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Perfectionism, Self-Efficacy, and Aspiration Level:
Differential Effects of Perfectionistic Striving and Self-Criticism
After Success and Failure

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Abstract

Despite over 15 years of research on multidimensional perfectionism, it is still unclear how different forms of perfectionism are related to self-efficacy, aspiration level, and reactions to success and failure in performance situations. Differentiating between positive striving perfectionism and self-critical perfectionism, the present study investigated in $N = 100$ undergraduate students how perfectionistic striving and self-criticism were related to self-efficacy, aspiration level, and performance and how manipulated success and failure feedback affected these relationships. Results showed that perfectionistic striving was positively correlated with self-efficacy and aspiration level prior to manipulated feedback. Moreover, perfectionistic striving predicted increases in aspiration level following success feedback. In contrast, self-criticism was negatively correlated with self-efficacy prior to feedback and predicted decreases in self-efficacy following failure feedback. The findings corroborate the view that perfectionism has both adaptive and maladaptive aspects: whereas self-criticism is associated with low self-efficacy and makes perfectionists lose confidence after failure, perfectionistic striving is associated with higher aspiration levels and makes perfectionists reach for higher aims after success.

Keywords: perfectionism; self-criticism; self-efficacy; aspiration level; motivation; performance; aptitude tests; success; failure

Introduction

Individuals high in perfectionism are characterized by striving for flawlessness and setting excessively high standards for performance accompanied by tendencies for overly critical evaluations of their behavior (Flett & Hewitt, 2002; Frost, Marten, Lahart, & Rosenblate, 1990). Therefore, it has been argued that individuals high in perfectionism—because they have excessively high standards and are overly self-critical—are particularly vulnerable to failure and react more negatively to failure regarding cognitions, affect, and performance than individuals low in perfectionism (e.g., Anshel & Mansouri, 2005; Besser, Flett, & Hewitt, 2004).

Perfectionism, however, is a multidimensional and multifaceted characteristic (Benson, 2003). In particular, two major dimensions of perfectionism need to be differentiated (Frost, Heimberg, Holt, Mattia, & Neubauer, 1993; Stoeber & Otto, 2006). The first dimension has been described as positive striving perfectionism (Frost et al., 1993) and captures those facets of perfectionism that relate to perfectionistic striving, having perfectionistic personal standards, and setting exacting standards for one's performance. This dimension has shown positive correlations with indicators of good psychological adjustment such as positive affect, endurance, academic achievement, and test performance (e.g., Bieling, Israeli, Smith, & Antony, 2003; Frost et al., 1993; Stoeber & Kersting, 2007; Stumpf & Parker, 2000). The second dimension has been described as self-critical perfectionism (Dunkley, Zuroff, & Blankstein, 2003) and captures those facets of perfectionism that relate to critical self-evaluations of one's performance, feelings of discrepancy between expectations and results, perfectionistic concern over mistakes and others' high expectations, and fears that others' acceptance is conditional on one's being perfect. This dimension has shown positive correlations with indicators of maladjustment such as negative affect, low self-esteem, and low self-efficacy (e.g., Dunkley et al., 2003; Frost et al., 1993; Stumpf & Parker, 2000; see Stoeber & Otto, 2006, for a comprehensive review).

However, regarding self-efficacy, the findings are not consistent. Self-efficacy has been defined as “people’s belief about their capabilities to produce designated levels of performance that exercise influence over events that affect their lives” (Bandura, 1994, p. 71). Moreover, general self-efficacy is seen as a personal resource that refers to the optimistic self-belief in one’s competence to exercise control over a range of difficult tasks and to generally cope well with adverse events (Schwarzer & Jerusalem, 1995). In a first investigation of how perfectionism relates to self-efficacy differentiating between self-oriented perfectionism and socially prescribed perfectionism (Hewitt & Flett, 1991), Hart, Gilner, Handal, and Gfeller (1998) found self-oriented perfectionism to be associated with low self-efficacy and socially prescribed perfectionism with high self-efficacy. Because self-oriented perfectionism has been shown to form part of positive striving perfectionism (Frost et al., 1993) and socially prescribed perfectionism to form part of self-critical perfectionism (Dunkley et al., 2003), the findings suggest that positive striving perfectionism is associated with low self-efficacy and self-critical perfectionism with high self-efficacy.

