

## **PERFECTIONISM, COGNITION, AND AFFECT IN RESPONSE TO PERFORMANCE FAILURE VS. SUCCESS**

Avi Besser

*Sapir Academic College, Israel*

Gordon L. Flett

*York University*

Paul L. Hewitt

*University of British Columbia*

**ABSTRACT:** The current paper describes the results of an experiment in which 200 students who varied in levels of trait perfectionism performed a laboratory task of varying levels of difficulty. Participants received either negative or positive performance feedback, independent of their actual level of performance. Analyses of pre-task and post-task measures of negative and positive affect showed that individuals with high self-oriented perfectionism experienced a general increase in negative affect after performing the task, and self-oriented perfectionists who received negative performance feedback were especially likely to report decreases in positive affect. Additional analyses showed that self-oriented perfectionists who received negative feedback responded with a cognitive orientation characterized by performance dissatisfaction, cognitive rumination, and irrational task importance. In contrast, there were relatively few significant differences involving other-oriented and socially prescribed perfectionism. Collectively, our findings support the view that self-oriented perfectionism is a vulnerability factor involving negative cognitive and affective reactions following failure experiences that reflect poorly on the self.

**KEY WORDS:** Perfectionism; Cognition; Performance feedback; Anxiety; Depression; Hostility.

---

Authorship among the first two authors is equal. The Canada Research Chair program funded Gordon Flett.

Address correspondence to Avi Besser Ph.D., Department of Behavioral Sciences, Sapir Academic College, D. N. Hof Ashkelon 79165, Israel; e-mail: besser@mail.sapir.ac.il.

## INTRODUCTION

Over the past decade, researchers have continued to demonstrate the destructive effects of various dimensions of perfectionism (see Sherry, Hewitt, Flett, & Harvey 2003). Perfectionism has been associated with a wide variety of personal adjustment problems, including depression (Sherry et al., 2003), suicide (e.g., Blatt, 1995; Hewitt, Flett, & Weber, 1994), anxiety disorders (Antony, Purdon, Huta, & Swinson, 1998), and eating disorders (Cockell et al., 2002; Sherry, Hewitt, Besser, McGee, & Flett, 2004). Perfectionism has also been linked with problems in interpersonal and family functioning (e.g., Haring, Hewitt, & Flett, 2003), and maladaptive coping strategies (Dunkley, Zuroff, & Blankstein, 2003).

Advances in the perfectionism literature can be traced to the development of perfectionism measures that examine specific components of the perfectionism construct. These measures include the Multidimensional Perfectionism Scale by Frost, Marten, Lahart, and Rosenblate (1990), the Multidimensional Perfectionism Scale (MPS) by Hewitt and Flett (1991), and the revised Almost Perfect Scale, developed by Slaney, Rice, Mobley, Trippi, and Ashby (2001). These measures have supplemented earlier unidimensional measures such as the Burns Perfectionism Scale (Burns, 1980).

Although much has learned about the perfectionism construct, several fundamental issues remain to be investigated. The present study was conducted to examine how perfectionists respond, both affectively and cognitively, to a performance situation with varying levels of difficulty and feedback connoting success vs. failure. To our knowledge, the current investigation is the first to examine how perfectionists respond to success feedback vs. failure feedback in a controlled experiment. A central premise guiding this investigation is that perfectionists have a difficult time accepting failure and will respond maladaptively, both cognitively and affectively, to less than perfect performance and negative social comparison feedback about their performance (see Hewitt & Flett, 2002).

Previous investigations have investigated perfectionists' response to types of feedback, but an explicit comparative analysis of perfectionists' responses to positive vs. negative feedback has not been reported. For instance, Hobden and Pliner (1995) provided perfectionists and non-perfectionists with contingent or noncontingent success feedback in a study of perfectionism and self-handicapping, but they did not provide failure feedback to their participants. Roberts and Lovett (1994) showed that a group of academically gifted adolescents characterized generally by high self-oriented perfectionism tended to have a negative

affective reaction after failing an anagram task, but this study did not examine the direct association between perfectionism and responses to failure. Other relevant studies are outlined below.

### *Perfectionism and Reactions in Performance Situations*

Hewitt, Mittelstaedt, and Wollert (1989) gave negative feedback about task performance to perfectionists and nonperfectionists and varied the ego importance of the feedback. However, positive feedback about performance was not provided. Participants completed a series of challenging tasks (i.e., word recognition, stimulus discrimination, and decision-making) and were led to believe that good performance was relatively important or unimportant. A measure of depressed mood was completed before and after the tasks were attempted. Participants also completed the Burns Perfectionism Scale (BPS; Burns, 1980), a 10-item measure with items that tap dysfunctional attitudes involving the need to be perfect. Hewitt et al. (1989) showed that perfectionism interacted with task condition to predict increases in depressed mood. That is, perfectionism was associated with increased levels of depressed mood only in the ego-involving, important condition.

Flett, Hewitt, Endler, and Tassone (1994/1995) conducted an experiment in which participants completed the MPS and an anagram task that was described in terms that made the task either high vs. low in ego involvement. The MPS assesses self-oriented perfectionism (i.e., high personal standards), other-oriented perfectionism (i.e., demanding perfection from others), and socially prescribed perfectionism (i.e., the perception that others demand perfection from the self). The main dependent measures were indices of state anxiety and various measures of situational appraisal, including perceived situational threat. Flett et al. (1994/1995) found that socially prescribed perfectionism was associated with higher state anxiety, but only in the high ego involvement condition. Self-oriented perfectionism was unrelated to state anxiety in either experimental condition. Also, students with elevated levels of socially prescribed perfectionism tended to perceive greater threat in both experimental conditions.

Frost and Marten (1990) described an experiment with 51 undergraduate women that examined how individuals differing in levels of perfectionism responded to conditions of high vs. low evaluative threat. Participants performed a writing task under conditions of high vs. low evaluative threat. Dependent measures included performance level and state affective reactions. Frost and Marten (1990) found considerable

differences between the participants in the two experimental conditions. They reported that perfectionists, relative to nonperfectionists, reported higher levels of negative affect when the evaluative aspects of the performance task were made highly salient. Moreover, objective judges determined that the perfectionists in the high evaluative threat condition produced work that was of lower quality.

More recently, Frost, Turcotte, Heimborg, and Mattia (1995) reported a laboratory study of reactions to mistakes in which participants with high vs. low levels of concern over mistakes (COM) were induced to make either a high vs. low number of mistakes. Several differences emerged in the high mistakes condition, and there were relatively few between-subjects differences in the low mistakes condition. Participants with a high COM did not make more mistakes in the difficult condition, but they did report more negative affect, lower self-confidence, and a greater sense of personal imperatives (i.e., that they should have done better). They were also more likely to perceive that others would regard their performance as reflecting low intelligence and they were less willing to share their performance results with others.

A subsequent diary study by Frost et al. (1997) examined how students characterized by high vs. low COM responded in terms of their personal reactions to mistakes. Participants completed a "mistakes journal" for several days in which mistakes were recorded and cognitive reactions to the mistakes were listed. Analyses found no significant group difference in the perceived number of mistakes made, but there were numerous differences in the cognitive appraisals and reactions to mistakes. High COM participants had more negative reactions in that they were more bothered by their mistakes and had more negative affect and rumination in response to their mistakes. They also attached greater importance to their mistakes and endorsed more personal imperatives (i.e. should statements).

### *Goals of the Current Investigation*

The current study extends the existing literature in this area in several ways. First, our focus is on the dimensions of perfectionism assessed by Hewitt and Flett's (1991, 2004) MPS. To date, the only laboratory study of performance reactions and affective reactions with the MPS examined perfectionism and state anxiety in response to high vs. low ego involvement (Flett et al., 1994/1995). In contrast, the current study included an assessment of a broader range of negative affective states (anxiety, depression, hostility) as well as positive affect.

