The Hebrew University of Jerusalem

School of Business Administration

Organizational Behavior group

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Goal-orientation theory and regulatory-focus theory: The "conflicting" effects of feedback-sign.

Submitted by: Liat Levontin

Submitted to: Prof. Avraham N. Kluger

Abstract

What motivates people more -- positive or negative feedback? Pieces of the answer may be found in regulatory-focus theory (Higgins, 1998) and goal-orientation theory (Dweck, 1986). We compare these theories and find them largely similar with respect to their key motivational states: Promotion focus (Higgins) appears similar to learning goals (Dweck) and prevention focus (Higgins) appears similar to performance goals (Dweck). Nevertheless, these theories yield some conflicting predictions for the effects of feedback sign (positive or negative) on motivation. For example, self-regulation theory suggests that under prevention focus negative feedback motivates more than positive feedback. In contrast, goal-orientation theory (Dweck, 1986) suggests that positive feedback motivates more than negative feedback when people hold performance goals. To resolve these conflicting predictions we consider expectancy theory (Vroom, 1964) as a bridge. Specifically, we suggest that the predictions of goal-orientation pertain largely to the feedback-sign effects on expectancy while the predictions of regulatory-focus theory pertain largely to feedback-sign on valence. Using this argument, we predict that under prevention focus / performance goals feedback-sign will influence valence and expectancy in opposite directions. Specifically, we predicted that negative feedback under prevention focus / performance goals both decreases expectancy and increases valence. This prediction was supported in an experiment, which compared levels of expectancy and valence pre and post failure. Our prediction that task difficulty moderates the influence of negative feedback on expectancy and valence levels under prevention focus / performance goals was not supported (N=122).

Goal-orientation theory and regulatory-focus theory: The "conflicting" effects of feedback-sign.

Numerous studies have been conducted on the effects of various types of feedback interventions (i.e., formal performance appraisals; grades) on motivation and performance. However, there is no general principle that can predict the effectiveness of feedback interventions (DeNisi & Kluger, 2000; Kluger & DeNisi, 1996, 1998). A meta analysis of 607 effect sizes showed that feedback-intervention effects on performance have a large variance such that they can produce both very positive and very negative effects on performance (Kluger & DeNisi, 1996). Specifically, feedback intervention improved performance on average by .4 of a standard deviation, but in more than one third of the cases feedback interventions decreased performance. The large variance of feedback intervention effects on performance suggests the existence of moderators.

Among the central moderators of feedback intervention effects should no doubt be feedback sign (Kluger, Lewinsohn, & Aiello, 1994), an attribute of the feedback message carrying information about success or failure. Surprisingly, feedback sign, per se, did not moderate the effectiveness of feedback interventions (Kluger & DeNisi, 1996). The lack of feedback-sign effects on performance is surprising given that feedback sign has very powerful effects on moods (Kluger et al., 1994). To account for this surprising effect and other feedback effects, Kluger and DeNisi (1996) offered a feedback-intervention theory, but this theory suffers from two shortcomings.

The first shortcoming of Kluger & DeNisi's theory is that it cannot explain feedback-sign effects on motivation (and performance). Indeed Kluger and DeNisi (1996) acknowledged that “at present there is no FI [Feedback Intervention]-related theory that can predict a priori the effects of all the important moderators that determine how feedback-sign affects performance” (p.276). This inconsistent role of feedback sign as a moderator of feedback effectiveness is found in primary-

research reports and theories about feedback sign effects. Van-Dijk and Kluger (2004) summarized the issue as follows: "When people fail, they sometimes 'give up' and sometimes they 'try harder' or 'gird their loins'. In a parallel vein, when people succeed, they sometimes 'bask in their glory' or 'sit on their laurels' and sometimes they 'double their efforts'. Both of these feedback-sign effects are found in empirical literature. One stream of research, based primarily on control theory (e.g., Carver & Scheier, 1981) suggests that failure motivates more than success does. Such effects were found both in the laboratory (Campion & Lord, 1982; Podsakoff & Farh, 1989) and in the field studies (Johnson & Ferstl, 1999; Reilly, Smither, & Vasilopoulos, 1996; Waldersee & Luthans, 1994; Walker & Smither, 1999). Yet, another stream of research based on aspiration levels (Lewin, Dembo, Festinger, & Sears, 1944) and on self-efficacy notions (Bandura, 1986), suggests that people try harder and raise their goals following success (e.g., Lewin et al., 1944; Phillips, Hollenbeck, & Ilgen, 1996)." (p. 114). In summary of the complexity of the feedback-sign issue, we concur with Ilgen and Davis (2000) who acknowledged that "Negative performance feedback is a dilemma" (p. 561).

The second shortcoming of Kluger & DeNisi's theory is its reliance on a construct of attention to the self. Specifically, they suggested that feedback (regardless of its sign) is likely to be debilitating the more its' cues direct attention to the self, rather than to the task. However, the self is not likely to be a unitary construct. For example, Higgins's regulatory-focus theory (1997), suggests that the self is represented with three constructs: actual self, ideal self, and ought self[1]. Regulatory-focus theory further suggests that behavior depends on attention to specific aspects of the self and that when people attend to their selves they may either attend to discrepancies between their actual self and their ideal self or to discrepancies between their actual self and their ought self. Thus, if we want to understand feedback effects and feedback-sign effects in particular, we need to consider various aspects of the self.

Higgins's regulatory-focus theory suggests that various aspects of the self are only a sub-set of variables associated with two general-motivational states he termed promotion focus (an actual-ideal self discrepancy) and prevention focus (an actual-ought self discrepancy). According to this theory, knowing whether a person is under promotion focus or prevention focus (the active regulatory focus) is useful in predicting a wide range of behaviors.

While regulatory-focus theory seems a good candidate for explaining feedback-sign effects, its predictions appear contradictory to those that can be generated by goal-orientation theory (Dweck, 1986; Dweck & Leggett, 1988). Goal-orientation theory also suggests the existence of two broad motivational states: learning goals and performance goals. The construct of learning goals appears similar to promotion focus in that they both involve the seeking of challenge and focus on progress and learning (instigation of a sense of eagerness), whereas the construct of performance goals appears similar to prevention focus in that they both involve maintenance, conservation and ability proving (instigation of a sense of necessity). Despite the similarities of these constructs, both theory and data suggest that failure would increase performance for people who are under prevention focus (Van-Dijk & Kluger, 2004), but decrease performance for people who hold performance goals (e.g., Butler, 1987; Grant & Dweck, 2003). Therefore, whereas both regulatory-focus theory and goal orientation theory consider apparently similar self-related constructs, which may be used to explain feedback-sign effects on motivation, the predictions and findings generated by these theories are in conflict.

This work therefore has three aims: (a) to analyze the similarities between these two prominent theories, and to argue that they are similar and thus one may expect similar predictions regarding feedback sign; (b) to bridge the apparent contradictions regarding feedback sign effects by

considering a third theory – expectancy theory (Vroom, 1964), which will lead to testable hypotheses; and (c) to test the hypotheses regarding negative feedback effects in motivation.

We begin by briefly describing each theory. We follow by comparing regulatory-focus theory and goal orientation theory on several dimensions – nature of action, antecedents and consequences. After establishing our argument that these two theories are indeed similar we present the conflicting predictions of the theories regarding feedback sign and offer a mechanism to resolve this– the expectancy theory. We then analyze feedback-sign effects on expectancy and valence levels and thus on motivation, presents our experiment and it's results and finally discuss the implications of our model.