Whereas Hart et al.’s findings support Flett and Hewitt’s (2006) critical view of self-oriented perfectionism and positive striving perfectionism, they are at odds with the majority of findings from research on positive striving perfectionism and self-critical perfectionism (see Stoeber & Otto, 2006). In particular, they contradict the findings from Dunkley et al.’s (2003) study that showed self-critical perfectionism to be associated with low self-efficacy, not high self-esteem. Consequently, the question of how perfectionism relates to self-efficacy deserves further research. In this, it may be important to have positive and negative aspects of perfectionism clearly separated as was demonstrated by LoCicero and Ashby (2000) who found that adaptive perfectionists (high perfectionistic standards, low feelings of discrepancy) showed significantly higher levels of general self-efficacy than both maladaptive perfectionists (high standards, high discrepancy) and nonperfectionists (low standards). Because perfectionistic standards are a facet of positive striving perfectionism and feelings of

discrepancy a facet of self-critical perfectionism, LoCicero and Ashby's findings suggest that positive striving perfectionism should be associated with higher self-efficacy once the overlap with self-critical perfectionism is controlled for.

The distinction between positive striving perfectionism and self-critical perfectionism may also be important with regard to the question of how perfectionism relates to aspiration level. Because a higher aspiration level is a defining characteristic of the perfectionism construct, it comes as a surprise that so far only two studies have investigated whether perfectionists do have higher aspirations. The first study (Hewitt & Flett, 1991, Study 3) investigated the relationship between perfectionism and general standards for academic performance, and did not find any significant correlations between perfectionism and standards. The second study (Bieling et al., 2003) investigated standards for performance in a specific exam, and found significant correlations between perfectionism and standards: Prior to an important mid-term exam, undergraduates responded to a number of questions about their standards for performance in this exam. When responses were averaged to an overall measure of standards for performance, positive striving perfectionism and self-critical perfectionism both showed positive correlations with standards, indicating that perfectionists do set higher standards for performance. However, the correlation of positive striving perfectionism with standards for performance was significantly higher than that of self-critical perfectionism, suggesting that it is mainly the striving dimension of perfectionism that is related to aspiration level.

But what happens if perfectionists fail to fulfill their aspirations, and what if they succeed? So far, four studies have investigated how perfectionists react to experimental manipulations of success and failure (Anshel & Mansouri, 2005, Besser et al., 2004; Stoeber, Harris, & Moon, 2007; Stoeber, Kempe, & Keogh, 2008). Unfortunately, the findings are inconsistent. Whereas Stoeber et al. (2007) did not find perfectionists to show any different affective reactions to success and failure in comparison to nonperfectionists, Anshel and

Mansouri (2005) found that athletes high in perfectionism showed decreased positive affect and poorer performance after repeated failure compared to athletes low in perfectionism. Moreover, Besser et al. (2004) found that university students high in self-oriented perfectionism reacted more negatively to failure (e.g., decreased positive affect, increased rumination) than students low in self-oriented perfectionism, but did not find any differential effects for success. In contrast, Stoeber et al. (2008) found that, whereas all aspects of perfectionism predicted higher levels of shame after failure, perfectionistic striving predicted higher levels of pride after success, corroborating previous findings that perfectionistic striving is associated with positive characteristics, processes, and outcomes (Stoeber & Otto, 2006).

