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# Differential affective reactions to negative and positive feedback, and the role of self-esteem

**Remus Ilies**
*Eli Broad College of Business and Graduate School of Management, Michigan State University, East Lansing, Michigan, USA*
**Irene E. De Pater**
*University of Amsterdam, Amsterdam, The Netherlands*
**Tim Judge**
*Department of Management, Warrington College of Business, University of Florida, Gainesville, Florida, USA*


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Remus Ilies
*Eli Broad College of Business and Graduate School of Management, Michigan State University, East Lansing, Michigan, USA*
Irene E. De Pater
*University of Amsterdam, Amsterdam, The Netherlands, and*
Tim Judge
*Department of Management, Warrington College of Business, University of Florida, Gainesville, Florida, USA*

## Abstract

**Purpose** – The paper aims to examine, first, how performance feedback influences positive and negative affect within individuals across negative and positive feedback range, and secondly, whether self-esteem moderates individuals' affective reactions to feedback.

**Design/methodology/approach** – A sample of 197 undergraduate students completed an 8-trial experiment. For each trial, participants performed a task, received performance feedback, and were subsequently asked to report their affective state. Hierarchical linear modeling was used to test the hypothesized within- individual effects and the cross-level moderating role of self-esteem.

**Findings** – Performance feedback did influence both positive and negative affect within individuals and feedback indicating goal non-attainment (i.e. negative feedback) increased negative affect more than it reduced positive affect. The data offered some support for the prediction with respect to the moderating role of self-esteem derived from self-enhancement theory.

**Research limitations / implications** – The laboratory design and student sample are limitations with the study. However, the nature of our research question justifies an initial examination in a controlled, laboratory setting. Our findings may stimulate researchers to further investigate the role of affect and emotions in behavioral self-regulation.

**Originality/value** – This study furthers research on reactions to feedback by examining the feedback-affect process within individuals across time. Multiple dimensions of affect were considered and positive and negative feedback continua were examined separately.

**Keywords** Feedback, Self esteem, Performance management, Behaviour

**Paper type** Research paper

In their article examining the influence of feedback sign on mood, Kluger *et al.* (1994) note the importance of considering multiple dimensions of affect in studying reactions to feedback. With the research described in this report, we seek to further contribute to the literature on feedback and affect by not only considering multiple dimensions of affect, but also examining positive and negative feedback continua separately. In addition, previous research on affective reactions to feedback has largely focused on differences between individuals in such reactions, and has not studied the feedback-affect process within individuals and across time. In this paper, we review

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conceptual arguments explaining individuals' affective reactions to feedback, we test hypotheses concerning within- individual relationships between both negative and positive feedback and affect, and we take a between-individual perspective and investigate whether different individuals react differently to performance feedback by examining the role of self-esteem in explaining between-individual differences in individuals' characteristic feedback-affect relationships.

The affective process through which individuals interpret performance feedback, as reflected in the within- individual relationship between feedback and affect across time, is an important mechanism explaining behavioral self-regulation. According to Social Cognitive Theory (SCT; Bandura, 1986, 1997; Bandura and Locke, 2003), affective states are both a result of feedback information resulting from task performance (as feelings of satisfaction following success) and a source of activation for self-efficacy beliefs (Bandura, 1997; Bandura and Locke, 2003). Because goals and self-efficacy beliefs are inextricably related (Bandura, 2001; Locke, 1997), together, goal-setting theory and SCT offer a more comprehensive explanation of behavioral self-regulation than either theory by itself: People create positive goal-performance discrepancies by setting challenging goals and then strive to achieve these goals (Bandura and Locke, 2003). It is thus important to study affective reactions to goal-relevant feedback because these resulting affective states influence performance capability beliefs and subsequent goals. However, as Brockner and Higgins (2001) note, the emotional consequences of goal (non)attainment are an aspect of goal-setting theory that has been neglected by researchers. Perhaps the general focus of applied research on differences between individuals on constructs reflecting personality, motivation, and performance has led to the neglect of affect as a momentary state, and thus to the neglect of immediate affective consequences of goal-related feedback.

Recently, however, the general interest in the role of affect and emotions at work has increased (e.g. Fisher and Ashkanasy, 2000; Lord *et al.*, 2002). Furthermore, stimulated by Weiss and Cropanzano's (1996) affective events theory (AET), organizational scholars have started to examine the consequences of momentary affective states and their temporal fluctuations at work (Alliger and Williams, 1993; Ilies and Judge, 2002; Judge and Ilies, 2002; Weiss *et al.*, 1999). In the AET framework, feedback can be considered an affective event that influences individuals' attitudes and behaviors through its influences on their affect and emotions. It is our contention that temporal fluctuations in individuals' affective states are partly influenced by the performance feedback they receive. But what are the conceptual mechanisms through which performance feedback generates affective reactions?

According to SCT (Bandura, 1997), feedback indicating a discrepancy between standards (goals) and performance that indicates goal non-attainment (i.e. negative feedback) leads to the experience of negative affect and, because negative affect is undesirable, it will cause a corrective action aimed at reducing the gap between performance and goals (Kluger *et al.*, 1994). Conversely, SCT predicts that positive feedback (indicating the standard has been met or exceeded) should lead to positive affective states and to the creation of new goal-performance discrepancies by setting higher subsequent goals (Bandura, 1997)[1].

Indeed, there is empirical evidence suggesting that goal attainment or goal progress is associated with positive affect, whereas non-attainment or lack of progress is associated with negative affect (e.g. Alliger and Williams, 1993). In addition, research

on feedback sign consistently found that positive feedback elicits positive mood and negative feedback elicits negative mood (e.g. Kluger *et al.*, 1994; see Taylor *et al.*, 1984 for a review). Finally, though she did not focus on performance feedback per se, Fisher (2003) found that individuals experience a more positive mood and have higher task satisfaction when they perceive that their performance is better than usual. Summarizing the theoretical arguments described above, and consistent with the evidence reported in the studies that we described, we propose that within individuals (across time), individuals' affective states will be influenced by the feedback they receive with respect to their ongoing performance.

*H1.* Within individuals (across trials), performance feedback will influence individuals' affective responses such that feedback indicating better performance will be associated with increased positive affect and decreased negative affect.

A basic psychological theory that links affect to performance feedback is behavioral motivation theory, which specifies that two distinct neurobehavioral systems regulate appetitive and aversive motivation. The system regulating appetitive motivation and approach behaviors is called the Behavioral Activation System (BAS; Gray, 1981), or the Behavioral Approach System (BAS; Fowles, 1987), or the Behavioral Facilitation System (Depue and Iacono, 1989; Watson, 2000), and is activated by stimuli signaling reward or relief from punishment (Gray, 1981, 1990). The system regulating aversive motivation and avoidance behaviors is called the Behavioral Inhibition System (BIS) and is activated by stimuli signaling punishment or frustrative non reward (Gray, 1981, 1990).

Emotions play a central role in explaining how the behavioral motivation systems work. The BAS is believed to regulate the experience of positive emotions and moods, while the BIS regulates negative emotions and moods (Gray, 1990). Stimuli from the environment influence people's affective states, and the resulting affective states will reinforce behavioral motivation. For example, appetitive stimuli activate approach behaviors leading to rewards, which induce positive affect. The experience of positive affect will reinforce the approach response to such appetitive stimuli. Thus, favorable cues lead to positive affect, which is associated with BAS activation, and individuals tend to engage in approach behaviors when they experience positive emotions or moods. Conversely, when individuals experience negative emotions that signal an unfavorable situation, these negative emotions will reinforce avoidance behaviors because negative emotions activate the BIS. From a self- regulation perspective, behavioral motivation theory can be used in conjunction with control theory to predict how people regulate their behaviors. That is, positive and negative affect, as markers of BAS and BIS activation (Carver *et al.*, 2000) are used as inputs into the control process leading to self-regulation (Carver and Scheier, 1990).

