.

It is also important to consider the cognitive perceptions of perfectionists and whether someone with high standards may be biased in selecting whether they progressed, failed or abandoned their goal. A dichotomous classification of success vs failure may more simply explain outcomes but, the more nuanced classification in this study allows for realistic interpretation. For example, if an individual's goal was to exercise for 30 min everyday, the individual could (1) complete the goal and exercise everyday, (2) have exercised some days and not others (progress), (3) have not exercised at all (failed), or (4) decided that this week may not be the most ideal to start this goal and purposefully abandon it. The individual may feel satisfaction with completion or progress, but they may have different feelings towards failure and abandonment. In goal disengagement, stress can be relieved by abandoning a goal which is not productive for that individual at that time (Wrosch, 2011). Perhaps perfectionists would choose abandonment over failure to reduce cognitive distress in adversity, and there is some evidence of this in the second but not first study. The inconsistent finding between perfectionism and reported goal status warrants further review into whether there are cognitive biases in how those high in this trait report on progress. Due to the complex nature of goal attainment, it is important to consider the varying statuses of goal attainment, rather than just whether a goal is complete or not.

Our two studies also had some inconsistent findings. In study 2, personal standards perfectionism was related to a decreased likelihood to reset a goal abandoned during a semester-long period; this was not the case for the week-long goals in Study 1. The differences in willingness to reset a goal between study 1 and 2 may be due to these differences in the duration of the study, and the types of goals (week-long vs. semester long) that were considered. Abandoning a goal is not necessarily bad, especially if that goal is distressing or impractical (Wrosch, 2011). It may be the case that personal standards perfectionists are more realistic to decide to not reset a goal that they had previously abandoned. Future research is needed to replicate these findings and determine whether not resetting such goals is indeed adaptive, perhaps by focusing on the reasons for goal abandonment.

4.1. Limitations and future directions

The present study has a few limitations that warrant discussion. First, few participants reported failing or abandoning their goals, compared to achieving or completing their goals. The small number of goals that were failed or abandoned limit the precision of these results. In the future, collecting a larger sample may allow for a higher number of goals in these categories. Second, both study 1 and 2 used undergraduate students. Undergraduate students do set goals and are motivated, but the goals that they set may be different from those set in the general population. For example, students frequently set academic goals, such as studying for an exam; it is unknown whether the personal goals set by people outside a university setting are comparable to those set by students. Third, people may react differently to success and failure on the completion of short and long-term goals. People may be upset when they do not complete a short-term goal, but it is likely that disappointment and negative affect would be amplified for a goal to which they have committed more time and effort (Diseth, Danielsen, & Samdal, 2012). In the future, it may be pertinent to review the relationship between short and long-term goals and how motivation and satisfaction may differ between them. Fourth, participants were asked subjectively whether they would reengage in a goal, but not if they actually have reengaged in the goal. Future studies can examine if the goal has been reset for the next week and perhaps if the goal has been reset in a modified form. For example, if someone's goal was to not eat carbs all week and they fail to do that, they may set a new goal of eating less white bread. The overall purpose of losing weight or eating healthier is consistent across these goals, even though the specificity of the goal has been modified. Finally, we only examined the portion of the self-serving bias which was related to attributions. It would be interesting to examine how perfectionists may differ in stability and globality of assessments of success and failure in ambiguous situations.

Consistent with past research that examines positive and negative forms of perfectionism (e.g., Powers, Koestner, Zuroff, Milyavskaya, & Gorin, 2011; Stoeber & Otto, 2006), we included both self-critical and personal perfectionism together in all our models. Given that the two types of perfectionism are moderately correlated ($r = 0.33$ in study 1, $r = 0.56$ in study 2), this means that any common variance between the two constructs is partialled out, such that the results represent the unique effects of each type of perfectionism. The advantages of this approach have recently been outlined by Stoeber and Gaudreau (2017).

This research provides evidence that self-critical perfectionists use the self-serving bias in a reversed or attenuated manner. This may explain why self-critical perfectionists experience more adverse mental health problems (Sherry et al., 2014). Future studies need to investigate this relationship longitudinally, looking at how these attributions mediate the link between perfectionism and mental health and well-being. In addition, if self-critical perfectionists reverse attributional responsibility in a self-deprecating manner, then these cognitive biases could be targeted to promote a healthier attribution of events and better metal health. Conversely, it appears that personal standards perfectionists are capable of using the self-serving bias in a healthy manner; they also experience less adverse mental health problems (Sherry et al., 2014). Future research is needed to determine if there is a direct effect between the two.