Against this background, the present study had two aims. First, we aimed to investigate how the defining facets of positive striving perfectionism and self-critical perfectionism—perfectionistic striving and self-criticism—were related to self-efficacy, aspiration level, and test performance when the expected overlap between perfectionistic striving and self-criticism was controlled for (Stoeber & Otto, 2006). Based on the literature that positive striving perfectionism is associated with positive characteristics, processes, and outcomes, we expected perfectionistic striving to be positively correlated with self-efficacy, aspiration level, and performance. In contrast, we expected self-criticism to be negatively correlated with self-efficacy (e.g., Dunkley et al., 2003; Sturman & Mongrain, 2008), but unrelated to aspiration level and performance. Second, we aimed to investigate whether perfectionistic striving and self-criticism predicted differential reactions to experimentally manipulated success and failure by investigating whether individual differences in perfectionistic striving and self-criticism predicted changes in self-efficacy, aspiration level, and performance following success or failure. Particularly, we expected perfectionistic striving to be associated with positive changes (i.e., increases in self-efficacy, aspiration level, and/or performance) following success,

whereas we expected self-criticism to be associated with negative changes (i.e., decreases in self-efficacy, aspiration level, and/or performance) following failure.

Method

Participants

A sample of $N = 100$ undergraduate students (18 male, 82 female) was recruited at a British university. Mean age was 21.2 years ($SD = 6.7$; range = 18-51 years). In exchange for participation, students received extra course credit.

Procedure

All participants were tested individually and were randomly allocated to two feedback conditions: success ($n = 50$) or failure ($n = 50$).¹ Upon arrival in the laboratory, the experimenter (the second or third author) informed participants that the study was about how personality related to task choice and aptitude test performance. Participants then completed the measures of perfectionistic striving and self-criticism and the measure of self-efficacy at Time 1. Afterwards, participants were presented with seven large manila envelopes, containing the first test (Test 1), numbered and labeled from “1 = very easy” to “7 = very difficult” (unknown to the participants, all contained the same test). Participants were asked to choose one envelope, and their choice was used to measure aspiration level at Time 1. Then they completed the test, for which they were given 13 minutes, measured by the experimenter with a stop watch to assess test performance at Time 1 (for further details, see *Measures* section below).

Afterwards, the experimenter told participants that she would score the number of correct test answers before continuing with the second part of the study, sat down at a separate table, and pretended (in full sight of the participant) to score the number of correct answers by checking the participants’ answer sheet against a scoring sheet from the test manual—scoring more answers as correct when participants were in the success condition, and less answers when they were in the failure condition—and to compare the results against

norm tables from the test manual. Participants in the success condition were told that their test score was in the top 20% of the norm and were congratulated (“Compared to other students, you have scored in the top 20%. Well done!”) whereas participants in the failure condition were told that their test score was in the bottom 20% and were commiserated (“Compared to other students, you have scored in the bottom 20%. Sorry.”).

Thereafter participants completed the measure of self-efficacy again (Time 2) and chose the difficulty level of the second test (Test 2) from a second set of seven manila envelopes numbered and labeled as previously (again, all contained the same test), which was used to measure aspiration level (Time 2). To complete the second test, participants were again given 13 minutes, to assess test performance (Time 2).

Because the study involved deception, ethical approval from the department’s ethic committee was obtained prior to conducting the study. At the end of the study, all participants were fully debriefed and it was explained that they had been randomly assigned to success or failure feedback, that their test scores had been manipulated, and that the feedback they had received did not reflect their true performance.

Measures

Perfectionistic striving. To measure perfectionistic striving, we used the Striving for Perfection scale (Stoeber & Rambow, 2007) which comprises five items capturing individual differences in perfectionistic striving (e.g., “I strive to be as perfect as possible”). Participants responded to each statement on a 7-point scale from “strongly disagree” (1) to “strongly agree” (7). With a Cronbach’s alpha of .95, the measure’s scores displayed high reliability (internal consistency).

Self-criticism. To measure self-criticism, we used the self-criticism subscale of the revised Attitudes Toward Self scale (Carver, La Voie, Kuhl, & Ganellen, 1988) which comprises three items capturing self-criticism (e.g., “I get angry with myself if my efforts don’t lead to the

results I wanted”). Participants again responded on a 7-point scale from “strongly disagree” (1) to “strongly agree” (7). With an alpha of .85, scores displayed high reliability.

Self-efficacy. To measure self-efficacy, we used the General Self-Efficacy Scale (Schwarzer & Jerusalem, 1995) which comprises ten items capturing the optimistic belief that one can perform novel or difficult tasks or cope with adversity (e.g., “I can always manage to solve difficult problems if I try hard enough”). Participants responded to each statement on a 4-point scale from “not at all true” (1) to “exactly true” (4). With alphas of .85 (at Time 1) and .89 (at Time 2), scores displayed high reliability.