Second, whereas previous research on perfectionism in controlled performance settings used tasks that varied in level of difficulty but did not include explicit manipulations of performance feedback (e.g., Frost et al., 1995), the current study varied both the level of difficulty and the valence of task feedback (positive vs. negative). As noted earlier, to our knowledge, the current study is the first one to examine perfectionists' reactions to explicit manipulations of positive vs. negative task feedback.

Finally, the current study goes beyond the earlier investigation by Flett et al. (1994/1995) by including a wide range of cognitive reaction measures, including several measures adapted from the previous research by Frost et al. (1995, 1997). We focused on issues based on their theoretical relevance, and their demonstrated significance in past research. The extent to which perfectionism dimensions such as self-oriented and socially prescribed perfectionism are associated with cognitive reactions in a performance situation has not been investigated. Our cognitive appraisal measures included assessments of the degree of satisfaction/dissatisfaction with performance, the perceived importance of performance, rumination about performance, and comparative evaluation of performance quality. These measures were selected to test issues of importance addressed in previous papers. For instance, as noted above, in their diary study, Frost et al. (1997) examined the link between high concern over mistakes and variables such as rumination and the perceived importance of performance.

One set of our cognitive measures examined performance dissatisfaction, disappointment, and a sense of not performing up to expectations. The inability to experience satisfaction is regarded as the key factor that distinguishes neurotic perfectionism from "normal perfectionism" (see Hamachek, 1978; Missildine, 1963). Missildine (1963) has described neurotic perfectionists as "successful failures"; they are unable to experience satisfaction because they believe that they can always do better, no matter how well they perform. Indeed, previous investigators have found that self-oriented perfectionism may be associated with performance dissatisfaction, even when the objective performance of self-oriented perfectionists may surpass the performances of other people. For instance, Enns, Cox, Sareen, and Freeman (2001) examined satisfaction with school performance in medical students and found that a measure described as assessing "adaptive perfectionism" (which included measures of self-oriented perfectionism) was associated jointly with higher ratings of performance over the past

year and less satisfaction with performance. A regression analysis controlling for related differences in ratings of actual performance found that “adaptive” perfectionism predicted unique variance in performance dissatisfaction. Maladaptive perfectionism (including concern over mistakes and socially prescribed perfectionism) also predicted unique variance in performance dissatisfaction. Similarly, Mor, Day, Flett, and Hewitt (1995) conducted a study of professional performers and found that both self-oriented perfectionism and socially prescribed perfectionism were associated with performance dissatisfaction in terms of career progress and with unhappiness while performance. Thus, even though perfectionists may be very accomplished performers, their exceptionally high standards may undermine the satisfaction associated with performing and may result in disappointment, which may be internalized into a negative self-view. In the current study, we anticipated that individuals with high self-oriented perfectionism would be particularly dissatisfied with their performance, especially after attempting a difficult task and receiving negative performance feedback; clearly, poor performance is not in keeping with their irrational belief that they must achieve perfection (Ellis, 2002), and the cognitive tendency to engage in all-or-none thinking whereby only absolute perfectionism is regarded as a success (see Burns & Beck, 1978). This negative reaction could also reflect the link between self-oriented perfectionism and low unconditional self-acceptance (Flett, Davis, Besser, & Hewitt, 2003).

A related focus of our study involved the perceived importance factor. Ellis (2002) suggested that dysfunctional perfectionism includes a tendency to imbue perfectionism with an irrational degree of personal importance. Indeed, past findings indicate that perfectionists place great importance on attaining standards (Hewitt & Flett, 1991) and are highly sensitive and reactive to the perceived importance of their performance (Frost et al., 1997; Hewitt, Mittelstaedt, & Flett, 1990). For instance, Brown et al. (1999) showed that high self-standards are associated positively with the perceived importance of performance. Thus, we posited that perfectionism would be linked with a tendency to view the performance task as highly important.

We also included measures of challenge appraisal and threat appraisal to examine the possible link between perfectionism and coping appraisals. Hewitt and Flett (2002) suggested that perfectionists might evaluate situations in a way that enhances stressfulness (i.e., higher in threat as opposed to being seen as a challenge). Thus, in the current

study, the degree to which perfectionists perceived the situation as a threat vs. a challenge was also assessed.

Finally, self-reported cognitive rumination was also assessed. Past research has shown that certain perfectionists have a cognitive style that involves the frequent experience of automatic, perfectionistic thoughts (Flett, Hewitt, Blankstein, & Gray, 1998). This cognitive style is associated with distress and a tendency to perseverate when confronted with a personal failure (see Flett et al., 1998). Given that perfectionism is also linked with the ruminative response style identified by Nolen-Hoeksema (1991) as central to the persistence of depression (see Flett, Madorsky, Hewitt, & Heisel, 2002), it follows that perfectionists who experience failure feedback and attempt a difficult task should be particularly high in levels of rumination.

In summary, the overarching hypothesis guiding this research was that individuals with high levels of perfectionism would react to negative feedback and performing a challenging task by experiencing increases in negative affect states and decreases in positive affect states. Similarly, these same perfectionists would exhibit negative cognitive reactions in response to the experience of failure (i.e., negative performance feedback). Although all three MPS dimensions (i.e., self-oriented, other-oriented, and socially prescribed perfectionism) were evaluated in this study, the projected findings were seen as most relevant to self-oriented perfectionism, and, to a lesser extent, socially prescribed perfectionism because the emphasis here was on personal task performance. Thus, social expectations were not made highly salient to the participants, in part, because we were most interested in exploring the anticipated negative responses of individuals characterized by high levels of self-oriented when they encounter a challenging performance situation that is unlikely to result in a successful outcome.

## METHOD

### *Participants*

The participants were 200 students (100 women, 100 men) from an Israeli Academic College. They were volunteers from a second year psychology course. There were also some volunteers from an introductory psychology course who took part in this study for course credit. The mean age of these participants was 21.75 years ( $SD = 3.08$ ).

### *Procedure*

Participants took part in a five-part experiment. They signed an informed consent to participate in a study of "evaluation of cognitive performance on a computer" and were then seated in a chair facing a computer monitor in a small testing room. The instructions before each part were given by the experimenter and were also displayed on the computer monitor.

Participants were assigned randomly to one of four possible conditions derived from the combination of Task difficulty (easy versus difficult) and Feedback condition (positive vs. negative). There were 50 participants (25 men, 25 women) in each of the four conditions. All participants completed computerized versions of the MPS and the Visual Analogue Scale (VAS) by using the computer's mouse to mark their choices. The VAS was used to assess state affect levels. Ratings were recorded automatically in an output ASCII file. Order of screen presentation of the questionnaires was automatically randomized. Participants shifted from one screen to another by hitting an "OK" button that appeared when all items were completed, using the computer's mouse. Subsequently, a computerized Choice Reaction Time (CRT) task patterned after one used by Naveh-Benjamin, Craik, Gavrilescu, and Anderson (2000) was presented.

Variations of this CRT task have been used in cognitive research to evaluate reactions to task demands at the information encoding stage (see Craik, Govoni, Naveh-Benjamin, & Anderson, 1996; Naveh-Benjamin, Craik, Guez, & Dori, 1998). This is an attention demanding task that requires participants to carry out the task as quickly and as accurately as possible. In the current study, following Naveh-Benjamin et al. (2000), the CRT task involved a visual display on a computer screen and manual responses on an external box. The display consisted of either three or six boxes, arranged horizontally. A large white rectangle appeared at random in one of the boxes, and the participant's task was to press the corresponding key on the external button box. The response caused the white rectangle to move immediately to one of the other boxes, at random; the rectangle never appeared in the same box on successive CRT trials. The goal was to carry out the task as quickly and as accurately as possible. The task was thus a continuous CRT task; it was performed for 180 s. The computer recorded both the accuracy and speed of the participants' responses (in milliseconds). Participants were first given a description of the task in the experiment and the CRT task was practiced for two trials of 30 s in both decision

difficulties (three and six choices). This stage allowed participants to recognize that there are two possible decision-making tasks of varying difficulties to perform: “easy” (three choices) or “hard” (six choices), and that they would randomly receive only one of them in the following stage. Next, participants were presented with the task in the level of difficulty they were initially assigned (three or six choices), and were asked to perform as “quickly and as accurately as possible.” Not surprisingly, previous research (Naveh-Benjamin et al., 2000) has found that more mistakes are made and reaction time is higher when performing the six choice task.