Goal-orientation theory

Dweck (1986), in her child development research, proposed that motivation can be guided by orientation toward one of two different classes of achievement goals: Learning goals (or mastery goals, task goals) and performance goals (or ego involvement, ability goals)[2]. Individuals with learning goals seek to increase their competence, to understand or master something new. They view achievement situations as opportunities for acquiring new skills, extending mastery or developing and improving ability (Ames & Archer, 1988; Butler, 1987, 1992; Dweck, 1986; Dweck & Leggett, 1988; Nicholls, 1984). The motivation that results from learning goals (even when faced with obstacles) is characterized with interest, enjoyment, positive affectivity, effort, and the assessment of performance progress relative to past performance. On the other hand, individuals with performance goals, seek to establish the adequacy of their ability both in their own eyes and in the eyes of others and to avoid giving evidence of its inadequacy. They view achievement situations as tests or measures of competence. The motivation that results from performance goals is characterized by concerns regarding normative ability, desire to achieve successful outcomes or to avoid unsuccessful ones

relative to others, and an inclination to prove high ability by achieving success with little effort. The consequences of performance goals, when faced with obstacles, are helplessness, anxiety, negative affectivity, risk aversion and low persistence (Ames & Archer, 1988; Butler, 1987, 1992; Dweck, 1986; Dweck & Leggett, 1988; Nicholls, 1984).

The orientation towards either learning goals or performance goals can stem from both chronic individual differences and situational cues. Chronically, the orientation is determined mainly by one's implicit theory of intelligence. The orientation toward learning goals emerges from one's belief that intelligence is a malleable, increasable and controllable quality; the orientation toward performance goals emerges from one's belief that intelligence is a fixed and uncontrollable trait. Situational factors that induce learning (performance) goals include praise for effort (praise for intelligence), and task involvement (attention to peripheral cues such as how well one performs in comparison to others) (Dweck, 1986; Dweck & Leggett, 1988).

Goal orientation theory is well established. It has been used to study motivation in academic domains (Hidi & Harackiewicz, 2000; Leonardi & Gialamas, 2002; Middleton & Midgley, 2002; Ross, Shannon, Salisbury-Glennon, & Guarino, 2002), work domains (Button, Mathieu, & Zajac, 1996; Sujan, Weitz, & Kumar, 1994; VandeWalle, Brown, Cron, & Slocum, 1999), and sports (Boyd, Weinmann, & Yin, 2002; Tod & Hodge, 2001). It was also used to study social judgments (Butler, 1992; Erdley & Dweck, 1993), feedback effects on motivation and feedback seeking (Butler, 1987, 1999; Tuckey, Brewer, & Williamson, 2002).

Although goal orientation theory initially described two broad motivational states, recent studies describe three goal orientations: Learning goal (the goal to develop ability), performance-approach goal (the goal to demonstrate ability), and performance-avoidance goal (the goal to avoid the demonstration of lack of ability). Indeed, factor analyses confirmed the loading of questionnaires

items' (that test individual's goal orientation) on three factors (e.g., Elliot & Church, 1997; Middleton & Midgley, 2002; VandeWalle, 1997). The three-goal model was developed, in part, to improve the concept of performance goals and to solve the problem of inconsistencies in findings regarding this concept. To give just one example, Midgley et al. (1998) describe an inconsistency regarding the relation between performance goals and academic-self efficacy. More specifically, they describe a large number of studies that found that learning goals were positively associated with academic self efficacy, while performance goals were sometimes related positively, sometimes negatively, and sometimes unrelated to academic-self efficacy. It was suggested then, that performance goals involve more than one motivation and should thus be separated into performance-approach goals and performance-avoidance goals. Performance-approach goals are a more complex form of motivation than learning goals and performance-avoidance goals (Elliot & Church, 1997; Elliot & Thrash 2002) that may reflect the simultaneous operations of both approach and avoidance goals. To simplify our treatment of feedback we will concentrate on the less ambiguous orientations (that deal only with avoidance or with approach motivations, but not with both) and only briefly discuss the hybrid motivation (performance-approach goals) in the limitation of our hypotheses. From now and on, we use the term “performance goals” to mean “performance-avoidance goals” for brevity sake.

Regulatory-focus theory

Higgins’ (1997; 1998) extended the basic hedonic principle - approaching pleasure and avoiding pain – and offered regulatory-focus theory that describes important differences in the processes through which people approach pleasure and avoid pain. Specifically, the theory proposes that people have two basic regulatory focus systems. One system regulates the achievement of rewards and focuses individuals on promotion goals, while the other system regulates the avoidance of punishments and focuses individuals on prevention goals.

Each regulatory focus has different consequences for perception, decision making, and emotions (Higgins, 1997, 1998). Individuals who operate primarily within the prevention focus are more concerned with duties and obligations, are likely to be sensitive to the presence or absence of punishments, use avoidance as a strategy, and experience emotions ranging from agitation to quiescence. In contrast, individuals who operate primarily within the promotion focus are more concerned with accomplishments and aspirations, are likely to be sensitive to the presence or absence of rewards, use approach as a strategy, be more creative in problem solving, be more willing to take risks and experience emotions ranging from elation to dejection (Brockner & Higgins, 2001; Crowe & Higgins, 1997; Friedman & Forster, 2001; Higgins, 1997).

The regulatory focus (i.e., whether prevention or promotion goals will influence behavior) is determined both by situational factors and chronic factors (Higgins, 1997, 1998). The factors that lead to promotion focus are the activation of development and growth needs, the framing of the situation in "gain versus non-gain" terms (e.g., one can either get assigned to work on a creative task or not), and the chronic saliency of the discrepancies between ideal selves, namely hopes, wishes, and aspirations, and actual selves. In contrast, the factors that lead to prevention focus are the activation of security needs, the framing of the situation in "loss versus non-loss" terms (e.g., one can either get fired from a job or not), and the saliency of the discrepancy between ought selves, namely, duties, obligations, and responsibilities, and actual selves.

Regulatory-focus theory is well established. It has been used to study goal attainment (Forster, Higgins, & Idson, 1998; Higgins, Shah, & Friedman, 1997; Shah, Higgins, & Friedman, 1998), decision making (Brockner, Paruchuri, Idson, & Higgins, 2002; Crowe & Higgins, 1997), creativity (Friedman & Forster, 2001), information processing and persuasion (Aaker & Lee, 2001) and

feedback and motivation (Forster, Grant, Idson, & Higgins, 2001; Van-Dijk & Kluger, 2004), to name a few domains.

Are regulatory-focus theory and goal-orientation theory similar?

We suggest that regulatory-focus theory and goal-orientation theory are similar first in that they both differentiate between two motivational systems: A maintenance (stability) system (performance goals and prevention focus) that is responsible to maintain routines, and a change system (learning goals and promotion focus) that is responsible for exploring the advantages of novel behaviors. Next, we compare between the theories by considering, for each motivational system, it's nature of action, antecedents and consequences. The purpose of the comparison is to validate our argument that these two theories are very similar on many dimensions. If so, we may expect both theories to have similar predictions regarding feedback sign effects on motivation.

Nature of action

Both regulatory focus and goal-orientation theories suggest that under prevention focus / performance goals, individuals try to avoid mistakes and threats. These types of goals are characterized by a maintenance and conservation approach and caution. "…children who hold performance goals are likely to sacrifice potentially valuable learning opportunities if these opportunities hold the risk of making errors… (Mueller & Dweck, 1998, p. 34); "…a prevention focus emphasis on strategic vigilance should lead to a more careful processing style concerned with avoiding mistakes" (Forster, Higgins, & Bianco, 2003 p. 150). Both theories also suggest that under promotion focus / learning goals individuals tend to pursue challenges and aspirations. These types of goals are characterized by change, development and "taking risks". "…when the learning goal value was highlighted…they opted for challenging tasks and did not forego opportunities to learn new skills, even with public errors." (Elliott & Dweck, 1988); "… a promotion focus emphasis on

strategic eagerness should lead to a more risky processing style that is concerned with getting hits" (Forster et al., 2003, p.150).

Antecedents

Table 1 compares antecedents of regulatory-focus theory and goal-orientation theory. Both theories propose that both situational and individual differences are important antecedents. Next, we discuss some of these antecedents.

Table 1: A comparison of the antecedents of regulatory-focus theory and goal-orientation theory.