Aspiration level. To measure aspiration level, we used the classic method of having participants select the difficulty level of their choice for an upcoming task (Lewin, Dembo, Festinger, & Sears, 1944). Participants were presented with seven envelopes that contained tests of allegedly different difficult levels (see *Procedure*), which formed a single-item measure of aspiration level with a 7-point scale ranging from “very easy” (1) to “very difficult” (7). (For single item-measures, Cronbach’s alphas cannot be computed.)

Test performance. To measure test performance, we used Häcker and Bulheller’s (1998) revised and newly standardized Set II of Raven’s Advanced Progressive Matrices (APM; Raven, 1962). To present participants with different tests of comparable difficulty before and after the feedback, two tests of 12 items were constructed by selecting from the 36 original items 2 × 4 items of low difficulty (Level 1), 2 × 4 items of medium difficulty (Level 2), and 2 × 4 items of high difficulty (Level 3). Difficulty of items was determined from the manual’s norm tables with the percentage of testees in the validation sample who solved the item (84-98% for Level 1 items, 49-79% for Level 2 items, and 5-45% for Level 3 items; Häcker & Bulheller, 1998, Table 2). Test 1 comprised Items 3, 5, 7, 9, 16, 18, 20, 22, 30, 32, 34, and 36; and Test 2 comprised Items 2, 4, 6, 8, 15, 17, 19, 21, 29, 31, 33, and 35. (Item 1 was used as an example to explain to participants how to work the test.) Because the standard administration of Set II gives testees 40 minutes to complete all 36 items (Häcker & Bulheller, 1998), we gave

participants 13 minutes to complete the 12 items. Test scores were computed by summing the number of correct answers across items. With alphas of .69 (Time 1) and .65 (Time 2), scores displayed acceptable reliability.

Results

First, the correlation between perfectionistic striving and self-criticism was inspected. As expected, perfectionistic striving and self-criticism showed a high correlation, $r = .51, p < .001$ corroborating views that individuals who strive for perfection have a tendency to criticize themselves. Next, the correlations of perfectionistic striving and self-criticism with initial levels of self-efficacy, aspiration level, and performance were inspected. In addition to zero-order correlations, partial correlations were computed to control for the high correlation between perfectionistic striving and self-criticism. Table 1 shows the results. As expected, self-criticism showed an inverse correlation with self-efficacy. In contrast, perfectionistic striving showed a positive correlation with self-efficacy, but only after the influence of self-criticism was partialled out. Moreover, perfectionistic striving showed a positive correlation with aspiration level. Unexpectedly, perfectionistic striving did not show a significant correlation with test performance.

Next, we computed hierarchical regression analyses to investigate whether perfectionistic striving and self-criticism predicted changes in self-efficacy, aspiration level, and test performance from T1 and T2 dependent on success or failure. Following recommendations for testing moderator effects in multiple regressions (Frazier, Tix, & Barron, 2004), we used effect coding (success = -1, failure = +1) for coding the feedback condition, standardized perfectionistic striving and self-criticism before creating the interaction terms, and interpreted the unstandardized regression coefficients (B s). Moreover, we examined the residuals for outliers and excluded one participant in the regression analysis of self-efficacy and one in that of aspiration level who showed $|\text{standardized residuals}| > 3$. Table 2 shows the results. Whereas the analyses found no significant effects on test

performance, feedback had a significant effect on self-efficacy and aspiration level such that failure feedback lead to decreases in self-efficacy and aspiration level relative to success feedback. Moreover, there was a significant main effect of self-criticism showing that self-criticism was associated with decreases in aspiration level from Time 1 to Time 2, indicating that individuals high in self-criticism lowered their aspiration after completing the first test regardless of success and failure. Finally, there was a significant interaction effect of feedback \times self-criticism on self-efficacy and a significant interaction effect of feedback \times perfectionistic striving on aspiration level.