Task completion was followed by the receipt of positive or negative feedback. The feedback received was independent of participants’ objective performance and appeared on a full screen with large and colored fonts. The use of the computer in this manner minimized social evaluative cues.

Participants in the negative feedback condition obtained the following full screen note: “*Sorry, your performance is below average*” while participants in the positive feedback condition received the following full screen note: “*Well done, your performance is above average.*” Participants then shifted to the next screen and were asked to complete the VAS again. Finally, participants were asked to rate a series of cognitive and performance appraisal items, and then participants were debriefed. The order of the presentation of the VAS and of the cognitive and performance appraisal items was automatically randomized.

### *Measures*

*Multidimensional Perfectionism Scale.* The MPS (MPS: Hewitt & Flett, 1991, 2004) has three subscales of 15 items each. Respondents make seven-point ratings of statements reflecting *self-oriented perfectionism* (e.g., One of my goals is to be perfect in every thing I do), *other-oriented perfectionism* (e.g., If I ask someone to do something, I expect it to be done flawlessly), and *socially prescribed perfectionism* (e.g., My family expects me to be perfect). A growing amount of evidence indicates that the MPS subscales have adequate reliability and validity (Enns & Cox, 2002; Hewitt, Flett, Turnbull-Donovan, & Mikail, 1991). In the current study, the three dimensions had adequate internal consistency, with respective alpha coefficients of .80, .78, and .85 for self-oriented, other-oriented, and socially prescribed perfectionism.

*The Visual Analogue Scale.* Current affect was assessed pre-task performance post-test performance after subjects received feedback, using the Visual Analogue Scale (VAS: Albersnagel, 1988), composed of 18 mood adjectives. The participant is asked to indicate how he or she is feeling “at the moment” by placing vertical mark on each 80-mm line anchored at 0 and 100% with opposing labels for each adjective (e.g., *not at all sad to extremely sad*). The four affective states assessed were: *dysphoria* (depressed, sad, blue, and lost), *hostility* (hostile, irritable, annoyed, and disagreeable), *anxiety* (anxious, nervous, uneasy, and tense), and *positive affect* (happy, glad, pleased, and cheerful). The  $\alpha$  coefficients in the current study for the pre-task measures were .83 for dysphoria, .79 for hostility, .86 for anxiety, and .80 for positive affect. The alpha coefficients in the current study for the post-task affect measures were .80 for dysphoria, .81 for hostility, .88 for anxiety, and .79 for positive affect.

*Cognitive and Performance Appraisals.* The cognitive and performance appraisal measures consisted of a series of individual questions involving seven-point Likert-type response scales. Specifically, the following measures were completed:

*Challenge appraisal* – To what extent did you regard performing this task as challenging and fun? [*not at all* (1) to *very much* (7)]; *Threat appraisal* – To what extent did you regard performing this task as threatening and unenjoyable? [*not at all* (1) to *very much* (7)]; *Cognitive rumination* – How difficult is it for you to stop thinking about the mistakes you made? [*not at all* (1) to *very much* (7)]; *Fear of failure* – To what extent were you afraid that you would fail? [*not at all* (1) to *very much* (7)]; *Personal importance of performance* – How important was it for you to do well on this task? [*not at all* (1) to *very much* (7)]; *Beliefs about others’ evaluations* – To what extent do you believe others seeing your performance would perceive you as less intelligent? [*being stupid* (1) *average* (4), and *intelligent* (7)]; *Comparative evaluation of performance (social comparison)* – To what extent do you believe others performed better than you in this task? [*not at all* (1) to *very much* (7)]; *Task difficulty for others* – To what degree do you think the task was difficult for others? [*not at all* (1) to *very much* (7)]; *Task difficulty for self* – To what degree do you think the task was difficult? [*not at all* (1) to *very much* (7)]; *Unmet expectations* – To what degree do you think, “You should have done better?” [*not at all* (1) to *very much* (7)]; *Disappointment with performance* – How disappointed are you with your

performance? [*not at all* (1) to *very much* (7)]; *Dissatisfaction with performance* – Please rate your general levels of satisfaction with performance [*not at all* (1) to *very much* (7)]; and *Manipulation check* – To what extent did you see the feedback you received as believable? [*not at all* (1) to *very much* (7)].

*Objective Performance.* Reaction times (RTs in milliseconds) and number of choice errors were recorded automatically during the task to obtain objective performance measures.

## RESULTS

The first set of analyses examined the effectiveness of the manipulated experimental conditions. We used measures of objective performance and two post-task evaluations (difficulty for self, difficulty for others) to check the difficulty condition and one post-task evaluation manipulation check (i.e., feedback reliability) to evaluate the feedback manipulation.<sup>1</sup>

### *Task Difficulty Effect on Objective Performance*

The first analyses assessed whether the CRT three vs. six choice conditions actually resulted in different levels of objective performance. We conducted *t*-tests for independent samples with CRT three vs. six choices as the independent variable and objective performance criteria (mistakes and RT scores) as the dependent variables. Analyses revealed significant differences with three choices yielding significantly fewer mistakes ( $t[198]=2.86$ ,  $p < .004$ ;  $M = 3.54$ ,  $SD = 5.60$  and  $M = 6.18$ ,  $SD = 7.33$ , respectively) and significantly lower reaction times (RTs) than the six choices ( $t [198]=15.76$ ,  $p < .0001$ ;  $M = 558.36$ ,  $SD = 92.14$  and  $M = 922.96$ ,  $SD = 216.12$ , respectively).

### *Task Difficulty and Feedback Effect on Post-Task Manipulation Check*

Next, we conducted a  $2 \times 2$  ANOVA with task difficulty and feedback as the independent variables on the dependent variable of post-task reports of the believability of feedback. Results indicated that participants

<sup>1</sup>In a preliminary MANOVA, no significant differences were obtained for participants under easy or difficult task or for participants under positive or negative feedback in levels of MPS scores nor task difficulty  $\times$  feedback interaction effects on these scores. Thus significant effects for the study manipulations should not be attributed to possible initial differences in participants' MPS personality scores.

who received positive feedback reported the feedback to be more believable ( $M = 4.72$ ,  $SD = 1.79$ ) than did participants in the negative feedback condition ( $M = 3.73$ ,  $SD = 1.95$ ) ( $F[1, 196] = 13.95$ ,  $p < .0002$ ). There were no other significant effects.

### *Task Difficulty and Feedback Effect on Perceived Task Difficulty for Self and for Others*

We conducted a  $2 \times 2$  MANOVA with task difficulty and feedback as the independent variables and post-task appraised difficulty for self and for others as the dependent variables. Results indicated significant main effect for task difficulty on perceived task difficulty for self ( $F[1, 196] = 9.67$ ,  $p < .002$ ) and for task difficulty on perceived task difficulty for others ( $F[1, 196] = 6.33$ ,  $p < .01$ ) with participants who performed the CRT six choices version reporting the task as being significantly harder for them ( $M = 2.77$ ,  $SD = 1.68$ ) than participants who performed the three choice version ( $M = 2.13$ ,  $SD = 1.35$ ). Similarly, participants who performed the CRT six choices version reported the task as being harder for others ( $M = 3.50$ ,  $SD = 1.47$ ) than did participants who performed the three choices version ( $M = 3.00$ ,  $SD = 1.50$ ). A significant main effect was also obtained for feedback on task difficulty for self ( $F[1, 196] = 14.56$ ,  $p < .0001$ ) and on task difficulty for others ( $F[1, 196] = 13.72$ ,  $p < .0002$ ) with participants who received the negative feedback rating the task as being significantly harder for them ( $M = 2.85$ ,  $SD = 1.70$ ) than did participants who received the positive feedback ( $M = 2.06$ ,  $SD = 1.28$ ). Also, participants who received the negative feedback reported the task as being harder for others ( $M = 3.63$ ,  $SD = 1.59$ ) than did participants who received the positive feedback ( $M = 2.88$ ,  $SD = 1.31$ ). The interactions of task difficulty by feedback were not significant.