	Theory	
Motivational system	**Goal-orientation**	**Regulatory focus**
Prevention / performance		
Needs	Security or esteem	Security
Expected outcomes	Possibility of failure	Loss – non loss
Maintenance versus change	Entity theory	"Prudent" caretaker-child mode
Promotion / learning		
Needs	Self-actualization	Self-actualization
Expected outcomes	Possibility of success	Gain - non gain
Maintenance versus change	Incremental theory	"Bolstering" caretaker-child mode

Needs: Among the antecedents of regulatory foci are needs mapped by Higgins to two of the needs suggested by Maslow's need hierarchy (See Brockner & Higgins, 2001). Security or basic needs lead to prevention focus, whereas higher needs like growth (nurturance) or self- actualization lead to promotion focus. In a similar way, performance goals emphasize preserving the self image by validating ability (satisfying more basic needs like security or esteem), whereas, learning goals emphasize mastering challenges and learning (satisfying growth or self-actualization needs, e.g. Grant & Dweck 2003).

Regulation of expected outcomes: Another antecedent of regulatory foci is the framing of the situation in terms of expected outcomes (Higgins, 1997; Roney, Higgins, & Shah, 1995). In a promotion focus individuals are more sensitive to gains (or success) than to losses, while in a prevention focus individuals are more sensitive to losses (or failure) than to gains. That is why a prevention focus can be created by framing a situation as a loss - non-loss one ("as long as you don't do poorly" – "if you do poorly"), whereas promotion focus can be created by framing the situation as a gain - non-gain one ("if you do well" – "if you don't do well"; Crowe and Higgins 1997). Goal orientation theory (Elliot and Church 1997) also suggests that outcome focus is an antecedent of goal orientations. Specifically, individuals who believe that they can attain competence will orient toward the possibility of success and adopt learning goals, whereas individuals with low expectancies will orient toward the possibility of failure and adopt a performance goal.

Preservation versus change: Among the antecedents of goal-orientations are implicit theories of intelligence (Dweck & Leggett). Individuals who believe that intelligence is a fixed, stable and unchangeable trait (entity theory) tend toward performance goals, whereas individuals who believe that intelligence is a malleable trait and changeable over time (incremental theory) tend toward learning goals. The assumptions which underlie these two opposite perceptions represent the conflict

between preservation and change. In a similar way, among the antecedents of regulatory foci are caretakers – child modes (Higgins, 1996). Caretakers who encourage the child to overcome difficulties, or set up opportunities for the child to engage in rewarding activities use a "bolstering" mode that creates a promotion focus. The caretaker's message to the child is that what matters is change – attaining accomplishments or fulfilling aspirations. Caretakers who train the child to be alert to potential dangers, or teach the child to mind his or her manners use a "prudent" mode that creates a prevention focus. The caretaker's message to the child is that what matters is preservation – attaining safety or meeting obligations.

Consequences.

Table 2 compares some of the consequences of goal-orientations and regulatory foci. It appears again that similar features underlie these constructs. Next we consider some of those consequences.

Table 2. A comparison of the consequences of regulatory-focus theory and goal-orientation theory.

	Theory	
	Goal-orientation	**Regulatory focus**
Motivational system		
Prevention / performance		
Behavioral	Avoidance as strategy	Avoiding risks / mistakes
Emotional	Quiescence - agitation	Helpless, anxiety, stress
Maintenance versus change	Preference for stability	Preserve the self-image

Promotion / learning		
Behavioral	Approach as strategy	Searching for challenges
Emotional	Cheerfulness - dejection	Enjoyment, optimism
Maintenance versus change	Openness to change	Learning and development

Approach and avoidance as behavioral strategies: One consequence of regulatory foci is the use of approach and avoidance as strategic means. Elliot & Covington (2001) describe the fundamental importance of the approach – avoidance distinction: "The distinction between approach and avoidance motivation has deep and widespread intellectual roots, represents a part of the evolutionary heritage that humans share with organisms across the phylogenetic spectrum, is instigated immediately and automatically in response to most if not all stimuli humans encounter, is grounded in the basic neuroanatomical structures of the brain, and concords with the intuitively based knowledge of how humans are motivated in their daily lives" (p.82).

Indeed, regulatory-focus theory (Higgins, 1997) uses this distinction and proposes that prevention focus leads people to use avoidance as strategic means – taking minimum risks, avoiding mistakes and vigilance to assure safety and nonlosses. In contrast, promotion focus leads people to use approach as a strategic mean – striving for completion even at the price of making mistakes, and eagerness to attain advancement and gains. Goal-orientation theory in a very similar way suggests that performance goals leads individuals to sacrifice learning opportunities that involve the risk of making mistakes (avoidance strategy), whereas learning goals leads individuals to take the risk of making an error for the purpose of learning (approach strategy) (Elliott & Dweck, 1988). Although the terminology of approach and avoidance is used with goal-orientation theory only recently, some of the

most important strategic distinctions can be found in the theory from its very beginning (Elliot & Thrash, 2002).

Emotional consequences: It seems that the different emotions described by both regulatory-focus theory and goal-orientation theory reflect the positive activation (PA) - negative activation (NA) dimensions of affect (Watson, Wiese, Vaidya, & Tellegen, 1999). Specifically, promotion focus and learning goals relate to PA, whereas prevention focus and performance goals relate to NA.

Regulatory-focus theory suggests that when promotion goals are salient, success and failure lead to emotions of elation and dejection, respectively. These emotions belong to the PA dimension. Thus, it seems that the PA system is the emotional monitoring system of the success or failure of promotion goals. Similarly when prevention goals are salient, success and failure lead to quiescence and agitation, respectively. Thus, it seems that the NA system is the emotional monitor of the success or failure of prevention goals (Carver, Sutton, & Scheier, 2000).

Goal-orientation theory suggests that learning goals elicit enjoyment, optimism and intrinsic interest (Butler, 1987; Deci & Ryan, 1985; Dweck, 1986; Dweck & Leggett, 1988) that seem to be related to high PA; whereas performance goals elicit helplessness, negative affect, anxiety and stress (Dweck & Leggett, 1988; Ryan & Stiller, 1991) that seem to be related to high NA.

Preservation versus change: Regulatory-focus theory suggests that under prevention focus individuals prefer conservation, while under promotion focus individuals are more open to change (Liberman, Idson, Camacho, & Higgins, 1999). Specifically, Liberman, et al. (1999) found that individuals in prevention focus (more than individuals in promotion focus) preferred to resume an interrupted task rather than do a substitute task. In addition, individuals in prevention focus, but not in promotion focus, exhibited a reluctance to exchange possessed objects. The researchers concluded

that individuals in a promotion focus would be more open to considering a change, while individuals in prevention focus would be more rejecting of change, and prefer stability.

The idea of preservation versus change is expressed also in the literature of goal-orientation theory. Orientation to performance goals reflects a conservative tendency in which people are trying to preserve their self-image and seek to validate and document their ability. As a consequence people who hold performance goals prefer to perform familiar tasks in which they feel "safe" not to make mistakes, and are reluctant to choose difficult tasks (Elliott & Dweck, 1988). Also, since they believe that ability is a stable trait, people who hold performance goals display a primacy effect – attribute initial more than last outcome to ability (Butler 2000). In contrast, an orientation to learning goals reflects an openness tendency in which people are trying to improve and increase their ability and to learn and develop their skills. As a consequence people who hold learning goals would prefer to perform difficult, challenging and new tasks, rather than repeat a familiar task (Elliott & Dweck, 1988). Also, since they believe that ability may change and improve, people who hold learning goals display a recency effect – attribute last more than initial outcome to ability (Butler 2000).

So far, we have discussed the similar antecedents and consequences of goal-orientation theory and regulatory-focus theory and demonstrated these two theories' similar nature of action in terms of maintenance and change. The similarity between the two theories may lead us to expect similar predictions regarding feedback sign effects on motivation. Surprisingly, this is not the case.

Motivation and feedback

Under promotion focus / learning goals, both theories have largely similar predictions: Higher motivation following positive feedback and hardly any effect on motivation for negative feedback. Yet, under prevention focus / performance goals, the two theories have opposite predictions. Regulatory-focus theory predicts an increase in motivation following negative feedback and a

decrease in motivation following positive one. In contrast, goal-orientation theory predicts a decrease in motivation following negative feedback and an increase in motivation following positive one. To argue that these theories are indeed similar we propose a bridge between these conflicting predictions - expectancy theory (Vroom, 1964). Before crossing the "bridge" we discuss the similarities and contradictions between goal-orientation and regulatory focus theories regarding feedback-sign effects.