Feedback information can certainly activate individuals' behavioral motivation systems, as positive feedback signals reward and negative feedback may lead to punishment. Taylor *et al.* (1984), in their discussion of reactions to feedback from a control theory perspective, note that "feedback indicating one is at or above standard tends to yield positive affect, while feedback indicating one is below standard results in negative affect." Furthermore, Taylor *et al.* specify that both the sign of the feedback – and the magnitude of the discrepancy between performance and standards – influence

individuals' reactions, which is consistent with the perspective we take here. However, differentiating reactions to positive and negative feedback according to the behavioral motivations system activated by each type of feedback allows us to make more precise predictions with respect to the nature and magnitudes of affective reactions. That is, because positive affect reflects the momentary activation of the BAS, and this system is activated by rewarding cues, positive feedback (a rewarding affective event) should influence positive affect more strongly than negative feedback. In contrast, negative feedback is an inhibiting event and thus it should influence negative affect more strongly.

*H2.* Positive affect will be more strongly influenced by feedback indicating that goals have been accomplished or exceeded (positive feedback), as compared to feedback indicating that goals have not been met (negative feedback). Negative affect will be more strongly influenced by negative feedback than by positive feedback.

So far in this paper, we have used the terms "affective reactions" and "emotional reactions" interchangeably. Furthermore, as we explain shortly, we use a mood survey to measure these reactions. At this point, we would like to discuss the distinction between emotions, mood, and affect. Like other authors (e.g. Ashforth and Humphrey, 1995; Kelly and Barsade, 2001), we see affect as an inclusive term that refers to both emotions and moods. Emotions and moods, however, are distinct phenomena. Emotions are more intense and shorter lived than moods, and they are more likely to be caused by external events (mood states are subject to endogenous influences such as the circadian cycle; Watson, 2000). Emotion theorists (e.g. Ekman, 1992) focus on discrete emotions such as joy, fear, anger, and disgust. Mood theorists generally take a dimensional perspective on the study of affect, focusing on broad factors such as pleasantness- unpleasantness and activation (e.g. Larsen and Diener, 1992), or positive affect (PA) and negative affect (NA, e.g. Watson *et al.*, 1988). But emotions and moods are not conceptually unrelated; strong emotions can have an influence on one's mood, and one's mood may prime specific emotions. Here we measure affect as individuals' momentary mood with the PA and NA dimensions, and we do not stud y discrete emotions. It is implicitly assumed, though, that such discrete emotional reactions are reflected in the broad mood dimensions of PA and NA.

## Feedback and self-esteem

### *Consequences of negative feedback*

Despite the fact that negative feedback is generally employed with the intention to improve performance, all too often negative feedback has the opposite effect and undermines subsequent performance (e.g. Ilgen and Davis, 2000; Kluger and DeNisi, 1996). In general, one's perception of, and response to, negative feedback depends on:

- the personal characteristics of the feedback recipient;
- the nature of the message; and
- the characteristics of the source of feedback (e.g. Ilgen *et al.*, 1979).

A personal characteristic that has been shown to influence individuals' reactions to negative feedback is their general self-esteem (Kernis *et al.*, 1989). Self-esteem is

considered a motivational trait, in part, because it influences how individuals perceive and respond to negative feedback (e.g. Brockner *et al.*, 1987; Ilgen *et al.*, 1979; Shrauger and Rosenberg, 1970). Though it has been studied mainly in connection with negative feedback, theoretical models linking self-esteem to how individuals react to both negative and positive feedback exist.

*The moderating role of self-esteem*

According to Moreland and Sweeney (1984), reactions to feedback can be viewed as a process that consists of six separate phases:

(1) reception and retention of the evaluation;

(2) assessment of the reliability and/or the validity of the source;

(3) attributions of responsibility for success/failure;

(4) changes in self-evaluation;

(5) recipients' feelings of (dis)satisfaction with the content of the feedback; and

(6) subsequent task performance.

Phases 1 to 4 are considered to be the cognitive reactions to feedback, whereas phases 5 and 6 are considered affective reactions to feedback. In this paper, we focus on affective reactions to feedback, which, in our view, is the first mechanism through which individuals interpret feedback information. We attempt to identify individual differences in the magnitudes of the effects of feedback on affect, and we investigate whether individuals' scores on self- esteem predict such individual differences.

Research on the role of self-esteem in reactions to feedback has mainly focused on two motives: Self-consistency and self-enhancement (Jussim *et al.*, 1995). According to the self-consistency theory, people react most favorably to performance evaluations that are in congruence with their self- image (Moreland and Sweeney, 1984). This implies that individuals with low self-esteem should have a stronger preference for negative feedback than high self esteem individuals, because negative feedback is congruent with their self-image. Conversely, self-enhancement theory argues that individuals react most favorably to performance feedback that enhances their self-image. According to this theory, low self-esteem individuals should have a weaker preference for negative feedback than high self-esteem individuals, because they have a stronger need for self-enhancement than their high self-esteem counterparts, and negative feedback does not address that need. Low self-esteem individuals will react more strongly to positive feedback than high self-esteem individuals because they will presumably experience the greatest self-enhancement as a result of the positive feedback.

When reviewing inconsistencies in research findings with regard to these theories, Shrauger (1975) noted that when cognitive reactions were assessed, findings favored the consistency model; whereas when affective reactions to feedback were considered, the results seemed to support the self-enhancement theory. Empirical evidence mainly supports Shrauger's contention, particularly with regard to affective reactions. For instance, Moreland and Sweeney (1984) found that low self-esteem students who received high scores on a midterm examination regarded the examination as fairer and were more satisfied than high self-esteem students that received high scores, whereas lower scores produced more dissatisfaction with the exam among the low self-esteem

students than among high self-esteem students. Furthermore, it has been shown that following negative feedback, low self-esteem individuals (compared to high self esteem individuals) felt worse about themselves (Bernichon *et al.*, 2003), experienced more negative affect (Kernis *et al.*, 1989; Moreland and Sweeney, 1984), and had lower feelings of self-worth (Brown and Dutton, 1995).

Even though most research on self-esteem and reactions to feedback has actually focused on negative feedback, as noted above, self-esteem is relevant to both negative and positive feedback. Accordingly, in this paper we examine the moderating role of self-esteem on the negative feedback-affect and positive feedback-affect relationships separately. In summary, self enhancement theory predicts that self-esteem should be negatively associated with individuals' magnitudes of their relationship between feedback and affect, for both negative and positive feedback ranges. In contrast, self-consistency theory predicts a positive relationship between self-esteem and the magnitudes of the within-individual relationships between feedback and affect. Even though previous research on affective reactions to feedback seems to favor self enhancement theory, we do not offer a formal hypothesis on the moderating role of self-esteem on the relationship between feedback and affect but rather we investigate this effect on an exploratory basis.

## Method

The study was conducted in two phases. In the first phase, participants were asked to complete a personality survey that included a measure of self-esteem. In the second phase of the study, which started one week after the first phase, participants completed an 8-trial experiment. For each trial, they had to perform a task; they received feedback concerning their task performance and then were asked to report their affective state following the feedback.

### *Participants*

The data were collected as part of a larger project on feedback and affect comprising multiple studies and samples (Ilies, 2003)[2]. Participants included in the sample used for this study were 197 undergraduate students from a large management class at the University of Florida. Typically, 55 percent of the research participants from this class were female, and the average age was 20.7 years. They were invited to participate in this study by an advertisement that was placed on the course web page of a large introductory course in management. Participation in the study was completely voluntary and individuals who participated received extra credit points in return for their participation.

### *Experimental design and procedure*

Data for the experimental trials were collected through an internet interface. Subjects logged on to an internet site, read a detailed description of the task and procedure, and were subsequently asked to report their momentary affective state and to set a goal for the first trial task. The web page for goal-setting gave participants the option to choose between nine different goal levels, ranging from 10 percent to 90 percent (i.e. I want to perform better than 10/90 percent of the participants in this experiment). After setting a goal for the first trial, participants were presented with the performance task and were given five minutes to work on the task. After submitting their task solutions,

participants were presented with manipulated feedback that ranged between 35 percent and 80 percent (e.g. "For this trial, you have performed better than 80 percent of the participants")[3]. The purpose of the feedback was to elicit affective reactions from participants. Feedback levels were randomized across trials for each participant. After receiving the feedback, participants were asked to report their affect, and then they started the subsequent trial. Due to the sequential nature of the experiment (e.g. one had to submit the affect ratings in order to get to the goal setting page), the average response rate was very high (92 percent), in that participants provided complete data for 6.4 out of 7 trials[4]. Participants could complete the multi- trial experiment from any location and at any particular time within a two-week period.