These analyses confirmed that the two tasks and feedback conditions are different in level of objective and subjective difficulty. Accordingly, in the hierarchical multiple regressions (HMRs), the number of mistakes was used as the objective performance variable since it reflects actual mistakes, and concerns over mistakes is an integral aspect of the perfectionism construct.

### *Task Difficulty and Feedback Effect on Post-Task Current Affect*

A MANCOVA was performed with task difficulty (easy vs. difficult) and feedback (positive vs. negative) as the independent variables and

the four post-task performance current affect variables (dysphoria, hostility, anxiety, and positive affect) as the dependent variables in order to test the effect of task difficulty and feedback on post-task performance current affect. The four pre-task performance affects were covaried to control for baseline levels of state affect. Regardless of task difficulty, our results indicated a significant effect of feedback on post-task state affects with participants under the negative task feedback condition reporting significantly more dysphoria ( $F[1, 192] = 21.13$ ,  $p < .0001$ ;  $M = .92$ ,  $SD = .89$  vs.  $M = .69$ ,  $SD = .79$ ), hostility ( $F[1, 192] = 13.95$ ,  $p < .0002$ ;  $M = 1.20$ ,  $SD = .62$  vs.  $M = 1.09$ ,  $SD = .54$ ), anxiety ( $F[1, 192] = 20.18$ ,  $p < .0001$ ;  $M = 1.36$ ,  $SD = .63$  vs.  $M = 1.21$ ,  $SD = .50$ ), and less positive affect ( $F[1, 192] = 25.11$ ,  $p < .0001$ ;  $M = 2.32$ ,  $SD = 1.0$  vs.  $M = 2.72$ ,  $SD = .88$ ) than was reported by participants in the positive task feedback condition. No significant effects were obtained for the task difficulty or for the task difficulty by feedback interaction on post-task affect.

#### *Task Difficulty and Feedback Effect on Post-Task Cognitive and Performance Appraisals*

In order to test for the effect of task difficulty and feedback on post-task cognitive and performance appraisals, a MANCOVA was performed with task difficulty (easy vs. difficult) and feedback (positive vs. negative) as the independent variables and 10 post-task cognitive and performance appraisals (disappointment with performance, unmet expectations, beliefs about others' evaluations, comparative evaluation of performance (social comparison), dissatisfaction with performance, challenge appraisal, threat appraisal, cognitive rumination, fear of failure, and personal importance) as the dependent variables. The four pre-task and the four post-task performance affects were covaried. To insure that the overall chance of making a Type I error was still less than .05, a full Bonferroni correction was employed, so effects were considered to be statistically significant at  $p < .01$ .

Results indicated significant effects only for the feedback on the following post-task cognitive and performance appraisals. Participants in the negative feedback condition, relative to those in the positive feedback condition, reported that they were more disappointed with their performance ( $F[1, 188] = 31.79$ ,  $p < .00001$ ;  $M = 4.23$ ,  $SD = 2.11$  vs.  $M = 2.24$ ,  $SD = 1.62$ , respectively), they did not meet their expectations and needed to do better ( $F[1, 188] = 32.93$ ,  $p < .00001$ ;  $M = 5.28$ ,  $SD = 1.63$  vs.  $M = 3.58$ ,  $SD = 1.85$ , respectively), they believed others seeing them

would think they are less intelligent ( $F[1, 188] = 15.55, p < .00001; M = 4.47, SD = 1.1$  vs.  $M = 5.17, SD = .98$ , respectively), and they were less satisfied with their performance ( $F[1, 188] = 51.58, p < .00001; M = 3.56, SD = 1.60$  vs.  $M = 5.45, SD = 1.30$ ). No significant effects were found for task difficulty or for the task difficulty by feedback interaction on the post-task cognitive and performance appraisals.

### *Correlations between Perfectionism and Affective States*

Correlations between self-oriented and socially prescribed perfectionism with pre-task and post-task affective states revealed that socially prescribed perfectionism was associated with pre-task dysphoria ( $r = .28, p < .0001$  and  $r = .20, p < .005$ ), and with pre-task and post-task hostility ( $r = .18, p < .01$  and  $r = .15, p < .03$ ). Socially prescribed perfectionism was also associated with pre-task and post-task anxiety ( $r = .24, p < .001$  and  $r = .19, p < .006$ ) but not with pre- and post-task positive affect ( $r = -.07$  ns and  $r = -.06$  ns).

Self-oriented perfectionism was not associated significantly with pre-task affective states (for dysphoria  $r = .05$ , ns; for hostility  $r = .10$ , ns; for anxiety  $r = .09$ , ns; and for positive affect  $r = .05$ , ns). However, self-oriented perfectionism was associated significantly with post-task measures of dysphoria ( $r = .14, p < .05$ ), hostility ( $r = .19, p < .007$ ), and anxiety ( $r = .23, p < .001$ ). It was not associated with post-task positive affect ( $r = .04$ , ns).

### *Task Difficulty, Feedback, and Objective Performance in the Prediction of Post-Task Affective States and Cognitive and Performance Appraisals: The Role of Perfectionism<sup>2</sup>*

The data analytic strategy involved Hierarchical Multiple Regressions (HMRs) (Cohen & Cohen, 1983). In order to estimate the role of perfectionism in the association between task conditions (difficulty and feedback) and task objective performance (errors/mistakes) on changes in affective states and post-task cognitive and performance appraisals, the regression equation included the following steps: In the first step, task difficulty and feedback were entered as dummy variables (0 = easy and 1 = difficult and 0 = negative and 1 = positive,

<sup>2</sup>A preliminary regression with self-oriented perfectionism, socially prescribed perfectionism, task difficulty and self-oriented  $\times$  task difficulty and socially prescribed  $\times$  task difficulty on objective performance (errors/mistakes) scores indicated that there was only a significant effect for task difficulty on mistakes. There were no significant effect for MPS dimensions or for the MPS interactions with task difficulty.

respectively) along with the objective performance (errors/mistakes). The two MPS variables (self-oriented and socially prescribed perfectionism) were entered in the second step. Other-oriented perfectionism was not included due to its limited relevance in this study. In the next step the two-way interactions of each of the two MPS variables with task difficulty, feedback and objective performance (errors/mistakes) were entered. And, in the final step, the three-way interactions of each of the two MPS variables with task difficulty and objective performance and with feedback and objective performance were entered. For the regression on affective states in the first step we also entered the pre-task affect thus controlling for baseline levels of affect and predicting *changes* in post-task affective states, post-task performance due to the manipulated variables (difficulty and feedback) and performance (errors/mistakes).<sup>3</sup>

### *Models for Changes in Affect*

1. Dysphoric affect: After controlling for pre-task dysphoria ( $\beta = .65$ ,  $p < .0001$ ,  $F[1, 198] = 142.5$ ,  $p < .0001$ ), a significant increase in dysphoric affect was found for participants who received negative feedback and for those high in self-oriented perfectionism ( $\beta = -.23$ ,  $p < .0001$  and  $\beta = .11$ ,  $p < .03$  respectively;  $F[5, 194] = 36.54$ ,  $p < .0001$ ). Next, no significant two-way or three-way interactions were obtained. The final regression explained significantly 49% of the variance in post-task dysphoria ( $F[10, 189] = 18.38$ ,  $p < .0001$ ).
2. Anxiety affect: After controlling for pre-task anxiety affect ( $\beta = .53$ ,  $p < .0001$ ,  $F[1, 198] = 77.96$ ,  $p < .0001$ ), a significant increase in anxious affect was found for participants who received negative feedback and for those high in self-oriented perfectionism ( $\beta = -.22$ ,  $p < .0001$  and  $\beta = .19$ ,  $p < .001$  respectively;  $F[5, 194] = 23.00$ ,  $p < .0001$ ). Next, no significant two-way or three-way interactions were obtained. The final model explained significantly 38% of the variance in post-task anxiety ( $F[10, 189] = 11.58$ ,  $p < .0001$ ).
3. Hostility affect: After controlling for pre-task hostility affect ( $\beta = .61$ ,  $p < .0001$ ,  $F[1, 198] = 116.30$ ,  $p < .0001$ ), a significant increase in hostile affect was found for participants who received negative feedback and for those high in self-oriented perfectionism ( $\beta = -.19$ ,  $p < .001$  and  $\beta = .13$ ,  $p < .01$  respectively;  $F[5, 194] = 29.27$ ,

---

<sup>3</sup>Based on preliminary HMR analyses, socially prescribed perfectionism was not predictive—no main or interaction effects were found for socially prescribed perfectionism on affect or appraisals. Accordingly, subsequent analyses were performed only with self-oriented perfectionism, and it is the results of these analyses that are reported.