Goal-orientation theory - The effect of feedback-sign

Individuals who endorse learning goals view effort as a means to increase their ability. They appear to view challenging problems as opportunities to learn something new. They are likely to interpret negative feedback as information about ways to improve the learning process, rather than an indicator of stable low ability. Within such a framework failure simply means that the current strategy may be insufficient to the task (Dweck, 1986; Dweck & Leggett, 1988; Grant & Dweck, 2003; Nicholls, 1984). These individuals are capable of using the environment in ways that help them to adopt more effective strategies (Butler, 1993), therefore, negative feedback does not debilitate their performance.

Individuals who endorse performance goals on the other hand, focus on their ability and its adequacy, and seek to validate it. Within such a framework, feedback is a chief source of relevant information. These individuals tend to see failure (negative feedback) as indicative of lack of ability. Any exertion of effort calls ability into question since high effort is used as an indicator of low ability, and so negative feedback tends to result in defensive withdrawal of effort (Butler, 2000; Dweck, 1986; Dweck & Leggett, 1988; Grant & Dweck, 2003; Nicholls, 1984).

We suggest that goal-orientation theory predicts individuals' levels of motivation mainly by considering changes in expectancy**,** namely, how well one expects to succeed. Expectancies are an

important part of this theory. Dweck and her colleagues (Dweck, 1986; Dweck & Leggett, 1988; Mueller & Dweck, 1998) concentrated on the cognitive and affective reaction of individuals to failure. Moreover, competence expectancies are considered an antecedent of goal orientations (Elliot & Church, 1997; Leonardi & Gialamas, 2002). Expectancy is measured in this line of research using perceived task difficulty (Barron & Harackiewicz, 2001; Steele-Johnson, Beauregard, Hoover, & Schmidt, 2000), self-efficacy (Steele-Johnson et al., 2000; VandeWalle, Cron, & Slocum, 2001), self-appraisal (Butler, 1993), perceived ability (Ames & Archer, 1988) and competence expectancy (Elliot & Church, 1997), and found to be an important mediator of goal-orientation effects.

In summary, individuals high in performance goals are predicted to lose motivation following negative feedback. We therefore suggest that this effect stems from a decline in their expectancy to succeed. Performance goals are associated with common indices of helplessness after failure (Grant & Dweck, 2003). On the other hand, the motivation of people high in performance goals is likely to be increased by positive feedback, and thus success may have beneficial effects including improved performance (Elliott & Dweck, 1988).

Individuals high in learning goals are predicted to be less influenced by negative feedback since they believe that intelligence is malleable and their expectancy to succeed is not harmed much by it. They are expected to have more motivation following positive feedback since their expectancy to succeed sharply increases.

Regulatory-focus theory - The effect of feedback-sign

According to Higgins (Shah & Higgins, 1997), congruence between the regulation focus and type of outcome increases motivation. Individuals under promotion focus are sensitive to positive outcomes - rewards that may be obtained from superior performance. Success and failure are then experienced as the presence of positive outcomes – a gain – and the absence of positive outcomes – a

nongain. On the other hand, individuals under prevention focus are sensitive to negative outcomes - punishments that may result from poor performance. Success and failure are then experienced as the absence of negative outcomes, a nonloss, and the presence of negative outcomes, a loss (Crowe & Higgins, 1997; Shah et al., 1998).

This model can be generalized to feedback interventions. Indeed, under prevention focus individuals are willing to invest more effort after receiving negative feedback than after receiving positive feedback (Van-Dijk & Kluger, 2003; Van-Dijk & Kluger, 2004). In contrast, under promotion focus individuals are willing to invest more effort after receiving positive feedback than after receiving negative feedback. Similarly, Idson & Higgins (2000) found that the more individuals are in a prevention focus, the more their performance increases over time following failure feedback in comparison to success feedback; whereas, the more individuals are in a promotion focus, the more their performance increases over time following success feedback in comparison to failure feedback.

Van-Dijk and Kluger (2003) showed that the same effect of feedback can be also induced situationally. Specifically, failure on an error-detection task that was considered to induce prevention focus led to performance increase, whereas success on this task led to performance decline. In contrast, failure on a creativity task that was considered to induce promotion focus yielded the opposite pattern.

We suggest that regulatory-focus theory predicts individuals' levels of motivation mainly by looking at changes in valence**,** namely, how desirable or important it is to succeed in performing the task. For example according to Higgins and his colleagues (Higgins et al., 1997; Idson & Higgins, 2000) failure maintains, or even strengthens, the vigilance involved in working to attain a goal in a prevention focus, and is experienced with high intensity (Idson & Higgins, 2000). We suggest that this increase in vigilance reflects an increase in the valence of the task following failure. In addition,

Crowe and Higgins (1997) tested situationally-induced prevention and promotion focus, each with high and low valence. They found that best performance on a creative task was for the promotion focus with high valence condition, while best performance on a task that needed accuracy was for the prevention focus with high valence condition. Thus, valence appears to be a key variable in regulatory focus theory (Crowe & Higgins, 1997). In contrast, self-efficacy and other expectancy indicators usually not measured (e.g., Crowe & Higgins, 1997; Roney et al., 1995).

In summary, under prevention focus, failing to prevent an undesired end-state (e.g., failing to prevent the boss from getting angry) increases the valence (desirability) of preventing this end-state because the feedback indicates that one is getting too close to an undesired end-state (Brendl & Higgins, 1996). Success in preventing an undesired end-state (e.g., success in preventing the boss from getting angry) decreases the valence (desirability) of preventing it, because the feedback indicates that the distance from the undesired end-state (an angry boss) is sufficiently large.

In contrast, under promotion focus, individuals have more motivation following positive feedback because the valence of approaching the desired end-state increases as one gets closer to the goal – a phenomena that was termed as the "goal looms larger effect" (Forster et al., 1998). However, following negative feedback motivation is predicted to remain largely unchanged because the valence of achieving a desired end-state is not expected to be much influenced by negative feedback.

Expectancy theory as a bridge between the theories

Table 3 summarizes goal-orientation and regulatory focus theories' predictions regarding the effect of feedback on expectancy, valence, and motivation under prevention focus / performance goals and promotion focus / learning goals: The two theories have similar predictions for feedback-sign effects on motivation for promotion focus / learning goals. Specifically, both theories predict little influence of negative feedback on motivation and an increase in motivation following positive

feedback. However, the two theories have opposite predictions for feedback-sign effects on motivation for prevention focus / performance goals. Goal-orientation theory predicts a decline in motivation following failure due to a decline in the expectancy to succeed. On the other hand, regulatory-focus theory predicts an increase in motivation following failure due to an increase in valence. Conversely, goal-orientation theory predicts an increase in motivation following success as a result of an enhancement of the expectancy to succeed, while regulatory-focus theory predicts a decrease in motivation following success as a result of lower valence.

Table 3 . A comparison of the predictions of feedback-sign effects on expectancy (E), valence (V) and resultant motivation (M) by regulatory-focus theory and goal-orientation theory.