*Performance task*

We used a brainstorming task that asked participants to list as many uses as they could for the following objects/materials:

- absorbent towel;
- rubber tire;
- wood;
- ice;
- sunlight;
- a sheet of paper;
- coat hanger; and
- sand[5].

This type of task has been successfully used in prior laboratory research on goal setting motivation (e.g. Locke, 1982).

*Measures*

*Affect.* We used the 20-item Positive and Negative Affect Schedule (PANAS; Watson *et al.* 1988) for measuring positive affect (PA) and negative affect (NA). Respondents were asked to indicate their agreement with the items on a five-point scale. The internal consistencies reliability of the PA scores ranged between 0.92 and 0.95 across the eight trials; the reliability of the NA sores was between 0.90 and 0.92 across the trials.

*Self-esteem.* We measured self-esteem with Rosenberg's Self Esteem Scale (1965), consisting of ten items on a five-point scale. The internal consistency of the self-esteem scores computed on the present sample was 0.83.

*Analyses*

This study was designed to answer three main questions. The first question focused on whether feedback influences positive and negative affect, within individuals and across time. The second question asked whether negative and positive feedback impact negative and positive affect differentially (we hypothesized that negative feedback will have a stronger effect on negative affect than on positive affect, and positive feedback will influence positive affect more strongly than negative affect). The third question addressed the issue of whether self-esteem moderates individuals' affective responses to feedback.

To test the hypothesized within- individual effects and the cross-level moderating role of self-esteem, we used hierarchical linear modeling (HLM; Byrk and Raudenbush, 1992). We first investigated whether systematic within- and between-individual variance exists in individuals' positive and negative affect. To do so, we estimated two null models which calculated:

- each individual's average positive and negative affect;
- the within- individual variance in affect (based on individuals' deviations from their average affect levels); and
- the between individual variance in positive and negative affect (differences between individuals in their average affect levels).

Provided that the tests of the null models reveal that there is substantial within- and between-individual variance in the criteria, tests of the other HLM models can be conducted. The equations for all the models are shown in the tables reporting the results. Below, we offer descriptions of analyses used to test the hypotheses.

*Hypothesis 1.* The within-individual relationship between feedback and affect was examined by estimating Model 1. This model regresses the trial affect scores on feedback at the first level of analysis (the within- individual level) and thus, conceptually, it estimates each individual's intercept and slope for predicting positive or negative affect with feedback. At the second level of analysis, because no predictors are included in the equations, the models estimate the pooled values for the level 1 parameters (e.g. the pooled within- individual regression coefficient for predicting positive affect with feedback). The feedback variable was centered relative to individuals' means, thus in the level 1 analyses any between- individual variance in feedback was eliminated – i.e. by subtracting the individuals' means from their momentary scores, all individuals will have mean scores equal to zero and thus there will be no between individual variance in these scores (Byrk and Raudenbush, 1992; Hofmann *et al.*, 2000).

*Hypothesis 2.* To test whether negative feedback influences negative affect more strongly than it influences positive affect, and whether positive feedback similarly influences positive affect more strongly than it influences negative affect, we estimated Model 2. This model enabled us to estimate separate regression parameters for feedback indicating that performance fell short of the goal (coded as negative feedback, e.g. participant's goal was to perform better than 80 percent of the participants and the feedback indicated that he or she performed better than 70 percent) and feedback indicating that performance met or exceeded the goal (coded as positive feedback)[6]. In Model 2, at the first level of analysis we used two dummy variables to estimate the intercepts for each type of feedback (e.g. the dummy variable for negative feedback took a value of one when feedback was negative and a value of zero when feedback was positive), and two dummy-like variables to estimate the beta coefficient for each type of feedback (the variable for negative feedback was equal to the actual feedback value when feedback was negative, and was equal to zero when feedback was positive). At the second level of analysis we estimated the pooled values for the four types of level 1 estimates (one intercept and one beta coefficient for each type of feedback). The equations for this model are shown in Table I.

*Exploratory question.* To investigate whether self-esteem moderates the within-individual relationships between feedback and affect, we estimated Model 3.

**Table I.**
HLM models testing the differential effect of negative and positive feedback on negative and positive affect

| Model equations[a] | $\gamma_{10}$ | $\gamma_{20}$ | $\gamma_{30}$ | $\gamma_{30}^{*}$ | $\gamma_{40}$ | $\gamma_{40}^{*}$ | $\rho^2$ |
|---|---|---|---|---|---|---|---|
| Model 2 (PA)[b]<br>$PA_{ij} = \beta_{1j}(x\_n_{ij}) + \beta_{2j}(x\_p_{ij}) + \beta_{3j}(Fd\_n_{ij}) + \beta_{4j}(Fd\_p_{ij}) + r_{ij}$<br>$\beta_{1j} = \gamma_{10} + U_{1j}$<br>$\beta_{2j} = \gamma_{20} + U_{2j}$<br>$\beta_{3j} = \gamma_{30} + U_{3j}$<br>$\beta_{4j} = \gamma_{40} + U_{4j}$ | 33.74** | 33.00** | 0.05** | 0.08** | 0.08** | 0.09** | 14.55 |
| *Model 2 (NA)*[c]<br>$NA_{ij} = \beta_{1j}(x\_n_{ij}) + \beta_{2j}(x\_p_{ij}) + \beta_{3j}(Fd\_n_{ij}) + \beta_{4j}(Fd\_p_{ij}) + r_{ij}$<br>$\beta_{1j} = \gamma_{10} + U_{1j}$<br>$\beta_{2j} = \gamma_{20} + U_{2j}$<br>$\beta_{3j} = \gamma_{30} + U_{3j}$<br>$\beta_{4j} = \gamma_{40} + U_{4j}$ | 11.43** | 11.03** | −0.04** | −0.10** | −0.03** | −0.05** | 9.08 |

**Notes:** $^{*}p < 0.05$; $^{**}p < 0.01$; $n = 197$; $\gamma_{30}^{*}$ and $\gamma_{40}^{*}$ are the standardized values for the level 1 regression coefficients $\gamma_{30}$ and $\gamma_{40}$ (the standard deviations of $Fd\_n_{ij}$ and $Fd\_p_{ij}$ variables, computed within individuals were 6.50 and 9.95, respectively; the standard deviations for PA and NA are presented in Table III); [a]The models included a trial index as a control variable at level 1, to account for eventual trends across trials. The regression coefficients for this index are not shown; [b]$PAij$ = individual j's PA score for trial i; $x\_n_{ij}$ = dummy variables equal to 1 when feedback sign was negative and zero otherwise; $x\_p_{ij}$ = dummy variables equal to 1 when feedback sign was positive and zero otherwise; $Fd\_n_{ij}$ = individual j's value of feedback for performance on trial i-1 if such feedback was negative, or zero otherwise; $Fd\_p_{ij}$ = individual j's value of feedback for performance on trial i-1 if such feedback was positive, or zero otherwise; $\beta_{1j}$ = individuals' intercepts for predicting their PA score with feedback concerning their previous performance when such feedback was negative, across time; $\beta_{2j}$ = individuals' intercepts for predicting their PA score with feedback concerning their previous performance when such feedback was positive, across time; $\beta_{3j}$ = individuals' slopes for predicting their PA score with feedback concerning their previous performance when such feedback was negative, across time; $\beta_{4j}$ = individuals' slopes for predicting their PA score with feedback concerning their previous performance when such feedback was positive, across time; $\gamma_{10}$ = pooled slope for predicting PA with negative feedback; $\gamma_{20}$ = pooled slope for predicting PA with positive feedback; $\gamma_{30}$ = pooled slope for predicting PA with negative feedback; $\gamma_{40}$ = pooled slope for predicting PA with positive feedback; [c]$NA_{ij}$ = individual j's NA score for trial i; $x\_n_{ij}$ = dummy variables equal to 1 when feedback sign was negative and zero otherwise; $x\_p_{ij}$ = dummy variables equal to 1 when feedback sign was positive and zero otherwise; $Fd\_n_{ij}$ = individual j's value of feedback for performance on trial i-1 if such feedback was negative, or zero otherwise; $Fd\_p_{ij}$ = individual j's value of feedback for performance on trial i-1 if such feedback was positive, or zero otherwise; $\beta_{1j}$ = individuals' intercepts for predicting their NA score with feedback concerning their previous performance when such feedback was negative, across time; $\beta_{2j}$ = individuals' intercepts for predicting their NA score with feedback concerning their previous performance when such feedback was positive, across time; $\beta_{3j}$ = individuals' slopes for predicting their NA score with feedback concerning their previous performance when feedback was negative, across time; $\beta_{4j}$ = individuals' slopes for predicting their NA score with feedback concerning their previous performance when such feedback was positive, across time; $\gamma_{10}$ = pooled slope for predicting NA with negative feedback; $\gamma_{20}$ = pooled slope for predicting NA with positive feedback; $\gamma_{30}$ = pooled slope for predicting NA with negative feedback; $\gamma_{40}$ = pooled slope for predicting NA with positive feedback