$p < .0001$ ). Next, no significant two-way interactions were obtained. In the final step, a significant self-oriented *times* objective performance *times* task difficulty interaction was obtained ( $\beta = .27$ ,  $p < .01$ ) and the final model explained significantly 45% in the variance of post-task hostility ( $F[10, 189] = 15.4$ ,  $p < .0001$ ). Plotting the significant self-oriented *times* objective performance *times* task difficulty interaction on pre- and post-task changes in hostility scores according to Cohen and Cohen's (1983, p. 323 and p. 419) recommendations showed that under conditions of a difficult task and low mistakes there were no differences between high and low self-oriented perfectionists in changes in hostility scores. However, under conditions of a difficult task and high mistakes, there were increases in levels of hostility among high self-oriented perfectionists, relative to low self-oriented perfectionists. However, when presented with an easy task and high mistakes, no differences in changes in levels of hostility were obtained between high and low self-oriented perfectionists.

4. Positive affect: After controlling for pre-task positive affect ( $\beta = .64$ ,  $p < .0001$ ,  $F[1, 198] = 137.12$ ,  $p < .0001$ ), a significant increase in positive affect was found for participants who received positive feedback ( $\beta = .26$ ,  $p < .0001$ ;  $F[5, 194] = 36.14$ ,  $p < .0001$ ). Next, significant two-way interactions were obtained for self-oriented perfectionism *times* feedback and for self-oriented perfectionism *times* objective performance. No significant 3-way interaction was obtained in the final step. The final model explained significantly 51% of the variance of post-task positive affect ( $F[10, 189] = 19.99$ ,  $p < .0001$ ). Plotting the significant self-oriented perfectionism *times* feedback and the self-oriented perfectionism *times* performance interactions on pre-task and post-task changes in positive affect scores using the same procedures as before showed that: (1) self-oriented perfectionism *times* objective performance: high self-oriented perfectionists reported a significant decrease in positive affect under high mistakes vs. low mistakes while no differences were found for low self-oriented perfectionists under high versus low mistakes; and (2) self-oriented perfectionism *times* feedback: under negative feedback, self-oriented perfectionists report a decrease in post-task positive affect, relative to post-task positive affect following positive feedback. When the feedback was positive, high self-oriented perfectionists, relative to low self-oriented perfectionists, reported a significant increase in positive affect. Thus, self-oriented perfectionists who received positive feedback had increased positive affect, but those who experienced negative feedback had less positive affect after the task.

*Models for Cognitive Appraisals*

1. **Disappointment With Performance:** participants under negative feedback and high self-oriented perfectionists were reported to be more disappointed with their performance ( $\beta = -.48, p < .0001$  and  $\beta = .24, p < .0001$  respectively;  $F[4, 195] = 18.71, p < .0001$ ). Next, a significant self-oriented perfectionism *times* feedback interaction was obtained ( $\beta = -.81, p < .02$ ;  $F[7, 192] = 11.61, p < .0001$ ). In the final step, a significant self-oriented *times* objective performance *times* feedback interaction was obtained ( $\beta = .24, p < .05$ ). The final model explained significantly 31% of the variance of Disappointment With Performance ( $F[9, 190] = 9.56, p < .0001$ ). Plotting the significant self-oriented perfectionism *times* feedback and the self-oriented *times* objective performance *times* feedback interactions on Disappointment With Performance using the same procedures as before showed that: (a) Self-oriented perfectionism *times* feedback: under positive feedback both high and low self-oriented perfectionist were significantly less disappointed with their performance than under negative feedback while under negative feedback high self-oriented perfectionist were significantly greater dissatisfied than low self-oriented perfectionists. (b) Self-oriented *times* objective performance *times* feedback: under positive feedback and low mistakes both high and low self-oriented perfectionists were less disappointed with their performance while when the feedback was positive but their mistakes were high, high self-oriented perfectionists were significantly more disappointed with performance than the low self-oriented perfectionists. When the feedback was negative, regardless of mistakes, high self-oriented perfectionists were significantly more disappointed with performance (i.e. under both low and high mistakes) than low self-oriented perfectionist.
2. **Unmet Expectations:** participants receiving negative feedback and high in self-oriented perfectionism reported greater unmet expectations and a need to perform better ( $\beta = -.46, p < .0001$  and  $\beta = .14, p < .02$ , respectively;  $F[4, 195] = 13.84, p < .0001$ ). Next, significant self-oriented perfectionism *times* feedback and self-oriented perfectionism *times* task difficulty interactions were obtained ( $\beta = -.81, p < .02$  and  $\beta = -.79, p < .02$ , respectively;  $F[7, 192] = 9.23, p < .0001$ ). In the final step no significant 3-way interactions were obtained. The final model explained significantly 27% of the variance in Unmet Expectations ( $F[9, 190] = 7.70, p < .0001$ ). Plotting the significant self-oriented perfectionism *times* feedback and self-oriented perfectionism *times* task difficulty interactions on Unmet Expectations using the same procedures as before showed that: (a) Self-oriented

perfectionism *times* feedback: under negative feedback high self-oriented perfectionists reported significantly higher unmet expectations than low self-oriented perfectionists while both reported low unmet expectations when the feedback was positive. (b) Self-oriented perfectionism *times* task difficulty: when the task was relatively easy, high self-oriented perfectionists reported significantly higher unmet expectations than did low self-oriented perfectionists, while in the difficult task condition, high self-oriented perfectionists reported significantly lower levels of unmet expectations than did the low self-oriented perfectionists.

3. Beliefs about Others' Evaluations: Participants with positive feedback reported more positive beliefs about how others would see their performance ( $\beta = .32, p < .0001; F[4, 195] = 8.16, p < .0001$ ). Next, no significant two-way interactions were obtained ( $F[7, 192] = 4.73, p < .0001$ ). In the final step, a significant self-oriented perfectionism *times* objective performance *times* feedback interaction was obtained and the final model explained significantly 18% of the variance in Beliefs about Others' Evaluations ( $F[9, 190] = 4.50, p < .0001$ ). The plot of the interaction effect using the same procedures as before showed that: under positive feedback, both high and low self-oriented perfectionists reported that others would perceive them as less intelligent if they made a high number of mistakes versus a low number of mistakes. Both high and low self-oriented perfectionists under low mistakes reported that others would perceive them as less intelligent when the feedback was negative than when it was positive; however, this positive effect was stronger for the low self-oriented perfectionists. Both low and high self-oriented perfectionists thought others would perceive them as less intelligent when they made low mistakes and received negative feedback.
4. Comparative Evaluation of Performance (social comparison): participants receiving negative feedback and high self-oriented perfectionists reported that other performed better than they did ( $\beta = -.17, p < .02$  and  $\beta = .15, p < .03$ , respectively;  $F[4, 195] = 3.02, p < .02$ ). No significant two-way or three-way interactions were obtained. The final model explained significantly 8% of the variance of Comparative Evaluation of Performance ( $F[9, 190] = 2.0, p < .05$ ).
5. Dissatisfaction With Performance: participants receiving negative feedback reported high general dissatisfaction with their performance ( $\beta = .55, p < .000; F[4, 195] = 22.27, p < .0001$ ). No significant two-way interactions were obtained. In the final step, a significant self-oriented *times* objective performance *times* feedback interaction was obtained and the final model explained significantly 35% of the vari-

ance in Dissatisfaction With Performance ( $F[9, 190] = 11.16, p < .0001$ ). The plot of the interaction effect using the same procedures as before showed that under positive feedback and high mistakes, high self-oriented perfectionists were significantly less satisfied with their performance than were low self-oriented perfectionists. However, under low mistakes and positive feedback, both low and high self-oriented perfectionists were highly satisfied. Furthermore, under negative feedback and low mistakes, high self-oriented perfectionists, relative to low self-oriented perfectionists, were significantly less satisfied with their general performance.