	Goal-orientation		**Regulatory focus**	
Feedback-sign	Performance	Learning	Prevention	Promotion
Negative	E- V? M-	E= V? M=	E? V+ M+	E? V= M=
Positive	E+ V? M+	E+ V? M+	E? V- M-	E? V+ M+

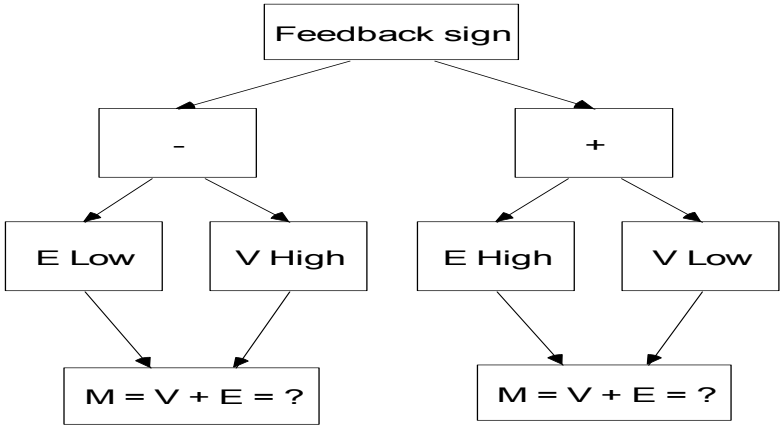
Note. '+' = increase; '-' = decrease; '=' = no change; and '?' = no prediction

The contradicting predictions regarding feedback-sign effects on motivation under prevention focus / performance goals may be bridged by the distinction between two of the components of expectancy theory - valence and expectancy (Vroom, 1964)[3]. Vroom defines valence as the strength of an individual's desire for, or attraction toward an outcome, and expectancy as one's perceived probability to achieve that outcome. We suggest that since research on goal-orientation (e.g., Dweck, 1986; Dweck & Leggett, 1988; Mueller & Dweck, 1998) measured mainly the effects of feedback-sign on expectancy, while research on regulatory focus (e.g., Higgins et al., 1997; Idson & Higgins, 2000) measured mainly the effects on valence, then although both regulatory-focus theory and goal-orientation theory are valid, they are both incomplete in explaining the influence of feedback on motivation. Regulatory-focus theory and goal-orientation theory are both about goals, whereas expectancy theory is about choice processes involved in decisions to adopt or reject these goals. Thus, to fully understand the effect of feedback on motivation, especially under prevention focus / performance goals we need to examine the effects of feedback sign on both expectancy and valence.

Positive-feedback effects on expectancy and valence under prevention focus / performance goals.

We suggest that positive feedback under prevention focus/ performance goals increases the levels of expectancy but reduces the valence of the task (see Figure 1). According to goal orientation theory, individuals who hold performance goals benefit from positive feedback – their performance improves due to higher levels of expectancy and enhanced self-efficacy. On the other hand, according to regulatory-focus theory, positive feedback under prevention focus reduces the valence of the goal and so individuals under prevention focus are predicted to reduce their effort to achieve the goal (as reflected in the mood of quiescence). Thus, the effect of positive feedback on motivation depends on the size of each of the changes.

Figure 1. A flow chart of the possible feedback-sign effects under prevention focus / performance goals.



Negative-feedback effects on expectancy and valence under prevention focus / performance goals.

Under prevention focus / performance goals negative feedback increases the valence of the goal since the goal is important for the self or one's security, and not attaining it produces a threat that should be removed. Moreover, negative feedback reduces expectancy levels because self-efficacy is harmed. Thus, as with positive feedback, the effect of negative feedback on motivation depends on the size of each of the changes. (see Figure 1)

In summary, failure (success) under prevention focus / performance goals influences both valence and expectancy but in opposite directions as presented in Figure 1. Hence, the effect of failure (success) on motivation depends on the degree of change in expectancy and valence.

Predicting the effect of feedback sign on motivation under prevention focus / performance goals:

How can one predict the effect of failure (success) on motivation (M) under prevention focus / performance goals?

In this work we tested the effect of negative feedback, which pertains to the core of our theoretical account.

H1: Under both prevention focus / performance goals and following negative feedback, expectancy declines and valence increases.

If negative feedback has an opposite effect on expectancy and valence levels, then in some circumstances negtaive feedback would influence expectancy levels more than valence levels, and then goal orientation theory may be used to generate predictions; while in other circumstances negative feedback will influence valence leves more, and then we can use regulatory-focus theory to generate predictions. A question remains, which theory is valid under what circumstances? Or in other words, what moderates the effect of negative feedback on expectancy and valence under prevention focus / performance goals?

One such moderator may be task complexity. Specifically, when faced with a complex task, one may be more aware to the possibility of failure. In this case, we expect goal orientation theory's predictions to better describe the effect of feedback sign on motivation. That is, following negative feedback the expectancy to succeed is expected to decline and thus motivation levels are expected to decline. On the other hand, when faced with a simple task, one may be less aware to the possibility of failure and be more confident. Then, more attention may be given to the task valence so that we may expect regulatory-focus theory's predictions to better describe the effect of negative feedback on motivation. That is, negative feedback may suggest that the goal has not been achieved yet and thus motivation is expected to increase.

H2: Task complexity will moderate the effect of negative feedback on expectancy and valence and consequently the effect of negative feedback on effort and performance. Specifically,

H2a: Given a complex task and following negative feedback, individuals under prevention focus / performance goals will report (1) a sharp decrease in expectancy levels; (2) a modest increase or no increase in valence levels; (3) a decline in their intention to invest effort. Consequently they will, (4) spend less time in performing the task; and (5) perform worse than before receiving negative feedback.

H2b: Given a simple task and following negative feedback, individuals under prevention focus / performance goals will report (1) a modest decrease or no decrease in expectancy levels; (2) a sharp increase in valence levels; (3) an increase in their intention to invest effort. Consequently they will, (4) spend more time in performing the task; and (5) perform better than before receiving negative feedback.

Method

Participants

One hundred and twenty two Hebrew University undergraduates (68 men and 54 women, mean age = 24) served as participants in return for course credit or payment of 10 NIS.

Measures

Expectancy. Participants' expectancy to succeed was measured by asking “how well do you believe you will do on the task” on an 11-point Likert-type scale ranging from 1 (not well at all) to 11 (very well).

Valence. Participants' valence was measured by asking "how important is it for you to do well on this task" on an 11-point Likert-type scale ranging from 1 (not important at all) to 11 (very important).

Intention to invest effort. Participant's intention to invest effort in performing the task was measured by asking "how much effort do you intend to invest on this task" on an 11-point Likert-type scale ranging from 1 (none) to 11 (very much).

Effort. Actual effort was measured by the time invested in each anagram, which was registered by the computer.

Performance. Performance was measured by counting the number of correct words typed for each anagram (non-existing words or words that used letters that were not provided were not counted).

Procedure

Participants were randomly assigned to one out of six experimental conditions in 2 (simple / complex task) * 3 (performance goals, prevention focus, control) * (2) (before / after negative feedback) design. Participants performed computerized-anagram tasks. They were asked to find as many words as possible from a given combination of letters and to type them down. There was no time limit.

Following an informed consent to participate in the experiment, participants received general task instructions, after which the motivation variable was manipulated.

Goal orientation (performance goals) was manipulated using task instructions (Nicholls, 1984; Steele-Johnson et al., 2000). Participants were instructed that performance on tasks of the kind they are about to perform reflects basic cognitive capacities and that the higher their underlying cognitive capacities are, the better their performance on such a task should be.

Regulatory focus (prevention focus) was manipulated using the reward for participating - participants were told they might lose some of the money or not (Shah, Higgins & Friedman, 1998). They were told that they are expected not to miss more than 10% of all possible words. Although payment for participating in the experiment is 10 NIS they might lose 5. They would not lose 5 NIS if they missed 10% or less of all the possible words, but they would lose 5 NIS if they missed more than 10% of all the possible words.

Control group participants did not get any information at this stage.

Next, all participants worked on a practice anagram and then reported their expectancy, valence, and intention to invest effort.

Each participant worked on four anagrams in random order. Half the participants were assigned to work on simple anagrams (simple task) that included four letters for each anagram while the other half were assigned to work on complex anagrams (complex task) that included seven letters for each anagram.