At the first level of analysis, this model was identical to Model 2, in that it estimated intercept and beta values for predicting affect with negative and positive feedback. In essence, the level 1 regressions for predicting positive affect, for example, estimated two regression lines for each individual, one for negative feedback and one for positive feedback. At level 2, the individuals' characteristic intercepts and beta coefficients (the level 1 estimates) were regressed on their self-esteem scores (see Table II).

## Results

Means, standard deviations, and inter-correlations for all variables measured in the study are presented in Table III. As noted, before proceeding with HLM analyses, one has to establish that such analyses are appropriate by examining the within- and between- individual variance in the criteria scores. As shown in Table IV, the null model analyses indicated that there was significant between- individual variance in both positive ($\tau_{00} = 150.37, p < 0.01$) and negative ($\tau_{00} = 111.38, p < 0.01$) affect; and a substantial proportion of the total variance in positive and negative affect was within individuals ($\rho^2/[\rho^2+\tau_{00}]) = 19$ per cent and 13 per cent, for positive and negative affect, respectively). These results suggest that hierarchical modeling of these data is appropriate.

The results for Model 1 show support for the first hypothesis (H1; see Table IV). The pooled slope for predicting positive affect with feedback was positive and significant ($\gamma_{10} = 0.07, p < 0.01$); the pooled slope for predicting negative affect was negative and also significant ($\gamma_{10} = -0.04, p < 0.01$). We should note that regression coefficients presented in Tables I and IV are not standardized. These coefficients can be standardized using the standard deviation values presented in Table III. To standardize the regression coefficient for predicting positive and negative affect with feedback with Model 1, for example, the standard deviations of positive affect, negative affect, and feedback scores – computed within individuals – should be used, which leads to a standardized coefficient $\gamma_{10}^* = 0.16$ for predicting positive affect with feedback and a standardized coefficient $\gamma_{10}^* = -0.13$ for predicting negative affect with feedback[7].

The second hypothesis predicted that negative feedback would influence negative affect more strongly than positive affect and that positive feedback would influence positive affect more strongly. Table I presents the results for Model 2 that estimated the impact of negative and positive feedback on the affect variables with distinct parameters. Following the equations for Model 2 that are presented in Table I, over the range of negative feedback the pooled regression coefficient for predicting positive affect is $\gamma$PA-negative $= \gamma_{30}$ (PA); whereas for positive feedback the pooled regression coefficient for predicting positive affect is $\gamma$PA-positive $= \gamma_{40}$ (PA). Similarly, the pooled regression coefficient for predicting negative affect with negative feedback is $\gamma$NA-negative $= \gamma_{30}$ (NA), and the pooled regression coefficient for predicting negative affect with positive feedback is $\gamma$NA-positive $= \gamma_{40}$ (NA). As shown in Table I, the results offered some support for the second hypothesis, though this support was not strong. Whereas for the model predicting positive affect, the standardized regression coefficient for positive feedback was only slightly larger than the coefficient for negative feedback (0.09 vs 0.08), for the model predicting negative affect the standardized coefficient for negative feedback was significant and double in size compared to the coefficient for positive feedback which was not significant ($-0.10$ vs $-0.05$).

**Table II.**
HLM models testing the cross-level moderator effect of self-esteem

| Model equations[a] | $\gamma_{10}$ | $\gamma_{11}$ | $\gamma_{20}$ | $\gamma_{21}$ | $\gamma_{30}$ | $\gamma_{31}$ | $\gamma_{40}$ | $\gamma_{41}$ | $\rho^2$ |
|---|---|---|---|---|---|---|---|---|---|
| *Model 3 for PA* [b] | | | | | | | | | |
| $PA_{ij} = \beta_{1j}(x\_n_{ij}) = \beta_{2j}(x\_p_{ij}) + \beta_{3j}(Fd\_n_{ij}) + \beta_{4j}(Fd\_p_{ij}) + r_{ij}$ | 12.64* | 0.68** | 10.86 | 0.72** | 0.09 | 0.00 | −1.32 | 0.01 | 14.51 |
| $\beta_{1j} = \gamma_{10} + \gamma_{11}(SE) + U_{1j}$ | | | | | | | | | |
| $\beta_{2j} = \gamma_{20} + \gamma_{21}(SE) + U_{2j}$ | | | | | | | | | |
| $\beta_{3j} = \gamma_{30} + \gamma_{31}(SE) + U_{3j}$ | | | | | | | | | |
| $\beta_{4j} + \gamma_{40} + \gamma_{41}(SE) + U_{4j}$ | | | | | | | | | |
| *Model 3 for NA* [c] | | | | | | | | | |
| $NA_{ij} = \beta_{1j}(x\_n_{ij}) + \beta_{2j}(x\_p_{ij}) + \beta_{3j}(Fd\_n_{ij}) + \beta_{4j}(Fd\_p_{ij}) + r_{ij}$ | 27.66** | −0.52** | 25.25** | −0.46** | 0.02 | 0.00 | −0.28 | 0.01* | 9.03 |
| $\beta_{1j} = \gamma_{10} + \gamma_{11}(SE) + U_{1j}$ | | | | | | | | | |
| $\beta_{2j} = \gamma_{20} + \gamma_{21}(SE) + U_{2j}$ | | | | | | | | | |
| $\beta_{3j} = \gamma_{30} + \gamma_{31}(SE) + U_{3j}$ | | | | | | | | | |
| $\beta + \gamma_{40} + \gamma_{41}(SE) + U_{4j}$ | | | | | | | | | |