6. Cognitive rumination about mistakes: participants receiving negative feedback and high self-oriented perfectionists reported greater cognitive rumination following performance mistakes ( $\beta = -.18, p < .01$  and  $\beta = .25, p < .0001; F[4, 195] = 4.82, p < .001$ ). Next, a significant self-oriented perfectionism *times* feedback interaction was obtained ( $\beta = -.91, p < .02; F[4, 195] = 4.25, p < .001$ ). In the final step, a significant self-oriented *times* objective performance *times* feedback interaction was obtained and the final model explained significantly 16% of the variance in cognitive rumination ( $F[9, 190] = 4.03, p < .0001$ ). The plot of the two-way interaction effect using the same procedures as before showed that: (a) Self-oriented perfectionism *times* feedback: under negative feedback high self-oriented perfectionists were significantly more ruminative than low self-oriented perfectionists. High self-oriented perfectionists were significantly more ruminative under negative than under positive feedback while low self-oriented perfectionists were significantly less ruminative, regardless of the feedback they obtained. (b) Self-oriented *times* objective performance *times* feedback: under positive feedback, high rumination was reported by high and low self-oriented perfectionists under high mistakes while under positive feedback and low mistakes, high self-oriented perfectionists were more ruminative than low self-oriented perfectionists. When feedback was negative, high self-oriented perfectionists were highly ruminative when their actual performance had a low number of mistakes.
7. Personal Importance: high self-oriented perfectionists reported that it was highly important for them to do well ( $\beta = .27, p < .0001; F[4, 195] = 5.37, p < .0001$ ). No significant two-way interactions were obtained. However, in the final step, a significant self-oriented *times* performance *times* feedback interaction was obtained and the final model explained significantly 15% of the variance in Personal Importance ( $F[9, 190] = 3.73, p < .0001$ ). The plot of the interaction effect using the same procedures as before showed that under positive feedback and high mistakes, high self-oriented perfectionists,

compared to low self-oriented perfectionists, reported that it was highly important for them to do well. Similarly, high self-oriented perfectionists, relative to non-perfectionists, reported that it was highly important for them to perform well following negative feedback and after making a high number of mistakes.

Finally, the HMRs for the prediction of challenge appraisal, threat appraisal, and for fear of failure did not yield any significant effects.

## DISCUSSION

The present study examined the association between trait perfectionism and affective reactions in a task situation that varied in level of difficulty. Participants received positive versus negative feedback about their performance and were evaluated in terms of their affective and cognitive responses to their performance and feedback about their performance.

Initially, it was important to establish that the feedback manipulation was effective given that there are no published studies examining perfectionists' response to positive versus negative feedback. Analyses confirmed that those participants who experienced negative feedback, relative to those who experienced positive feedback, had significantly greater increases in all three negative affects (i.e., anxiety, dysphoria, and hostility) and had significantly lower positive affect. Moreover, analyses of cognitive variables showed that those participants who received negative feedback as opposed to positive feedback were much more disappointed with their performance and gave more negative comparative evaluations when appraising their levels of performance. Thus, the feedback manipulation had a substantial influence on our participants.

Analyses of the baseline mood ratings showed that prior to attempting the task, participants characterized by elevated levels of socially prescribed perfectionism had higher levels of anxiety, dysphoria, and hostility. These data are in keeping with the extensive literature linking socially prescribed perfectionism with psychological distress (see Hewitt et al., 2003; Sherry et al., 2003). However, socially prescribed perfectionism was not associated with significant increases in negative affect or decreases in positive affect after attempting the task.

In contrast, self-oriented perfectionism was not associated significantly with the baseline measures of mood, but high self-oriented

perfectionism was associated with significant increases in all three negative affective states. These increases in levels of negative affect among self-oriented perfectionists occurred regardless of whether these perfectionists were in the positive or negative feedback condition and regardless of task difficulty or their actual performance. This finding is similar to the results of another recent study which found that perfectionists in a naturalistic achievement situation (i.e., taking exams) experienced more negative affect involving the performance situation, regardless of whether they met their goal (see Bieling, Israeli, Smith, & Antony, 2003).

Other findings in the current study indicated that self-oriented perfectionists were not entirely unresponsive to positive feedback. That is, self-oriented perfectionists who experienced positive feedback reported elevated levels of positive affect. However, this finding must be interpreted within the context of other findings, including the previously mentioned tendency for self-oriented perfectionists to experience increased levels of negative affect, regardless of whether they were in the positive or negative feedback condition. In addition, the positive feedback manipulation did not result in positive cognitions; self-oriented perfectionists, regardless of feedback valence and task difficulty, had more negative evaluations of their performance when asked to compare how they did to how others would have done. Thus, it seems that the positive feedback experienced by the perfectionists did not have a substantial positive impact, perhaps because these individuals were seeking absolute perfection (i.e., they must be perfect) and the tasks were structured so that it was virtually impossible to achieve perfect performance. Thus, in many respects, it seems that self-oriented perfectionists found ways to discount positive feedback in a manner similar to the depressive tendency to minimize positive feedback (see Beck, 1967).

The analyses of hostility showed that perfectionists were influenced at an affective level by situational parameters and performance-related variables. One clear finding that emerged is that self-oriented perfectionists, relative to those low in self-oriented perfectionism, reported increased levels of hostility when they attempted the difficult task and made a high number of mistakes. This is a particularly interesting finding in that most studies have focused on anxiety and depression and research on anger and hostility has been less common, despite indications that dimensions of trait perfectionism are often associated with hostility and anger (see Hewitt & Flett, 1991; Hewitt et al., 2002). The established link between self-oriented perfectionism and hostility

in the current study is consistent with the results of a recent correlational study that linked self-oriented perfectionism and hostility in a community sample (see Saboonchi & Lundh, 2003). This association between self-oriented perfectionism and hostility may have some very significant implications in terms of the long-term health consequences of pursuing perfection, given that hostility is a recognized risk factor for a wide variety of health problems and illnesses (see Miller, Smith, Turner, Guijarro, & Hallet, 1996; Suinn, 2001). Current research in our laboratory is using a similar task to explore the association between self-oriented perfectionism and reactivity in terms of physiological functioning (Besser, Flett, Hewitt, & Jonathan 2004).

We also found that self-oriented perfectionists, relative to those low in this trait dimension, reported decreased levels of positive affect when they had made a high number of mistakes. In addition, self-oriented perfectionists who experienced negative feedback also had lower levels of positive affect. These findings illustrate the need to jointly examine perfectionism and feedback related to goal attainment and performance. The finding that self-oriented perfectionists who receive negative feedback experienced a decrease in positive affect supports the view that self-oriented perfectionism is not necessarily adaptive but, in fact, represents a vulnerability factor that is activated when negative outcomes are experienced (see Hewitt & Flett, 1993; Hewitt, Flett, & Ediger, 1996). Presumably, chronic negative feedback would be extremely deleterious for self-oriented perfectionists, so an obvious treatment goal is to foster ways of decreasing their responsiveness and reactivity to feedback that highlights their imperfections.