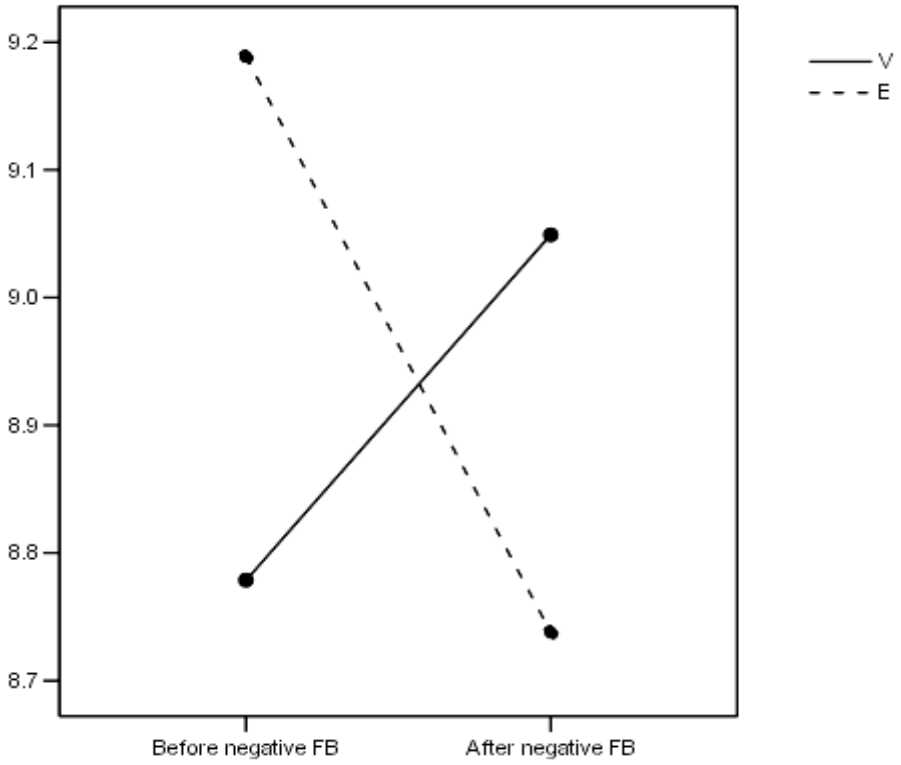
Following the second anagram all participants received (false) negative feedback – "you have performed the task worse than 50% of the other participants". Then, they reported their expectancy, valence, and intention to invest effort for the second time. Finally, participants worked on the last two anagrams, were debriefed and paid 10 NIS and / or received course credit.

Results

To test H1, we performed a two-way within subjects ANOVA with pre-feedback and post-feedback as one factor and type of measure (expectancy or valence) as the second factor. Neither the pre-post feedback nor the type of measure had any main effect ($F(1, 121) = 0.90$; $p >$

.30; eta-squared = .01; and F (1, 121) = 0.11; p > .70; eta-squared = .01, respectively). Yet, consistent with H1, there was a significant two-way interaction (F (1, 121) = 37.55; p < .001; eta-squared = .24) between the type of measure (expectancy and valence) with the time of mesurement (before or after the negative feedback). See the Figure 2 below.

Figure 2: Changes in expectancy and valence



Next, we tested whether the effect of failure on the pattern of changes in expectancy and valence was further moderated by the motivation manipulation (performance goals, prevention focus, control). Thus, we added to the ANOVA the motivation manipulation as a between subject factor. The three-way interaction was significant (F (2, 119) = 3.81; p < .05; eta-squared

= .06). An inspection of this interaction suggests that the two-way interaction between type of measure and time (figure 2) was due largley to the experimantal groups. See separate Figures 3-5 below.

Figure 3 : Prevention focus

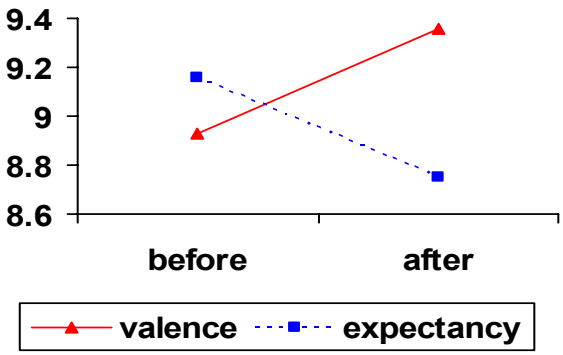


Figure 4: Performance goals

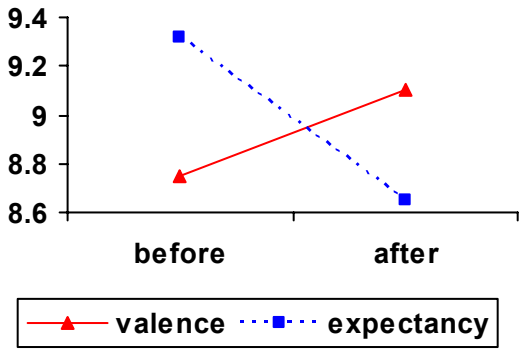
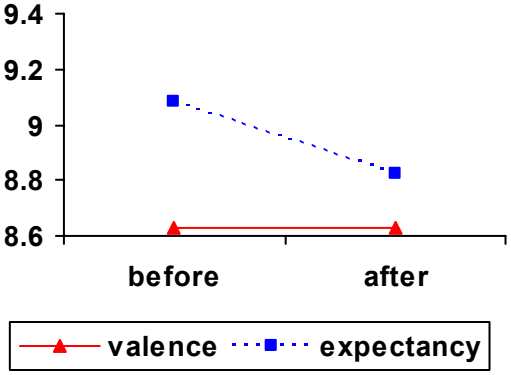


Figure 5:Control



To test various outcomes predicted by H2, we performed a series of mixed ANOVAs with a pre-feedback measure and a post-feedback measure as the within-subjects factor and task complexity and motivation manipulation as between-subjects factors. We ran five ANOVAs separately for each pair of variables: expectancy, valence, intention to invest effort, actual effort, and performance (e.g., pre-feedback expectancy and post-feedback expectancy). None of the three-way interactions or the two-way interactions were significant. (see Table 4 in the appendix).

Moreover, the data suggest that task complexity influences expectancy levels in an opposite way than was hypothesized, meaning that expectancy levels declined following negative feedback more in the simple task condition than in the complex task condition. Also, the data suggest that task complexity influences valence levels in an opposite way than was hypothesized, meaning that valence levels increased following negative feedback more in the complex task condition than in the simple task condition.

Discussion

Our results show that for individuals under prevention focus / performance goals negative feedback both increases the levels of valence and decreases the levels of expectancy, consistent with H1. Thus, the effect of negative feedback on motivation depends on the degree of changes in expectancy and valence levels. Specifically, if valence changes more, we expect motivation to increase, as predicted by regulatory-focus theory, whereas if expectancy changes more, we expect motivation to decrease as predicted by goal orientation theory. Interestingly, the opposing effects of negative feedback on expectancy and valence were more pronounced in the experimental groups than in the control group. Importantly, these stronger effects were similar

for the performance goal manipulation and the prevention focus manipulation, consistent with our theoretical view. Our argument that goal orientation theory and regulatory focus theory are similar is strengthen by our finding that negative feedback influenced expectancy and valence levels of participants in the prevention focus condition and the performance goals condition in a very similar way.

Our hypotheses regarding task complexity as a moderator of the effects of negative feedback on expectancy and valence were not supported. It may be that our tasks are not a good enough representative of complex and simple tasks. It also may be that task difficulty is not a simple moderator of the effect of negative feedback on motivation. Specifically, failing on an easy task may be more devastating than failing on a complex task and similarly, the valence of success on a complex task may be higher than the valence of success on a simple task. Future research should seek to manipulate valence and expectancy directly and by more extreme means to investigate the relative flexibility of expectancy and valence following negative feedback in various contexts.

Furthermore, negative feedback effects on performance may be more complex than merely considering E & V as mediators. Specifically, it is not only that valence and expectancy – two antecedents of motivation and performance – are influenced in opposite ways, but their joint influence is not likely to be linear. Indeed, Shah & Higgins (1997) proposed that whereas under promotion focus the predictions of expectancy theory (Vroom, 1964) hold, under prevention focus they do not. That is,

Under promotion focus: Motivation = Expectancy (E) + Valence (V) **+** E*V, but,

Under prevention focus: Motivation = Expectancy (E) + Valence (V) **-** E*V.

We performed a regression to predict the effects of expectancy and valence on performance. Performance was the dependent variable and expectancy (E), valence (V), and the multiplication of expectancy and valence (EV) were the predictors. The regression was significant ($F(3,118) = 7.77$, $p < .001$) but neither E ($\beta = .12$, $p < .3$) nor V ($\beta = .259$, $p < .2$) had a significant effect on performance. Yet, EV ($\beta = -.24$, $p < .05$) had a significant effect on performance and this effect was negative. These results replicate Shah & Higgins' (1997) results and suggest that only the combination of low E and low V leads to performance decline (as indexed by the negative interaction term), meaning that following negative feedback, performance will decline only if both E & V decline.