**Notes:** $^*p < 0.05$; $^{**}p < 0.01$; $n = 197$; the regression coefficients presented in this table are not standardized; [a]the models included a trial index as a control variable at level 1, to account for eventual trends across trials; the regression coefficients for this index are not shown; [b]$PA_{ij}$ = individual j's PA score for trial i; $x\_n_{ij}$ = dummy variables equal to 1 when feedback sign was negative and zero otherwise; $x\_p_{ij}$ = dummy variables equal to 1 when feedback sign was positive and zero otherwise; $Fd\_n_{ij}$ = individual j's value of feedback for performance on trial i-1 if such feedback was negative, or zero otherwise; $Fd\_p_{ij}$ = individual j's value of feedback for performance on trial i-1 if such feedback was positive, or zero otherwise; SE = self esteem; $\beta_{1j}$ = individuals' intercepts for predicting their PA score with feedback concerning their previous performance when such feedback was negative, across time; $\beta_{2j}$ = individuals' intercepts for predicting their PA score with feedback concerning their previous performance when such feedback was positive, across time; $\beta_{3j}$ = individuals' slopes for predicting their PA score with feedback concerning their previous performance when such feedback was negative, across time; $\beta_{4j}$ = individuals' slopes for predicting their PA score with feedback concerning their previous performance when such feedback was positive, across time; $\gamma_{10}$ = pooled intercept for predicting PA with negative feedback, controlling for SE; $\gamma_{20}$ = pooled intercept for predicting PA with positive feedback, controlling for SE; $\gamma_{30}$ = pooled slope for predicting PA with negative feedback, controlling for SE; $\gamma_{40}$ = pooled slope for predicting PA with positive feedback, controlling for SE; $\gamma_{11}$ = the level 2 regression coefficient for predicting individuals' intercepts from regressing their PA score on negative feedback at level 1 with their SE scores; $\gamma_{21}$ = the level 2 regression coefficient for predicting individuals' intercepts from regressing their PA score on positive feedback at level 1 with their SE scores; $\gamma_{31}$ = the level 2 regression coefficient for predicting individuals' slopes from regressing their PA score on negative feedback at level 1 with their SE scores; $\gamma_{41}$ = the level 2 regression coefficient for predicting individuals' slopes from regressing their PA score on positive feedback at level 1 with their SE scores; [c]$NA_{ij}$ = individual j's NA score for trial i; $x\_n_{ij}$ = dummy variables equal to 1 when feedback sign was negative and zero otherwise; $x\_p_{ij}$ = dummy variables equal to 1 when feedback sign was positive and zero otherwise; $Fd\_n_{ij}$ = individual j's value of feedback for performance on trial i-1 if such feedback was negative, or zero otherwise; $Fd\_p_{ij}$ = individual j's value of feedback for performance on trial i-1 if such feedback was positive, or zero otherwise; SE = self esteem; $\beta_{1j}$ = individuals' intercepts for predicting their NA score with feedback concerning their previous performance when such feedback was negative, across time; $\beta_{2j}$ = individuals' intercepts for predicting their NA score with feedback concerning their previous performance when such feedback was positive, across time; $\beta_{3j}$ = individuals' slopes for predicting their NA score with feedback concerning their previous performance when such feedback was negative, across time; $\beta_{4j}$ = individuals' slopes for predicting their NA score with feedback concerning their previous performance when such feedback was positive, across time; $\gamma_{10}$ = pooled intercept for predicting NA with negative feedback, controlling for SE; $\gamma_{20}$ = pooled intercept for predicting NA with positive feedback, controlling for SE; $\gamma_{30}$ = pooled slope for predicting NA with negative feedback, controlling for SE; $\gamma_{40}$ = pooled slope for predicting NA with positive feedback, controlling for SE; $\gamma_{11}$ = the level 2 regression coefficient for predicting individuals' intercepts from regressing their NA score on negative feedback at level 1 with their SE scores; $\gamma_{21}$ = the level 2 regression coefficient for predicting individuals' intercepts from regressing their NA score on positive feedback at level 1 with their SE scores; $\gamma_{31}$ = the level 2 regression coefficient for predicting individuals' slopes from regressing their NA score on negative feedback at level 1 with their SE scores; $\gamma_{41}$ = the level 2 regression coefficient for predicting individuals' slopes from regressing their NA score on positive feedback at level 1 with their SE scores

Finally, the data did offer some support for self-enhancement theory, which predicted that self-esteem should have a cross- level moderating effect on the within- individual effects of feedback on affect. For Model 3 (see Table II), $\beta_{3j}$ and $\beta_{4j}$ represent the magnitudes of individuals' reactions to negative and positive feedback, as reflected in their subsequent affect. The parameter estimates for Model 3 (Table II) show that the only significant cross- level effect was the positive association between self-esteem and the regression coefficient estimating the within- individual relationship between positive feedback and negative affect. This cross-level effect is consistent with self-enhancement theory: Because positive feedback predicts negative affect negatively, the cross-sectional effect shows that high self-esteem individuals react less strongly to positive feedback, in terms of their negative affect, as predicted by the theory. By multiplying the level 2 regression coefficient ($\gamma_{41} = 0.01$) by the standard deviation of the self esteem scores, we obtain $\gamma_{41}^{*} = 0.06$. This coefficient shows the change in the level 1 unstandardized regression coefficient for predicting negative affect with positive feedback that is associated with a one standard deviation increase in self-esteem. To obtain the change in the level 1 regression coefficient in standardized points, we further multiply $\gamma_{41}^{*}$ by the within individual standard deviation of the positive feedback scores (see notes to Table IV) and then divide the result by the within- individual standard deviation of the negative affect scores:

$$\gamma_{41}^{**} = 0.06^{*}\ 9.95^{*}\ 4.15 = 0.15.$$

Interestingly, whereas the relationship between positive feedback and negative affect is negative for the hypothetical individuals with self-esteem scores ranging between zero and the mean self esteem score (regression coefficients between $= 0.28$ and $= 0.05$; see Tables I and IV), when individuals' self esteem scores are larger than about one third of a standard deviation above the mean, this relationship becomes positive (though not distinguishable from zero in our data). Thus, it seems that support for self-enhancement theory is only valid for those with relatively low self-esteem.

In summary, we did find some support for the moderating effect of self-esteem predicted by self-enhancement theory. However, because we did not detect a moderating effect on the positive feedback-positive affect relationship or on any of the two negative feedbacknegative/positive affect relationships, the evidence for the cross-level effect predicted by self enhancement theory should be viewed with caution.

## Discussion

We believe this study contributes to the general literature on feedback and affect and their implications for self- regulation. It does so by accomplishing four major

| | *M* | SDw | SDb | 1 | 2 | 3 | 4 |
|---|---|---|---|---|---|---|---|
| 1. Average performance feedback | 57.27 | 13.22 | 0.09 | 1.00 | | | |
| 2. Average positive affect (PA) | 29.01 | 5.91 | 12.26 | −0.01 | 1.00 | | |
| 3. Average negative affect (NA) | 12.38 | 4.15 | 10.55 | −0.15* | 0.03 | 1.00 | |
| 4. Self-esteem | 31.01 | – | 6.13 | −0.09 | 0.29** | −0.29** | 1.00 |

**Notes:** *M* = mean, SDw = standard deviation computed within individuals, SDb = standard deviation computed between individuals; $n = 197$; $^{*}p < 0.05$ (two-tailed); $^{**}p < 0.01$ (two-tailed)

**Table III.** Means, standard deviations, and intercorrelations for all study variables

| Model equations[a] | $\gamma_{00}$ | $\gamma_{10}$ | $\rho_2$ | $\tau_{00}$ |
|---|---|---|---|---|
| *Null Model (PA)*[b]<br>$PAij = \beta_{0j} + r_{ij}$<br>$\beta_{0j} = \gamma_{00} + U_{0j}$ | 29.01** | – | 34.87 | 150.37** |
| *Null Model (NA)*[c]<br>$PA_{ij} = \beta_{0j} + r_{ij}$<br>$\beta_{0j} = \gamma_{00} + U_{0j}$ | 12.38** | – | 17.36 | 111.28** |
| *Model 1 for (PA)*[d]<br>$PA_{ij} = \beta_{0j} + \beta_{1j}(Fd_{ij}) + r_{ij}$<br>$\beta = \gamma_{00} + U_{0j}$<br>$\beta_{1j} = \gamma_{10} + U_{1j}$ | 29.03** | 0.07** | 15.29 | 153.50** |
| *Model 1 for (NA)*[e]<br>$NA_{ij} = \beta_{0j} + \beta_{1j}(Fd_{ij}) + r_{ij}$<br>$\beta_{0j} = \gamma_{00} + U_{0j}$<br>$\beta_{1j} = \gamma_{10} + U_{1j}$ | 12.38** | −0.04** | 9.88 | 112.36** |

**Notes:** $^{*}p < 0.05$; $^{**}p < 0.01$; $n = 197$; the regression coefficients presented in this table are *not standardized*; standardized estimates can be computed by using the appropriate standard deviation values provided in Table III; [a]all predictors were centered at the individuals' means; Model 1 included a trial index as a control variable at level 1, to account for eventual trends across trials; the regression coefficients for this index are not shown; [b]PA = positive affect; $\beta_{0j}$ = average PA scores for each respondent; $\gamma_{00}$ = the grand mean of PA scores; $\rho^2$ = variance($r_{ij}$) = within- individual variance in PA; $\tau_{00}$ = variance($U_{0j}$) = between-individual variance in PA; [c]NA = negative affect $\beta_{0j}$ = average NA scores for each respondent; $\gamma_{00}$ = the grand mean of NA scores; $\rho^2$ = variance($r_{ij}$) = within-individual variance in NA; $\tau_{00}$ = variance($U_{0j}$) = between- individual variance in NA; [d]Fd = feedback; $\beta_{0j}$ = level 1 intercept; $\beta_{1j}$ = individuals' slopes for predicting trial PA with feedback; $\gamma_{00}$ = grand mean of PA scores after the effect of feedback within individuals was accounted for; $\gamma_{10}$ = pooled slope for predicting trial PA with feedback; $\rho^2$ = variance($r_{ij}$) = remaining within- individual variance in PA; $\tau_{00}$ = variance($U_{0j}$) = between individual variance in PA. The variance component for the slope ($\tau_{11}$) was significant ($p < 0.01$) but it is not presented here; [e]$\beta_{0j}$ = level 1 intercept; $\beta_{1j}$ = individuals' slopes for predicting trial NA with feedback; $\gamma_{00}$ = grand mean of NA scores after the effect of feedback within individuals was accounted for; $\gamma_{10}$ = pooled slope for predicting trial NA with feedback; $\rho^2$ = variance($r_{ij}$) = remaining within-individual variance in NA; $\tau_{00}$ = variance($U_{0j}$) = between-individual variance in NA. The variance component for the slope ($\tau_{11}$) was significant ($p < 0.01$) but it is not presented here