As was the case with the affect measures, most of the significant findings derived from the cognitive measures involved self-oriented rather than socially prescribed perfectionism. Although some effects involving socially prescribed perfectionism might be expected, note that our manipulation did not include an explicit emphasis on social expectations and the expected levels of performance. Moreover, after the initial instructions were delivered, participants attempted the task while by themselves as the experimenter left the room, while remaining available to be called if questions arose. Presumably, more effects involving socially prescribed perfectionism would have been evident if social evaluative cues had become a more explicit focus of our investigation.

Other significant differences that were obtained in this study are entirely in keeping with the claim that self-oriented perfectionism is a

significant vulnerability factor for psychological distress when paired with personal setbacks and achievement failures (see Hewitt & Flett, 1993; Hewitt et al., 1996). First, our findings indicated that regardless of the actual number of mistakes that were made, self-oriented perfectionists who received negative feedback were particularly disappointed with their performance. Moreover, self-oriented perfectionists who experienced a mismatch between the feedback received and their performance (i.e., they experienced positive feedback but made a high number of mistakes or they experienced negative feedback but made a relatively low number of mistakes) were especially dissatisfied with their performance. The general pattern of findings replicates previous studies that have documented the performance dissatisfaction of self-oriented perfectionists (see Enns et al., 2001; Mor et al., 1995), and our findings fit nicely with descriptions of neurotic perfectionists who have a deep and abiding sense of personal dissatisfaction (Hamachek, 1978; Missildine, 1963). One of the most troubling aspects of the apparent link between self-oriented perfectionism and performance dissatisfaction is that perfectionists seem unwilling to lower their goals, and in fact, maintain their high standards when performance is not satisfactory (see Bieling et al., 2003). There are also indications that for some people the experience of negative mood states in performance settings may actually be associated with a tendency to *increase minimally acceptable standards* (Cervone, Kopp, Schaumann, & Scott, 1994) and perfectionists are particularly likely to exhibit this characteristic. This tendency may be exacerbated further by a general tendency for perfectionists to be cognitively inflexible (Ferrari & Mautz, 1997). Thus, perfectionists would benefit substantially from cognitive interventions focused on developing a more flexible approach to goal setting and attainment, and modifying evaluative sets so that they can come to regard their performances with a degree of satisfaction.

Another problematic characteristic is the tendency for perfectionists to place undue importance on the outcomes they experience (see Ellis, 2002). Our analyses showed that participants with high self-oriented perfectionism were especially likely to regard their performance as important, especially when they had made a high number of mistakes in either the positive or negative feedback conditions. The general tendency for self-oriented perfectionists to place increased importance on task performance accords with the view that dysfunctional perfectionism involves an irrational sense of importance, and a central treatment goal should be to reduce this irrational importance (see Ellis, 2002).

Other analyses confirmed past observations that perfectionists engage in excessive rumination in response to achievement setbacks (see Flett et al., 1998). We found that self-oriented perfectionism was associated with greater cognitive rumination about mistakes made during the task, and this tendency was exacerbated when perfectionists received failure feedback. These data suggest that many self-oriented perfectionists who experience negative outcomes are preoccupied cognitively with their inability to attain perfection, and they may be highly focused on past misdeeds and failures. If this cognitive preoccupation persists, it can only serve to highlight the fact that there is a difference between the actual self and the ideal self (Hewitt & Genest, 1990), and this may aversive self-awareness may contribute to further increases in dysphoria. The clear implication of this finding and previous research on rumination in perfectionism is that perfectionists should benefit substantially from cognitive interventions designed to replace negative automatic thoughts with positive automatic thoughts.

### *Limitations of the Current Study*

Although the current investigation yielded many unique findings, some limitations must be acknowledged. First, and foremost, in research of this nature, there is always a concern about demand characteristics and the perceived meaningfulness of the experimental situation. As a result, it will be important to attempt to replicate these findings in other experiments, and establish the generalizability of our findings in more naturalistic settings. Second, we limited our focus to the MPS and it will be important to examine how other dimensions of perfectionism (e.g., concern over mistakes) operate in this context. Finally, future research with other populations is needed to establish the generalizability of our findings.

In summary, the current study examined the association between trait perfectionism and the experience of positive versus negative feedback on a task of varying levels of difficulty. The results established that individuals with elevated self-oriented perfectionism tend to respond to challenging tasks by experiencing increases in negative affect and decreases in positive affect, and this occurs not only when performance feedback is negative but also when performance feedback is positive. Moreover, these changes in mood states are accompanied by a host of negative cognitive tendencies, including a tendency to evaluate performance in a negative manner, especially when self-oriented perfectionists receive negative feedback. Also, these perfectionists are likely to view

task performance as quite important and engage in rumination about their performance. Collectively, these data highlight the psychological vulnerabilities inherent in self-oriented perfectionism and suggest that certain perfectionists should benefit from interventions designed to improve their affective and cognitive responses tendencies.

## ACKNOWLEDGMENTS

We extend our appreciation to Dr. Jonathan Guez, from Ben Gurion University of the Negev, Israel, for his teamwork in the computer programming and for his constructive comments on an earlier draft of this paper and the ideas involved. We would also like to acknowledge Sagi Granot, from Sapir Academic College, Israel, for his invaluable assistance in data collection.

## REFERENCES

- Albersnagel, F. A. (1988). Velten and musical mood induction procedures: A comparison with accessibility of thought associations. *Behaviour Research and Therapy*, *26*, 79–96.
- Antony, M. M., Purdon, C. L., Huta, V., & Swinson, R. P. (1998). Dimensions of perfectionism across the anxiety disorders. *Behaviour Research and Therapy*, *36*, 1143–1154.
- Beck, A. T. (1967). *Depression: Clinical, experimental, and theoretical aspects*. New York: Harper and Row.
- Besser, A., Flett, G. L., & Hewitt, P. L. & Jonathan, G. (in press). Perfectionism and physiological reactivity in response to performance feedback. *Journal of Rational-Emotive Cognitive Behavior Therapy*.
- Bieling, P. J., Israeli, A., Smith, J., & Antony, M.M. (2003). Making the grade: The behavioural consequences of perfectionism in the classroom. *Personality and Individual Differences*, *35*, 163–178.
- Blatt, S. J. (1995). The destructiveness of perfectionism: Implications for the treatment of depression. *American Psychologist*, *50*, 1003–1020.
- Brown, E. J., Makris, G. S., Juster, H. R., Leung, A. W., Heimberg, R. G., & Frost, R. O. (1999). Relationship of perfectionism to affect, expectations, attributions, and performance in the classroom. *Journal of Social and Clinical Psychology*, *18*, 98–120.
- Burns, D. (1980). The perfectionist's script for self-defeat. *Psychology Today (November)* 34–51.
- Burns, D. D., & Beck, A. T. (1978). Cognitive behavior modification of mood disorders. In J. P. Foreyt, & D. P. Rathjen (Eds.), *Cognitive behavior therapy: Research and application* (pp. 109–134). New York: Plenum.