Therefore, the respective coefficients from multiple regressions with feedback coded as success = 0 and failure = 1 were compared those from multiple regressions with feedback coded as failure = 0 and success = 1 to investigate if the slopes were significant (see Frazier et al., 2004, for details). Regarding self-efficacy, results showed that self-criticism was associated with decreases in self-efficacy only in the failure condition ($B = -.10, p < .01$), but not in the success condition ($B = .03, ns$) indicating that participants high in self-criticism showed significantly greater decreases in self-efficacy following failure than participants low in self-criticism. Regarding aspiration level, results showed that perfectionistic striving was associated with increases in aspiration level only in the success condition ($B = .39, p < .01$), but not in the failure condition ($B = .00, ns$) indicating that participants high in perfectionistic striving showed significantly greater increases in aspiration level following success than participants low in perfectionistic striving.

Discussion

Investigating how two defining facets of positive striving perfectionism and self-critical perfectionism—perfectionistic striving and self-criticism—were related to self-efficacy, aspiration level, and test performance and how manipulated success or failure feedback affected these relationships, the present study found that perfectionistic striving showed positive correlations with self-efficacy and aspiration level before performance feedback and

predicted increases in aspiration level following success feedback. This indicates that individuals who strive for perfection are optimistic regarding their capabilities, have higher aspirations when encountering a task, and increase their aspirations after experiencing success by selecting a more difficult task than before. In contrast, self-criticism showed a negative correlation with self-efficacy before performance feedback and predicted decreases in self-efficacy after failure feedback and decreases in aspiration level regardless of success or failure feedback. This indicates that individuals who have a tendency to criticize themselves are pessimistic regarding their capabilities to overcome obstacles and become even more so after experiencing failure.

The present findings corroborate previous findings that perfectionistic strivings are related to positive characteristics, processes, and outcomes once the overlap with negative aspects of perfectionism is controlled for (Stoeber & Otto, 2006) and that perfectionistic strivings show a positive correlation with standards for performance (Bieling et al., 2003). Moreover, they demonstrate that this relationship is not restricted to self-reported standards, but also shows when aspiration level is measured behaviorally, that is, by actual task choice (Lewin et al., 1944). Finally, the finding that perfectionistic striving predicted increases in aspiration level following success is in line with previous studies in which perfectionistic striving showed positive correlations with hope for success (Stoeber & Becker, in press; Stoeber & Rambow, 2007). According to Atkinson's (1957) expectancy-value theory of motivation, individuals high in hope for success select a more difficult task after experiencing success, and this is exactly what participants high in perfectionistic striving did in the present study.

It is, however, important to note that the present study also found perfectionistic striving and self-criticism to be highly correlated. This finding provides further empirical support for the view that perfectionistic striving and self-criticism are intimately related (Frost et al., 1990) and indicates that most individuals who show high levels of perfectionistic

striving also show high levels of self-criticism. Moreover, the combination of perfectionistic striving and self-criticism may produce a unique response to success and failure in performance situations. Because striving for perfection is associated with higher self-efficacy and a higher aspiration level, these individuals may select a more difficult task that, by definition, carries a higher risk of failure (Atkinson, 1957). Hence, if experiencing success, they would increase their aspiration level. If experiencing failure, however, they would experience a decrease in self-efficacy, but this would not lower their aspiration level. This pattern may produce an increasing mismatch between one's aspirations and one's beliefs to be able to fulfill these aspirations and may increase perceived discrepancy between expectations and results which has been shown to be a highly problematic characteristic of perfectionism (Slaney, Rice, Mobley, Trippi, & Ashby, 2001).