**Table IV.**
Parameter estimates and variance components for the Null Model and Model 1

objectives. First, the present results show that performance feedback does predict affect within individuals. We found evidence supporting within- individual effects of feedback on both positive and negative affect. These results are consistent with the findings of Fisher (2003), who presented evidence for a within- individual effect between performance and affect. However, because in this study feedback was randomly distributed across occasions and participants, we have ruled out reversed causality, which constitutes an alternative explanation for Fis her's results. In addition, because our feedback-affect regression analyses were estimated using only within-individual variance, our results cannot be explained by differences between individuals' propensity to experience positive or negative affect (i.e. those who tend to be happier on average also tend to receive more positive feedback because they perform better).

Second, the results presented here suggest that positive and negative feedback have differential effects on the two broad factors of positive and negative affect. More specifically, we found that negative affective reactions to feedback are stronger when feedback indicates goal non-attainment, versus when the goal was met or exceeded. This finding suggests that people process negative and positive feedback information differently. It then becomes important to study affective reactions to positive and negative feedback in the context of individual differences in motivational orientation (e.g. promotion- vs prevention-focused individuals; Brockner and Higgins, 2001; Higgins, 1998), or individual differences in positive and negative affect induction susceptibility (e.g. Larsen and Ketelaar, 1989; Pickering *et al.*, 1999; Rusting and Larsen, 1997).

Another issue that should be examined in future research concerns the within-individual effect of feedback on the broad affect factors of pleasantness and arousal. Kluger *et al.* (1994), for example, have found that, across individuals, grade feedback had a linear influence on pleasantness and a curvilinear influence on arousal. It would be interesting to examine whether feedback has a curvilinear effect on arousal within individuals, or whether it has a diminishing within- individual effect on pleasantness across time (i.e. as feedback becomes increasingly positive, it has smaller effects on pleasant mood).

Third, we modeled the data with multi- level methods, which allowed us to examine the dynamic nature of the feedback-affect relationship. The within-individual relationship between feedback and affect is qualitatively different from the feedback-affect between-individual relationship: Whereas the within- individual relationship shows that the prototypical individual's affect fluctuations are in part influenced by the feedback he or she receives, the between individual relationships indicates that those who receive certain type of feedback (positive, for example) experience a different affective state (e.g. more positive mood) than those who receive a different type of feedback.

Fourth, the present results did offer some support for the prediction that following positive feedback, individuals who score low on self-esteem will have more pronounced affective reactions than individuals who score higher on self-esteem because those low in self esteem are in greater need for self-enhancement. However, high and low self-esteem individuals reacted similarly to negative feedback, and thus our results for positive and negative feedback ranges are inconsistent. It might be the case that high-self-esteem participants did not see a linkage between their performance and the feedback they received when the feedback was negative (indeed such linkage did not exist), as a result of which their affective reactions were similar to those who scored low on self-esteem.

This investigation only examined the direct relationship between feedback and affect. Conceptually, this relationship should be moderated by causal attributions for performance (Ilgen and Davis, 2000; Taylor *et al.*, 1984; Weiner, 1985) and by the credibility and acceptance of the feedback (e.g. Ilgen *et al.*, 1979). In addition, feedback should also have an influence on cognitive constructs such as self-efficacy (Saavedra and Earley, 1991), and such cognitive constructs are not independent of affect (Baron, 1990). It may be the case that feedback information influences self-efficacy both directly and indirectly through affect. We do not have the data to support these speculations; future research should examine the connection between feedback and

affect within a more complete model of self-regulation that includes feedback attributes such as credibility and acceptance, self-efficacy beliefs, and performance attributions.

Another area of investigation that may prove fruitful for future research concerns the role of anticipatory emotions in goal-directed behavior. Bagozzi *et al.*'s (1998) "emotional goal system" highlights the importance of both anticipatory emotions (elicited by prospects of goal success or failure) and goal-outcome emotions that are elicited by feedback. Similarly, in the decision making literature, Mellers' decision affect theory (e.g. Mellers, 2000; Mellers and McGraw, 2001; Mellers *et al.*, 1999) takes into account the emotions that individuals anticipate they would experience as a result of the outcomes of their decisions: "people anticipate the pleasure or pain of future outcomes, weigh those feelings by the chances they will occur, and select the option with greater average pleasure" (Mellers and McGraw, 2001, p. 210). These conceptual models suggest that anticipatory emotions can be as important as feedback- induced emotions in the broader scheme of behavioral regulation.

Like all studies, this study has limitations that merit discussion. An important limitation of this research concerns the potential lack of generalizability of the findings associated with laboratory experiments that use student participants. However, we believe that the nature of the research question justifies an initial examination in controlled settings. Future research should examine whether these findings generalize to different participant populations. Another possible limitation concerns the performance task used in the experiment. Though the brainstorming task used in this study was extensively used in previous laboratory research on goal setting (e.g. Harkins and Lowe, 2000; Lee and Bobko, 1992; Locke, 1982), it is a very simple task, and thus the results may not generalize to other performance situations. In addition, we did not assess whether the respondents actually attended to the discrepancy information by comparing the feedback they received for each trial with their trial goal or whether they considered the feedback credible or not, as we implicitly assume. The pattern of results suggests that these assumptions are reasonable. That is, if some participants viewed feedback that we coded as positive in a negative light or others viewed feedback coded as negative in a positive light, it would weaken the results comparing the differential responses to what we coded as positive and negative affect. Similarly, if credibility of the feedback was low in some instances, feedback would have had weaker effects on affect which would make our results conservative. Nevertheless, the lack of explicit examinations of these two assumptions is a limitation of the design of the study.

Despite the limitations mentioned above, this study has several implications for practitioners. Results of our study indicate that feedback not only provides individuals information regarding their previous performance relative to a specific goal or standard that they can use to regulate effort, but also elicits emotional reactions that may influence their subsequent motivation and attitudes. Managers should be mindful of these effects when giving performance feedback to their subordinates, especially when such feedback concern goal non-attainment. Positive (i.e. goal attainment) and negative (i.e. goal non-attainment) feedback were found to have direct effects on both positive and negative affect. Specifically, positive feedback (i.e. goal attainment) resulted in an increase in positive affect and negative feedback (i.e. goal non-attainment) resulted in both a decrease in positive affect and an increase in negative affect, within individuals, over time. Feedback may thus impact individuals'

self-regulation, work attitudes, and motivation through fluctuations in both positive and negative affect. More research into the mediating mechanisms of affect in the relationship between feedback and its consequences may perhaps lead to interventions that could be used to enhance individuals' work attitudes, motivation and performance at work.