4.2. Conclusion

The present research provides evidence that self-critical perfectionists have unusual attributions of success and failures to external sources, contrary to what the self-serving bias would predict. In two studies examining participants' actual goal progress, we find evidence that self-critical perfectionists attribute success more to external sources. How perfectionists attribute success and failure needs to be better understood as these attributions may significantly impact functioning and may represent an additional malleable cognitive bias that could be a target for interventions.

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Statement of contributions

KW and SL came up with the research questions; MM and JC were also present in the meeting where the initial ideas where elaborated on. MM analyzed the data. SL wrote the paper with feedback from MM and KW. JC wrote a paragraph that was later removed from the introduction. KW collected the data for Study 1. MM and SL handled all revisions requested by the reviewers and editor.

References

Accordino, D. B., Accordino, M. P., & Slaney, R. B. (2000). An investigation of perfectionism, mental health, achievement, and achievement motivation in adolescents. *Psychology in Schools, 37*(6), 535–545. http://dx.doi.org/10.1002/1520-6807.

Anderson, C. A., Krull, D. S., & Weiner, B. (1996). Explanations: Processes and consequences. In E. T. Higgins & A. W. Kruglanski (Eds.), *Social psychology: Handbook of basic principles* (pp. 271–296). New York: Guilford Press.

Arkin, R. M., Appelman, A. J., & Burger, J. M. (1980). Social anxiety, self-presentation and the self-serving bias in causal attribution. *Journal of Personality and Social Psychology, 38*(1), 23–35.

Besser, A., Flett, G. L., & Hewitt, P. L. (2004). Perfectionism, cognition, and affect in response to performance failure vs. success. *Journal of Rational-Emotive & Cognitive-Behavior Therapy, 22*(4), 297–324. http://dx.doi.org/10.1023/b:jore.0000047313.35872.5c.

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. http://dx.doi.org/10.1016/S0191-8869(03)00235-6.

Blankstein, K. R., & Dunkley, D. M. (2002). Evaluative concerns, self-critical, and personal standards perfectionism: A structural equation modeling strategy. *Perfectionism: Theory, Research, and Treatment*, 285–315. http://dx.doi.org/10.1037/10458-012 (n.d.).

Blatt, S. J., D'afflitti, J. P., & Quinlan, D. M. (1976). Depressive experiences questionnaire. *PsycTESTS dataset*. http://dx.doi.org/10.1037/t02165-000 (n.d.).

Diseth, Å., Danielsen, A. G., & Samdal, O. (2012). A path analysis of basic need support, self-efficacy, achievement goals, life satisfaction and academic achievement level among secondary school students. *Educational Psychology, 32*(3), 335–354. http://dx.doi.org/10.1080/01443410.2012.657159.

Dunkley, D. M., & Blankstein, K. R. (2000). Self-critical perfectionism, coping, hassles, and current distress: A structural equation modeling approach. *Cognitive Therapy Research, 24*(6), 713–730. http://dx.doi.org/10.1023/A:1005543529245.

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*, 234–252. http://dx.doi.org/10.1037/0022-3514.84.1.234.

Frost, R. O., Marten, P., Lahart, C., & Rosenblate, R. (1990). The dimensions of perfectionism. *Cognitive Therapy Research, 14*, 449. http://dx.doi.org/10.1007/BF01172967.

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), 192–200. http://dx.doi.org/10.1037/0022-0167.51.2.192.

Hanchon, T. A. (2010). The relations between perfectionism and achievement goals. *Personality and Individual Differences, 49*(8), 885–890. http://dx.doi.org/10.1016/j.paid.2010.07.023.

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*, 521–530.

Heider, F. (1958). *The psychology of interpersonal relations*. New York: Wiley.

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, 60*(3), 456–470. http://dx.doi.org/10.1037//0022-3514.60.3.456.

Hope, N. H., Milyavskaya, M., Holding, A. C., & Koestner, R. (2014). Self-growth in the college years: Increased importance of intrinsic values predicts resolution of identity and intimacy stages. *Social Psychological and Personality Science, 5*(6), 705–712. http://dx.doi.org/10.1177/1948550613516875.

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. http://dx.doi.org/10.1111/j.1467-6494.2008.00519.x.

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. http://dx.doi.org/10.1111/jopy.12093.