- Cervone, D., Kopp, D. A., Schaumann, L., & Scott, W. D. (1994). Mood, self-efficacy, and performance standards: Lower mood induces higher standards for performance. *Journal of Personality and Social Psychology*, *67*, 499–512.
- Cockell, S. J., Hewitt, P. L., Seal, B., Sherry, S. B., Goldner, E. M., Flett, G. L., & Remick, R. A. (2002). Trait and self-presentational dimensions of perfectionism among women with anorexia nervosa. *Cognitive Therapy and Research*, *26*, 745–758.
- Cohen, J., & Cohen, P. (1983). *Applied multiple regression/correlation analysis for the behavioral sciences*. Erlbaum: Hillsdale, NJ.
- Craik, F. I. M., Govoni, R., Naveh-Benjamin, M., & Anderson, N. D. (1996). The effects of divided attention on encoding and retrieval processes in human memory. *Journal of Experimental Psychology: General*, *125*, 159–180.
- 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.
- Ellis, A. (2002). The role of irrational beliefs in perfectionism. In G. L. Flett, & P. L. Hewitt (Eds.), *Perfectionism: Theory, research, and treatment* (pp. 217–229). Washington, DC: American Psychological Association.
- Enns, M. W., & Cox, B. J. (2002). The nature and assessment of perfectionism: A critical analysis. In G. L. Flett, & P. L. Hewitt (Eds.), *Perfectionism: Theory, research, and treatment* (pp. 33–62). Washington, DC: American Psychological Association.
- Enns, M. W., Cox, B. J., Sareen, J., & Freeman, P. (2001). Adaptive and maladaptive perfectionism in medical students: A longitudinal investigation. *Medical Education*, *35*, 1034–1042.
- Ferrari, J. R., & Mautz, W. T. (1997). Predicting perfectionism: Applying tests of rigidity. *Journal of Clinical Psychology*, *53*, 1–6.
- Flett, L. G., Besser, A., Davis, R., & Hewitt, P. L. (2003). Dimensions of perfectionism, unconditional self-acceptance, and depression. *Journal of Rational-Emotive and Cognitive-Behavior Therapy*, *21*, 119–138.
- Flett, G. L., Hewitt, P. L., Blankstein, K. R., & Gray, L. (1998). Psychological distress and the frequency of perfectionistic thinking. *Journal of Personality and Social Psychology*, *75*, 1363–1381.
- Flett, G. L., Hewitt, P. L., Endler, N. S., & Tassone, C. (1994/1995). Perfectionism and components of state and trait anxiety. *Current Psychology*, *13*, 326–350.
- Flett, G. L., Madorsky, D., Hewitt, P. L., & Heisel, M. J. (2002). Perfectionism cognitions, rumination, and psychological distress. *Journal of Rational-Emotive and Cognitive-Behavior Therapy*, *20*, 31–45.
- Frost, R. O., & Marten, P. A. (1990). Perfectionism and evaluative threat. *Cognitive Therapy and Research*, *14*, 559–572.
- Frost, R. O., Marten, P. A., Lahart, C., & Rosenblate, R. (1990). The dimensions of perfectionism. *Cognitive Therapy and Research*, *14*, 449–468.

- Frost, R. O., Trepanier, K. L., Brown, E. J., Heimberg, R. G., Juster, H. R., Makris, G. S., & Leung, A. W. (1997). Self-monitoring of mistakes among subjects high and low in perfectionistic concern over mistakes. *Cognitive Therapy and Research, 21*, 209–222.
- Frost, R. O., Turcotte, T., Heimberg, R. G., & Mattia, J. I. (1995). Reactions to mistakes among subjects high and low in perfectionistic concern over mistakes. *Cognitive Therapy and Research, 19*, 195–205.
- Hamachek, D. E. (1978). Psychodynamics of normal and neurotic perfectionism. *Psychology, 15*, 27–33.
- Haring, M., Hewitt, P. L., & Flett, G. L. (2003). Perfectionism, coping, and quality of intimate relationships. *Journal of Marriage and the Family, 65*, 143–158.
- Hewitt, P. L., Caelian, C. F., Flett, G. L., Sherry, S. B., Collins, L., & Flynn, C. A. (2002). Perfectionism in children: Associations with depression, anxiety, and anger. *Personality and Individual Differences, 32*, 1049–1061.
- 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*, 456–470.
- Hewitt, P. L., & Flett, G. L. (1993). Dimensions of perfectionism, daily stress, and depression: A test of the specific vulnerability hypothesis. *Journal of Abnormal Psychology, 102*, 58–65.
- Hewitt, P. L., & Flett, G. L. (2002). Perfectionism and stress in psychopathology. In G. L. Flett, & P. L. Hewitt (Eds.), *Perfectionism: Theory, research, and treatment* (pp. 255–284). Washington, DC: American Psychological Association.
- Hewitt, P. L., & Flett, G. L. (2004). *Multidimensional Perfectionism Scale: Technical manual*. Toronto: Multi-Health Systems Inc.
- Hewitt, P. L., Flett, G. L., Besser, A., Sherry, S. B., & McGee, B. J. (2003). Perfectionism is multidimensional: A reply to Shafran, Cooper, and Fairburn. *Behaviour Research and Therapy, 41*, 1221–1236.
- Hewitt, P. L., Flett, G. L., & Ediger, E. (1996). Perfectionism and depression: Longitudinal assessment of a specific vulnerability hypothesis. *Journal of Abnormal Psychology, 105*, 276–280.
- Hewitt, P. L., Flett, G. L., Turnbull-Donovan, W., & Mikail, S. (1991). The Multidimensional Perfectionism Scale: Reliability, validity, and psychometric properties in psychiatric samples. *Psychological Assessment, 3*, 464–468.
- Hewitt, P. L., Flett, G. L., & Weber, C. (1994). Perfectionism, hopelessness, and suicide ideation. *Cognitive Therapy and Research, 18*, 439–460.
- Hewitt, P. L., & Genest, M. (1990). The ideal-self: Schematic processing of perfectionistic content in dysphoric university students. *Journal of Personality and Social Psychology, 59*, 802–808.
- Hewitt, P. L., Mittelstaedt, W. M., & Flett, G. L. (1990). Self-oriented perfectionism and generalized performance importance in depression. *Individual Psychology, 46*, 67–73.
- Hewitt, P. L., Mittelstaedt, W. M., & Wollert, R. (1989). Validation of a measure of perfection. *Journal of Personality Assessment, 53*, 133–144.

- Hobden, K., & Pliner, P. (1995). Self-handicapping and dimensions of perfectionism: Self-presentation vs. self-protection. *Journal of Research in Personality, 29*, 461-474.
- Miller, T. Q., Smith, T. W., Turner, C. W., Guijarro, M. L., & Hallet, A. J. (1996). A meta-analytic review of research on hostility and physical health. *Psychological Bulletin, 119*, 322-348.
- Missildine, W. H. (1963). *Your inner child of the past*. New York: Pocket Books.
- Mor, S., Day, H. I., Flett, G. L., & Hewitt, P. L. (1995). Perfectionism, control, and components of performance anxiety in professional performers. *Cognitive Therapy and Research, 19*, 207-225.
- Naveh-Benjamin, M., Craik, F. I. M., Gavrilescu, D., & Anderson, N. P. (2000). Asymmetry between encoding and retrieval processes: Evidence from divided attention and a calibration analysis. *Memory & Cognition, 28*, 956-976.
- Naveh-Benjamin, M., Craik, F. I. M., Guez, J., & Dori, H. (1998). Effects of divided attention on encoding and retrieval processes in human memory: Further support for an asymmetry. *Journal of Experimental Psychology: Learning, Memory, and Cognition, 24*, 1091-1104.
- Nolen-Hoeksema, S. (1991). Responses to depression and their effects in the duration of depressive episodes. *Journal of Abnormal Psychology, 100*, 569-582.
- Roberts, S. M., & Lovett, S. B. (1994). Examining the "F" in gifted: Academically gifted adolescents' physiological and affective responses to scholastic failure. *Journal for the Education of the Gifted, 17*, 241-259.
- Saboonchi, F., & Lundh, L.-G. (2003). Perfectionism, anger, somatic health, and positive affect. *Personality and Individual Differences, 35*, 1585-1599.
- Sherry, S. B., Hewitt, P. L., Besser, A., McGee, B. J., & Flett, G. L. (2004). Self-oriented and socially prescribed perfectionism in the Eating Disorder Inventory perfectionism subscale. *International Journal of Eating Disorders, 35*, 69-79.
- Sherry, S. B., Hewitt, P. L., Flett, G. L., & Harvey, M. (2003). Perfectionism dimensions, perfectionistic attitudes, dependent attitudes, and depression in psychiatric patients and university students. *Journal of Counseling Psychology, 50*, 373-386.
- Slaney, R. B., Rice, K. G., Mobley, M., Trippi, J., & Ashby, J. S. (2001). The Revised Almost Perfect Scale. *Measurement and Evaluation in Counseling and Development, 34*, 130-145.
- Suinn, R. M. (2001). The terrible twos: anger and anxiety. *American Psychologist, 56*, 27-36.