## Notes

1. Following Watson *et al.* (1988), we conceptualized affect as two orthogonal dimensions reflecting firstly, positive affect, which includes pleasant activated states such as "excited", "interested" and "enthusiastic", and secondly, negative affect, which includes unpleasant active states (e.g. "nervous", "hostile" and "distressed"). We chose to conceptualize affect this way because of the conceptual link between these affect dimensions and behavioral motivation theory (Watson *et al.*, 1999), as we will explain shortly.
2. A report focusing on feedback and goals regulation includes data from this and five other samples (Ilies and Judge, 2005).
3. The 35-80 percent range was established so that the negative feedback would not be extreme (e.g. 5 percent). This range implies that when setting their task goal at 90 percent, participants could receive only negative feedback. To investigate whether this affected the results we conducted analyses on a reduced data set from which the records containing goals of 90 percent were deleted, and the results were not substantially different.
4. No feedback was provided before the very first trial, therefore the affect scores from the first trial were not used in the analyses including feedback as in independent variable.
5. Participants were asked to type their descriptions of possible uses for these objects/materials in textboxes provided on the task web page.
6. The feedback statement received by participants only provided participants with the percentage information (e.g. you performed better than 60 percent of participants) and did not indicate whether the goal was met or not (we assumed participants will make such comparison themselves).
7. Model 1, like the other models containing the continuous feedback variables as predictors, included a trial index, with values equal to the trial number, as a control variable at level 1 to account for eventual trends across trials.

## References

Alliger, G.M. and Williams, K.J. (1993), "Using signal-contingent experience sampling methodology to study work in the field: a discussion and illustration examining task perceptions and mood", *Personnel Psychology*, Vol. 46, pp. 525-49.

Ashforth, B.E. and Humphrey, R.H. (1995), "Emotion in the workplace: a reappraisal", *Human Relations*, Vol. 48, pp. 97-125.

Bagozzi, R., Baumgartner, H. and Pieters, R. (1998), "Goal-directed emotions", *Cognition and Emotion*, Vol. 12, pp. 1-26.

Bandura, A. (1986), *Social Foundations of Thought and Action: A Social Cognitive Theory*, Prentice-Hall, Englewood Cliffs, NJ.

Bandura, A. (1997), *Self-Efficacy: The Exercise of Control*, W.H. Freeman, New York, NY.

Bandura, A. (2001), "Social cognitive theory: an agentic perspective", *Annual Review of Psychology*, Vol. 52, pp. 1-26.

Bandura, A. and Locke, E.A. (2003), "Negative self-efficacy and goal effects revisited", *Journal of Applied Psychology*, Vol. 88, pp. 87-99.

Baron, R.A. (1990), "Environmentally induced positive affect: its impact on self-efficacy, task performance, negotiation, and conflict", *Journal of Applied Social Psychology*, Vol. 20, pp. 368-84.

Bernichon, T., Cook, K.E. and Brown, J.D. (2003), "Seeking self-evaluative feedback: the interactive role of global self-esteem and specific self-views", *Journal of Personality and Social Psychology*, Vol. 84, pp. 194-204.

Brockner, J. and Higgins, E.T. (2001), "Regulatory focus theory: implications for the study of emotions at work", *Organizational Behavior and Human Decision Processes*, Vol. 86, pp. 35-66.

Brockner, J., Derr, W.R. and Laing, W.N. (1987), "Self-esteem and reactions to negative feedback: toward greater generalizability", *Journal of Research in Personality*, Vol. 21, pp. 319-33.

Brown, J.D. and Dutton, K.A. (1995), "The thrill of victory, the complexity of defeat: self-esteem and people's emotional reactions to success and failure", *Journal of Personality and Social Psychology*, Vol. 68, pp. 712-22.

Byrk, A.S. and Raudenbush, S.W. (1992), *Hierarchical Linear Models: Applications and Data Analysis Methods*, Sage, Thousand Oaks, CA.

Carver, C.S. and Scheier, M.F. (1990), "Origins and functions of positive and negative affect: a control-process view", *Psychological Review*, Vol. 97, pp. 19-35.

Carver, C.S., Sutton, S.K. and Scheier, M.F. (2000), "Action, emotion, and personality: emerging conceptual integration", *Personality and Social Psychology Bulletin*, Vol. 26, pp. 741-51.

Depue, R.A. and Iacono, W.G. (1989), "Neurobiological aspects of affective disorders", *Annual Review of Psychology*, Vol. 40, pp. 457-92.

Ekman, P. (1992), "An argument for basic emotions", *Cognition and Emotion*, Vol. 6, pp. 169-200.

Fisher, C.D. (2003), "Why do lay people believe that satisfaction and performance are correlated? Possible sources of a commonsense theory", *Journal of Organizational Behavior*, Vol. 24, pp. 753-77.

Fisher, C.D. and Ashkanasy, N.M. (2000), "The emerging role of emotions in work life: an introduction", *Journal of Organizational Behavior*, Vol. 21, pp. 123-9.

Fowles, D.C. (1987), "Application of a behavioral theory of motivation to the concepts of anxiety and impulsivity", *Journal of Research in Personality*, Vol. 21, pp. 417-35.

Gray, J.A. (1981), "A critique of Eysenck's theory of personality", in Eysenck, H.J. (Ed.), *A Model for Personality*, Springer, New York, NY, pp. 246-76.

Gray, J.A. (1990), "Brain systems that mediate both emotion and cognition", *Cognition and Emotion*, Vol. 4, pp. 269-88.

Harkins, S.G. and Lowe, M.D. (2000), "The effects of self-set goals on task performance", *Journal of Applied Social Psychology*, Vol. 30, pp. 1-40.

Higgins, E.T. (1998), "Promotion and prevention: regulatory focus as a motivational principle", *Advances in Experimental Social Psychology*, Vol. 30, pp. 1-46.

Hofmann, D.A., Griffin, M.A. and Gavin, M.B. (2000), "The application of hierarchical linear modeling to organizational research", in Klein, K. and Kozlowski, S. (Eds), *Multilevel Theory, Research, and Methods in Organizations: Foundations, Extensions, and New Directions*, Jossey-Bass, San Francisco, CA, pp. 467-511.

Ilgen, D.R. and Davis, C.A. (2000), "Bearing bad news: reactions to negative performance feedback", *Applied Psychology: An International Review*, Vol. 49, pp. 550-65.

Ilgen, D.R., Fisher, C.D. and Taylor, M.S. (1979), "Consequences of individual feedback on behavior in organizations", *Journal of Applied Psychology*, Vol. 64, pp. 349-71.

Ilies, R. (2003), "A dynamic multilevel model of task motivation linking personality, affective reactions to feedback, and self-regulation", unpublished doctoral dissertation, University of Florida, Gainesville, FL.

Ilies, R. and Judge, T.A. (2002), "Understanding the dynamic relationship between personality, mood, and job satisfaction: a field experience-sampling study", *Organizational Behavior and Human Decision Processes*, Vol. 89, pp. 1119-39.

Ilies, R. and Judge, T.A. (2005), "Goal regulation across time: the effects of feedback and affect", *Journal of Applied Psychology*, Vol. 90, pp. 453-67.

Judge, T.A. and Ilies, R. (2002), "Relationship of personality to performance motivation: a metaanalytic review", *Journal of Applied Psychology*, Vol. 87, pp. 797-807.

Jussim, L., Yen, H. and Aiello, J.R. (1995), "Self-consistency, self-enhancement, and accuracy in reactions to feedback", *Journal of Experimental Social Psychology*, Vol. 31, pp. 322-56.

Kelly, J.R. and Barsade, S.G. (2001), "Mood and emotions in small groups and work teams", *Organizational Behavior and Human Decision Processes*, Vol. 86, pp. 99-130.

Kernis, M.H., Brockner, J. and Frankel, B.S. (1989), "Self-esteem and reactions to failure: the mediating role of overgeneralization", *Journal of Personality and Social Psychology*, Vol. 57, pp. 707-14.

Kluger, A.N. and DeNisi, A. (1996), "The effects of feedback interventions on performance: historical review, a meta-analysis and a preliminary feedback intervention theory", *Psychological Bulletin*, Vol. 119, pp. 254-84.

Kluger, A.N., Lewinsohn, S. and Aiello, J.R. (1994), "The influence of feedback on mood: Linear effects on pleasantness and curvilinear effects on arousal", *Organizational Behavior and Human Decision Processes*, Vol. 60, pp. 276-99.

Larsen, R.J. and Diener, E. (1992), "Promises and problems with the circumplex model of emotion", *Review of Personality and Social Psychology*, Vol. 13, pp. 25-59.

Larsen, R.J. and Ketelaar, T. (1989), "Extraversion, neuroticism, and susceptibility to positive and negative mood induction procedures", *Personality and Individual Differences*, Vol. 10, pp. 1221-8.