The present study has some limitations. First, in research on self-critical perfectionism (e.g., Dunkley et al., 2003), self-criticism is usually measured with the Depressive Experiences Questionnaire (DEQ; Blatt, D'Afflitti, & Quinlan, 1976). The measure of self-criticism used in the present study (Carver et al., 1988), which was chosen for its brevity, showed high reliability (internal consistency). Brief measures with high internal consistency, however, have a narrow bandwidth. Consequently, future studies may need to include the DEQ to capture self-criticism in greater breadth. Second, the present study investigated only two facets of perfectionism (perfectionistic striving, self-criticism). While these are the defining facets of positive striving perfectionism and self-critical perfectionism, they do not represent all aspects of the two broad dimensions of perfectionism (see Dunkley et al., 2003; Frost et al., 1993; Stoeber & Otto, 2006). Consequently, future studies need to replicate the findings including measures that capture further, and broader, aspects of the dimensions of positive striving perfectionism and self-critical perfectionism (e.g., self-oriented perfectionism and socially prescribed perfectionism). This would also allow to investigate whether the small size of the effects that perfectionistic striving and self-criticism had on self-efficacy and aspiration level

following success/failure feedback is due to differences in the bandwidth of the measures. Note that perfectionistic striving and self-criticism were rather narrow measures whereas self-efficacy was a rather broad measure. Correlating narrow measures with broad measures, however, may lead to lower correlations than could be expected if the constructs were measured with scales of the same bandwidth following Wittmann's (2004) principle of "Brunswik symmetry." Finally, the present study did not find any positive correlations between perfectionistic striving and test performance and thus failed to replicate Stoeber and Kersting's (2007) finding that perfectionistic striving predicted higher test performance in figural reasoning. Consequently, future studies need to further examine the relationship between perfectionism and test performance. In this, the studies may profit from including test anxiety as a covariate to take potential negative effects of anxiety on test performance into account (Zeidner, 1998).

Nonetheless, the present findings have important implications for the understanding of perfectionism because they provide further evidence that perfectionism is multifaceted and multidimensional and that not all aspects of perfectionism are necessarily maladaptive. Whereas self-criticism certainly is a maladaptive aspect, the present findings suggest that perfectionistic striving *per se* is not. Instead, perfectionistic striving may form part of a "healthy pursuit of excellence" (Shafran, Cooper, & Fairburn, 2002, p. 778) and motivate individuals to aim higher and attempt more challenging tasks than they otherwise would do.

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Footnotes

¹Gender distribution and mean age did not differ between groups (gender: $\chi^2[1] = 1.09, p > .29$; age: $t[98] = 0.69, p > .49$).

Table 1
Correlations of Perfectionistic Striving and Self-Criticism with Variables at Time 1 (Before Success/Failure Feedback)

Variable at T1	Zero-order correlation		Partial correlation	
	Perfectionistic striving	Self-criticism	Perfectionistic striving	Self-criticism
Self-efficacy	.16	-.22*	.33***	-.36***
Aspiration level	.21*	.07	.21*	-.05
Test performance	-.15	.00	-.17	.08

Note. $N = 100$. T1 = time 1 (before success/failure feedback).

* $p < .05$, *** $p < .001$.

Table 2

Summary of Hierarchical Regression Analyses Predicting Residual Changes in Variables Following Success/Failure Feedback

Predictor	Self-efficacy T2 ^a		Aspiration level T2 ^a		Test performance T2	
	B	ΔR ²	B	ΔR ²	B	ΔR ²
Step 1		.695***		.640***		.368***
Variable at T1	.93***		.86***		.53***	
Step 2		.030*		.077***		.027
Variable at T1	.94***		.79***		.55***	
Feedback	-.06*		-.34***		-.02	
Perfectionistic striving	-.04		.17		.32	
Self-criticism	-.03		-.20*		-.39	
Step 3		.032**		.017†		.011
Variable at T1	.92***		.77***		.66***	
Feedback	-.06**		-.40***		.00	
Perfectionistic striving	-.04		.39**		.35	
Self-criticism	-.04		-.22		-.39	
Feedback × perfectionistic striving	-.02		-.28*		-.03	
Feedback × self-criticism	-.06*		-.02		.25	

Note. $N = 100$ (success: $n = 50$; failure: $n = 50$). T1 = time 1 (before success/failure feedback), T2 = time 2 (after success/failure feedback). Feedback is effect-coded (success = -1, failure = +1).

^a $N = 99$ (success: $n = 50$; failure: $n = 49$).

† $p = .05$, * $p < .05$, ** $p < .01$, *** $p < .001$.