This added complexity suggests that to understand feedback effects on performance we need first to reduce the complex motivational processes to their underlying elements. We hope that this study serves as one more step towards this goal.

Our study suggests that to predict negative feedback effects on motivation one needs to measure both expectancy and valence levels. Yet, many studies were conducted using goal orientation theory or regulatory focus theory and most report findings that are consistent with the theory's predictions. So how can it be that research done using goal orientation theory reports a decline in motivation and performance following negative feedback, while research done using regulatory focus theory reports and increase in motivation and performance following negative feedback? First it may be that studies that found other results are not published. But, more importantly, we suggest two other explanations: the relative flexibility of expectancy (E) versus valence (V) in response to feedback, and prior experience with the task.

Relative flexibility of expectancy (E) versus valence (V): The relative degree of flexibility may depend in part on the initial values of E and V. We suggest that as either E or V gets extreme (either

very high or very low) it may become more rigid and less flexible. Thus, in an extreme situation where either E or V is extreme (and consequently inflexible) only changes in the other component influences motivation. Specifically, motivation (M) is defined as the sum of the effects of E, V, and their interaction (M = E + V +- EV) (Vroom, 1964; Shah & Higgins, 1997). If the value of either E or V is inflexible then motivation can be predicted by looking only at the other factor (i.e., if E = constant then M= f (V), and vice versa). We suggest that goal orientation theory is tested mainly in situations and tasks in which V is high and thus relatively inflexible, which means that feedback influences E levels more than V levels. On the other hand, we suggest the self-regulatory theory is tested mainly using tasks in which E is high and thus inflexible, which means that feedback influences V levels more than E levels.

Much of the research on goal orientations was done in achievement situations in which valence levels are high to begin with. As Grant and Dweck put it: "We believe that it is important to look at goal effects when individuals experience major setbacks or failure on highly valued tasks, because it is under these conditions that we would expect goal effects on motivation… …to be maximal." (2003, pp. 545-546). As we suggested, in achievement situations, in which valence levels are high, feedback influences the expectancies more than it influences the task valence. Laboratory research of goal-orientation theory also used achievement tasks with potentially high valence. We deduct that these tasks had high valence because failure in any of these tasks can threaten the self image of the participant. Tasks that were used in these studies include, for example, multiplying two-digit numbers (Barron & Harackiewicz, 2001), filling a target container using three other containers in as few moves as possible (Butler, 1993, 1999), and solving numerical series problems (Butler, 2000). In such situations, positive feedback that strengthen the expectancies to succeed may also lead to excellent performance results, whereas negative feedback that reduces the expectancies to succeed may lead to

poor performance results. This pattern has been well documented (e.g., Elliott & Dweck, 1988; Grant & Dweck, 2003).

The research on regulatory focus is done using tasks for which participants may have initially-high expectancy. We deduct that these tasks had high expectancy because the tasks were more removed from the academic life for which student-participants are likely to develop a general-failure apprehension and more similar to games that they may play. Tasks that were used in these studies include, for example, working on anagrams (Crowe & Higgins, 1997; Roney et al., 1995; Shah et al., 1998), counting backwards, sorting members of a category (fruits) to subgroups on as many different dimensions as possible, and locating a simple figure within a larger and more complex figure (Crowe & Higgins, 1997). Most participants would most likely find these tasks novel, will not associate these tasks with familiar academic tasks, and would not have prior experience with them. In such tasks, expectancies to succeed may be relatively high and hence feedback will influence mainly the valence levels.

Prior experience: In a situation or task, in which one has prior experience, one also has a certain expectancy to succeed or fail. A dynamic pattern in reaction to failure was well documented by Mikulincer's (1994) comprehensive work on learned helplessness. He found that initial failures lead to reactance and an increase in effort, while subsequent failures lead to withdrawal and effort reduction. We suggest that these results can be interpreted in terms of expectancy and valence levels. Specifically, in the first few failures expectancy is not harmed, and an increase in valence enhances motivation as predicted by regulatory-focus theory. After failing a number of times expectancy is severely harmed, and failure reduces motivation as predicted by goal-orientation theory. Since goal-orientation theory is often tested in classrooms (e.g., Butler, 1992; Grant & Dweck, 2003; VandeWalle et al., 2001) it is reasonable to assume that the tasks used in this line of research is either

directly or by association linked to prior experience of repeated failure. Thus, another failure, even on a new task that resembles school work, may be influenced by students' generalized moderate or even low expectancy to succeed. This may explain the findings that failure reduces motivation under performance orientation. On the other hand, regulatory-focus theory is usually tested in the lab using relatively novel tasks that are not associated with pre-existing expectations. Thus, failure in such situations may largely enhance V. This may explain the findings that failure enhances motivation under prevention focus.

Implication for work settings:

An employer who observes an employee that is driven by prevention focus / performance goals needs to weigh the use of negative feedback and apply it largely for behaviors for which the expectancy is not likely to be harmed by failure. This conclusion is congruent with Ilgen and Davis (2000) who acknowledged that "Negative performance feedback is a dilemma" (p. 561). Negative feedback both increases the task valence and decreases the employee's expectancy to succeed on this task. We suggest that negative feedback should be used mainly with tasks for which the expectancy to succeed is high and thus are less sensitive to negative feedback. Telling an employee that one's record of attendance is below the norm may be very effective in improving tardiness and absenteeism (due to high valence) while telling an employee that one's record of business decisions is inferior to one's peers may retard performance (due to low expectancy).

Performance appraisal ratings are greatly influenced by the performance appraisal purpose (Taylor & Wherry, 1951 in Jawahar & Williams, 1997). When the performance appraisal system is used for administrative purposes (promotion, raises, demotions, merit payments, etc.) the entire mind set in the organization may be of prevention. Then, managers prefer to avoid rating their subordinates, the atmosphere around the process is one of apprehension, and the ratings tend not to

differentiate among most employees (rating distributions tend to be negatively skewed) but rather to single out those who completely failed their task. In such a case, the only meaningful feedback is negative feedback because it stands out against the norm and creates a threat. As discussed earlier, negative feedback influences both valence and expectancy levels but in opposite directions. It appears that in such cases employers are playing with a delicate balance between the positive effect of failure on valence and the negative effect of failure on expectancy.

Future research

Future research should test the hypothesis that positive feedback also influences expectancy and valence levels in a similar way under both prevention focus and performance goals. Also, future research should examine the hypothesis that feedback sign influences expectancy and valence levels under both promotion focus and learning goals in a similar way.

Future theory development

Our model discussed only pure motivations. There are hybrid motivations like performance-approach motivation that should be considered regarding feedback sign effects and their influence on expectancy and valence levels and on motivation. We suggested that for individuals with promotion focus / learning goals feedback influences both expectancy and valence in the same direction, while for individuals with prevention focus / performance goals feedback influences expectancy and valence in opposite directions. It may be that for individuals with hybrid motivations positive feedback influences expectancy and valence levels in the same direction like for those with promotion focus / learning goals, while negative feedback influences expectancy and valence levels in opposite directions like for those with prevention focus / performance goals. This hypothesis needs to be elaborated.

Limitations

Expectancy and valence interdependence. In our study we used expectancy theory (Vroom, 1964) as a bridge between the contradicting predictions of goal orientation theory and regulatory focus theory. Expectancy models implicitly assume independence between E and V – an assumption which is not necessarily tenable because more valued outcomes (V) may have lower levels of expectancy (Brandstatter, Kuhberger, & Schneider, 2002). More theoretical development is needed to explicate the conditions that determine the relative independence of E from V.

Instrumentality. In our study we measured only expectancy and valence and mentioned that instrumentality levels are not influenced by feedback-sign. However, given that expectancy theory (Vroom, 1964) suggests that instrumentality is one of the three antecedents of motivation, further theoretical work is needed for considering how this component interacts with regulatory focus and goal orientation.

Feedback features other than sign. Our study tested the effect of negative feedback on motivation, valence and expectancy levels. Our model does not discuss though, other features of feedback that may influence motivation as well, such as acceptance of the feedback (Nease, Mudgett, & Quinones, 1999), or whether the feedback is integral to the task or must be sought (Sonnentag, 1998). Some of these characteristics of feedback may moderate the influence of negative feedback on motivation. More theory development is necessary on these matters.