Lee, C. and Bobko, P. (1992), "Exploring the meaning and usefulness of measures of subjective goal difficulty", *Journal of Applied Social Psychology*, Vol. 22, pp. 1417-28.

Locke, E.A. (1982), "Relation of goal level to performance with a short work period and multiple goal levels", *Journal of Applied Psychology*, Vol. 67, pp. 512-4.

Locke, E.A. (1997), "The motivation to work: what we know", *Advances in Motivation and Achievement*, Vol. 10, pp. 375-412.

Lord, R.G., Klimoski, R.J. and Kanfer, R. (2002), *Emotions in the Workplace: Understanding the Structure and Role of Emotions in Organizational Behavior*, Jossey Bass, San Francisco, CA.

Mellers, B.A. (2000), "Choice and the relative pleasure of consequences", *Psychological Bulletin*, Vol. 126, pp. 910-24.

Mellers, B.A. and McGraw, A.P. (2001), "Decision affect theory: emotional reactions to the outcomes of risky options", *Current Directions in Psychological Science*, Vol. 10, pp. 210-4.

Mellers, B.A., Schwartz, A. and Ritov, I. (1999), "Emotion-based choice", *Journal of Experimental Psychology: General*, Vol. 128, pp. 332-45.

Moreland, R.L. and Sweeney, P.D. (1984), "Self-expectancies and reactions to evaluations of personal performance", *Journal of Personality*, Vol. 52, pp. 156-76.

Pickering, A.D., Corr, P.J. and Gray, J.A. (1999), "Interactions and reinforcement sensitivity theory: a theoretical analysis of Rusting and Larsen (1997)", *Personality and Individual Differences*, Vol. 26, pp. 357-65.

Rosenberg, M. (1965), *Society and the Adolescent Self-Image*, Princeton University Press, Princeton, NJ.

Rusting, C.L. and Larsen, R.J. (1997), "Extraversion, neuroticism, and susceptibility to positive and negative affect: a test of two theoretical models", *Personality and Individual Differences*, Vol. 2, pp. 607-12.

Saavedra, R. and Earley, P.C. (1991), "Choice of task and goal under conditions of general and specific affective inducement", *Motivation and Emotion*, Vol. 15, pp. 45-65.

Shrauger, J.S. (1975), "Responses to evaluation as a function of initial self-perceptions", *Psychological Bulletin*, Vol. 82 No. 4, pp. 581-96.

Shrauger, J.S. and Rosenberg, S.E. (1970), "Self-esteem and the effects of success and failure feedback on performance", *Journal of Personality*, Vol. 38, pp. 404-17.

Taylor, M.S., Fisher, C.D. and Ilgen, D.R. (1984), "Individual's reactions to performance feedback in organizations: a control theory perspective", in Rowland, K.M. and Ferris, G.R. (Eds), *Research in Personnel and Human Resources*, Vol. 2, JAI Press, Greenwich, CT, pp. 81-124.

Watson, D. (2000), *Mood and Temperament*, Guildford Press, New York, NY.

Watson, D., Clark, L.A. and Tellegen, A. (1988), "Development and validation of brief measures of positive and negative affect: the PANAS scales", *Journal of Personality and Social Psychology*, Vol. 54, pp. 1063-70.

Watson, D., Wiese, D., Vaidya, J. and Tellegen, A. (1999), "The two general activation systems of affect: structural findings, evolutionary considerations, and psychobiological evidence", *Journal of Personality and Social Psychology*, Vol. 76, pp. 805-19.

Weiner, B. (1985), "An attributional theory of achievement, motivation, and emotion", *Psychological Review*, Vol. 92, pp. 548-73.

Weiss, H.M. and Cropanzano, R. (1996), "Affective events theory: a theoretical discussion of the structure, causes, and consequences of affective experiences at work", *Research in Organizational Behavior*, Vol. 18, pp. 1-74.

Weiss, H.M., Nicholas, J.P. and Daus, C.S. (1999), "An examination of the joint effects of affective experiences and job beliefs on job satisfaction and variations in affective experiences over time", *Organizational Behavior and Human Decision Processes*, Vol. 78, pp. 1-24.

## Further reading

Brockner, J. and Chen, Y. (1996), "The moderating role of self-esteem and self-construal in reaction to a threat to the self: evidence from the People's Republic in China and the United States", *Journal of Personality and Social Psychology*, Vol. 71, pp. 603-15.

Campbell, J.D. and Fairey, P.J. (1985), "Effects of self-esteem, hypothetical explanations, and verbalization of expectancies on future performance", *Journal of Personality and Social Psychology*, Vol. 48, pp. 1097-111.

Campion, M.A. and Lord, R.G. (1982), "A control systems conceptualization of the goal-setting and changing process", *Organizational Behavior and Human Performance*, Vol. 30, pp. 265-87.

Carver, C.S. and Scheier, M.F. (1981), *Attention and Self-Regulation: A Control Theory Approach to Human Behavior*, Cambridge University Press, Cambridge.

Erez, A. and Isen, A.M. (2002), "The influence of positive affect on the components of expectancy motivation", *Journal of Applied Psychology*, Vol. 86, pp. 1055-67.

Kanfer, R. and Ackerman, P.L. (1989), "Motivation and cognitive abilities: an integrative aptitude-treatment interaction approach to skill acquisition", *Journal of Applied Psychology*, Vol. 74, monograph, pp. 657-90.

Latham, G.P. and Locke, E.A. (1991), "Self-regulation through goal setting", *Organizational Behavior and Human Decision Processes*, Vol. 50, pp. 212-47.

Locke, E.A. and Latham, G.P. (1990), *A Theory of Goal Setting and Task Performance*, Prentice-Hall, Englewood Cliffs, NJ.

Mellers, B.A., Schwartz, A., Ho, K. and Ritov, I. (1997), "Decision affect theory: emotional reactions to the outcomes of risky options", *Psychological Science*, Vol. 8, pp. 423-9.

Mento, A.J., Steel, R.P. and Karren, R.J. (1987), "A meta-analytic study of the effects of goal setting on task performance: 1966-1984", *Organizational Behavior and Human Decision Processes*, Vol. 39, pp. 52-83.

Phillips, J.M., Hollenbeck, J.R. and Ilgen, D.R. (1996), "Prevalence and prediction of positive discrepancy creation: examining a discrepancy between two self-regulation theories", *Journal of Applied Psychology*, Vol. 81, pp. 498-511.

Spector, P.E. and Fox, S. (2002), "An emotion-centered model of voluntary work behavior: some parallels between counterproductive work behavior and organizational citizenship behavior", *Human Resource Management Review*, Vol. 12, pp. 269-92.

Vance, R.J. and Colella, A. (1990), "Effects of two types of feedback on goal acceptance and personal goals", *Journal of Applied Psychology*, Vol. 75, pp. 68-76.

Vroom, V.H. (1964), *Work and Motivation*, Wiley, New York, NY.

**About the authors**

Remus Ilies is the Gary Valade Research Fellow and associate professor of management in the Eli Broad College of Business and Graduate School of Management at Michigan State University. His research examines the effects of personality, emotions, affect and attitudes on individual outcomes such as motivation, well-being and work-family balance, and on broad organizational outcomes such as leadership. Ilies serves on the editorial boards of *Journal of Applied Psychology*, *Journal of Organizational Behavior* and *Leadership Quarterly*. Remus Ilies is the corresponding author and can be contacted at: ilies@msu.edu

Irene E. De Pater is assistant professor in Work and Organizational Psychology at the University of Amsterdam, The Netherlands. Her research interests include job challenge, career development, gender at work, work behaviors and incivility at work.

Tim Judge is the Matherly-McKethan Eminent Scholar, Department of Management, Warrington College of Business, University of Florida. Judge holds a Bachelor of Business Administration degree from the University of Iowa, and Master's and doctoral degrees from the University of Illinois. He was formally full professor at the University of Iowa and associate professor at Cornell University. Judge's research interests are in the areas of personality, moods and job attitudes, leadership and influence behaviors, and staffing. He serves on the editorial review boards of several journals, including *Academy of Management Journal*, *Journal of Applied Psychology*, *Personnel Psychology* and *Organizational Behavior and Human Decision Processes*.