McFarland, C., & Ross, M. (1982). Impact of causal attributions on affective reactions to success and failure. *Journal of Personality and Social Psychology, 45*, 937–946.

Mezulis, A. H., Abramson, L. Y., Hyde, J. S., & Hankin, B. L. (2004). Is there a universal positivity bias in attributions? A meta-analytic of individual, developmental, and cultural differences in the self-serving attributional bias. *Psychological Bulletin, 130*(5), 711–747. http://dx.doi.org/10.1037/0033-2909.130.5.711.

Miller, D. T., & Ross, M. (1975). Self-serving biases in the attribution of causality: Fact or fiction? *Psychological Bulletin, 82*, 213–225.

Milyavskaya, M., & Inzlicht, M. (2017). What's so great about self-control? Examining the importance of effortful self-control and temptation in predicting real-life depletion and goal attainment. *Social Psychological and Personality Science*, 1948550616679237.

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), 124–142.

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*, 677–693.

Milyavskaya, M., Nadolny, D., & Koestner, R. (2014). Where do self-concordant goals come from? The role of domain-specific psychological need satisfaction. *Personality and Social Psychology Bulletin, 40*(6), 700–711. http://dx.doi.org/10.1177/0146167214524445.

Mofield, E., Peters, M. P., & Chakraborti-Ghosh, S. (2016). Perfectionism, coping, and underachievement in gifted adolescents: Avoidance vs. approach orientations. *Education Sciences, 6*(3), 21. http://dx.doi.org/10.3390/educsci6030021.

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

Preacher, K. J., Curran, P. J., & Bauer, D. J. (2006). Computational tools for probing interaction effects in multiple linear regression, multilevel modeling, and latent curve analysis. *Journal of Educational and Behavioral Statistics, 31*, 437–448.

Rizley, R. (1978). Depression and distortion in the attribution of causality. *Journal of Abnormal Psychology, 87*, 32–48.

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. http://dx.doi.org/10.1123/jsep.31.5.602.

Sherry, S. B., Richards, J. E., Sherry, D. L., & Stewart, S. H. (2014). Self-critical perfectionism is a vulnerability factor for depression but not anxiety: A 12-month, 3-wave, longitudinal study. *Journal of Research in Personality, 52*, 1–5.

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. http://dx.doi.org/10.1080/00207590701403850.

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., & Janssen, D. P. (2011). Perfectionism and coping with daily failures: Positive reframing helps achieve satisfaction at the end of the day. *Anxiety, Stress & Coping: An International Journal, 24*(5), 477–497. http://dx.doi.org/10.1080/10615806.2011.562977.

Stoeber, J., Kempe, T., & Keogh, E. J. (2008). Facets of self-oriented and socially prescribed perfectionism and feelings of pride, shame, and guilt following success and failure. *Personality and Individual Differences, 44*(7), 1506–1516. http://dx.doi.org/10.1016/j.paid.2008.01.007.

Stoeber, J., & Otto, K. (2006). Positive conceptions of perfectionism: Approaches, evidence, challenges. *Personality and social psychology review, 10*(4), 295–319.

Stoycheff, E. (2016). Please participate in Part 2: Maximizing response rates in longitudinal MTurk designs. *Methodological Innovations, 9*. 2059799116672879.

Sweeney, P. D., Anderson, K., & Bailey, S. (1986). Attributional style in depression: A meta-analytic review. *Journal of Personality and Social Psychology, 50*, 974–991.

Taylor, S. E., & Brown, J. D. (1988). Illusion and well-being: A social psychological perspective on mental health. *Psychological Bulletin, 103*, 193–210.

Thompson, N. J., Kaslow, B. Weiss, & Nolen-Hoeksema, S. (1998). Children's attributional style questionnaire—Revised: Psychometric examination. *Psychological Assessment, 10*, 166–170.

Werner, K., & Milyavskaya, M. (2017). We may not know what we want, but do we know what we need? Examining the ability to forecast need satisfaction in goal pursuit. *Social Psychological and Personality Science*.

Werner, K. M., Milyavskaya, M., Foxen-Craft, E., & Koestner, R. (2016). Some goals just feel easier: Self-concordance leads to goal progress through subjective ease, not effort. *Personality and Individual Differences, 96*, 237–242.

Wrosch, C. (2011). Self-regulation of unattainable goals and pathways to quality of life. *The Oxford handbook of stress, health, and coping* (pp. 319–333).