Conclusion

We started this work by asking whether positive feedback is more effective in raising motivation than negative feedback. Our analyses suggest that although the answer is complex, by considering both valence and expectancy we can provide some initial answers: Feedback sign is positively correlated with expectancy; and can be correlated both positively and negatively with

valence depending on regulatory focus / goal orientation. Our model paves the way for multiple studies that may further clarify the dilemma of feedback.

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Footnotes

[1] Actual self is the domain of self representing the attributes people and their significant others believe they actually possess; ideal self is the domain of self representing people's own and significant others' hopes, wishes, or aspirations for them; and ought self is the domain of self representing people's own and significant others' sense of their duties, obligations, or responsibilities (Higgins, 1987; Strauman, 1996). The third author thanks Batia Wisenfeld for pointing out this possibility during a talk the author gave at New York University.

[2] Note that the various terms are used interchangeably in this literature (e.g., Grant & Dweck, 2003).

[3] Feedback-sign seems to have little effect on the third component of expectancy theory - instrumentality. Instrumentality is one's beliefs regarding the association between success or failure and the hoped outcome (an outcome – outcome association). If instrumentality is strong (success will definitely bring the hoped outcome and failure will definitely not) then feedback (no matter the sign) may get more attention than when instrumentality is weak (there is little connection between success or failure and attaining the hoped outcome). However, although different feedback types may influence instrumentality, the sign of the feedback may not be relevant for instrumentality. Thus, in our following review of feedback-sign effects we will consider only the effects on expectancy and valence.

Appendix

Table 4 Three-way mixed ANOVAs on expectancy, valence, intention to invest effort, actual effort, and performance.

		Expectancy	Valence	Intention	Effort	Performance
SOURCE	DF	F	F	F	F	F
Pre-Post Feedback (A)	1	13.49**	6.82**	1.09	.17	.16
Motivation manipulation (B)	2	.00	.85	1.43	.40	.24
Task Complexity (C)	1	.57	.15	3.81*	40.73**	.25
A*B	2	1.13	1.34	2.18	1.93	.92
A* C	1	2.58	3.41	2.26	.51	.19
B*C	2	.10	.12	.14	2.31	2.60
A*B*C	2	.32	.49	.97	1.35	.88

**= p<.01. *=P<.05. N=122.

Table 5: Expectancy descriptive statistics (1-11 scale)

	Motivation manipulation	Task difficulty	Mean	Std. Deviation	N
Before feedback	SR	complicated	9.23	1.541	22
		easy	9.09	1.849	22
	GO	complicated	9.43	1.399	21
		easy	9.21	1.475	19
	Control	complicated	8.94	1.784	17
		easy	9.19	1.289	21
After feedback	SR	complicated	9.05	1.731	22
		easy	8.45	2.283	22
	GO	complicated	8.81	2.205	21
		easy	8.47	1.712	19
	Control	complicated	9.00	2.000	17
		easy	8.67	1.798	21

Table 6: Valence descriptive statistics (1-11 scale)

	Motivation manipulation	Task difficulty	Mean	Std. Deviation	N
Before feedback	SR	complicated	8.86	1.935	22
		easy	8.86	1.746	22
	GO	complicated	8.81	1.632	21
		easy	8.68	1.827	19
	Control	complicated	8.53	1.972	17
		easy	8.71	1.765	21
After feedback	SR	complicated	9.36	1.706	22
		easy	9.36	1.814	22
	GO	complicated	9.33	1.560	21
		easy	8.84	1.772	19
	Control	complicated	8.88	2.027	17
		easy	8.43	2.293	21

Table 7: Intention to invest effort descriptive statistics (1-11 scale)

	Motivation manipulation	Task difficulty	Mean	Std. Deviation	N
Before feedback	SR	complicated	9.50	1.535	22
		easy	9.09	1.900	22
	GO	complicated	9.38	1.596	21
		easy	8.68	1.376	19

	Control	complicated	9.06	1.676	17
		easy	8.95	1.465	21
After	SR	complicated	9.86	1.670	22
feedback		easy	9.41	1.869	22
	GO	complicated	9.67	1.560	21
		easy	8.79	1.653	19
	Control	complicated	9.24	1.751	17
		easy	8.38	2.179	21

Table 8: Actual effort descriptive statistics (milliseconds units)

	Motivation manipulation	**Task difficulty**	**Mean**	**Std. Deviation**	**N**
Before	SR	complicated	270153.10	178682.390	21
feedback		easy	424563.32	212895.032	22
	GO	complicated	201541.95	96644.683	21
		easy	516226.00	361918.854	19
	Control	complicated	164141.13	91923.448	15
		easy	536505.14	348056.615	21
After	SR	complicated	304729.43	196525.564	21
feedback		easy	438488.00	200163.974	22
	GO	complicated	216981.33	108091.912	21
		easy	574779.63	418724.983	19
	Control	complicated	171148.73	114943.788	15
		easy	449237.48	289365.117	21

Table 9: Performance descriptive statistics

	Motivation manipulation	Task difficulty	Mean	Std. Deviation	N
Before feedback	SR	complicated	1.01	.079	21
		easy	.97	.069	22
	GO	complicated	.98	.073	21
		easy	1.00	.072	19
	Control	complicated	.95	.070	15
		easy	1.00	.079	21
After feedback	SR	complicated	1.01	.090	21
		easy	.99	.047	22
	GO	complicated	.99	.079	21
		easy	1.01	.078	19
	Control	complicated	.96	.083	15
		easy	.98	.063	21

תקציר

מה מניע אנשים יותר – משוב חיובי או שלילי? חלקים מהתשובה ניתן למצוא בתיאורית ויסות המוקד (היגינס, 1998) ובתיאורית האוריאנטציה למטרה (דווק, 1986.)

אנו משווים בין שתי תיאוריות אלה ומראים שהן דומות בהתייחסות שלהן לשני מצבים מוטיבציוניים מרכזיים: מוקד קידום (היגינס) דומה למטרות למידה (דווק) ומוקד מניעה (היגינס) דומה למטרות ביצוע (דווק). למרות זאת, מתיאוריות אלה נובעים כמה ניבויים הפוכים לגבי ההשפעה של סימן המשוב על מוטיבציה. למשל, תיאורית ויסות המוקד מציעה שתחת מוקד מניעה, משוב שלילי מניע יותר ממשוב חיובי. לעומת זאת, תיאורית האוריאנטציה למטרה מציעה שתחת מטרות ביצוע, משוב חיובי מניע יותר ממשוב שלילי. אנו מציעים כי תיאורית הציפייה (ורום, 1964) יכולה לשמש גשר בין הניבויים ההפוכים של שתי התיאוריות. באופן ספציפי, אנו מציעים שהניבויים של תיאוריית האוריאנטציה למטרה נובעים בעיקר מההשפעה של סימן המשוב על הציפייה בעוד שהניבויים של תיאורית ויסות המוקד נובעים בעיקר מההשפעה של סימן המשוב על הערך. אנו טוענים עוד, כי הן תחת מוקד מניעה והן תחת מטרות ביצוע סימן המשוב משפיע על הציפייה והערך בכיוונים הפוכים. לכן אנו צופים כי משוב שלילי הן תחת מוקד מניעה והן תחת מטרות ביצוע יוריד את הציפייה ויעלה את הערך. ניבוי זה קיבל תמיכה בניסוי שערכנו בו השוונו רמות של ציפייה ושל ערך לפני ואחרי משוב שלילי. הניבוי שקושי המשימה ממתן את ההשפעה של משוב שלילי על ציפייה וערך תחת מוקד מניעה ומטרות ביצוע לא קיבל תמיכה.(N=122).

האוניברסיטה העברית

הפקולטה למנהל עסקים

ההתמחות בהתנהגות ארגונית

עבודת גמר מחקרית בנושא:

Goal-orientation theory and regulatory-focus theory: The "conflicting" effects of feedback-sign.

מוגש לפרופ' אברהם נ. קלוגר

מאי, 2004

ליאת לבונטין