# How Feedback Influences Persistence, Disengagement, and Change in Goal Pursuit

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Feedback is essential for pursuing goals. It enables individuals to adjust their efforts and decide which goals to pursue and which to let go. Feedback predicts goal persistence, disengagement, and goal change. For example, performance evaluations help an individual decide how much to invest in her job, grades help a student decide how much effort to devote to his studies, medical checkups influence one's pursuit of health goals, and feedback from close others influences a person's attention to a friend or a spouse. At certain times, people are more likely to attend to any of these goals after receiving positive feedback than after receiving negative feedback, whereas at other times negative feedback prevails. Accordingly, this chapter examines when and how positive and negative feedback influence goal persistence and when they promote goal disengagement and change.

We define positive feedback as feedback on accomplishments, strengths, and correct responses, and negative feedback as feedback on lack of accomplishments, weaknesses, and incorrect responses. For example, students often receive feedback on academic accomplishments or lack of accomplishments (e.g., when getting on the dean's list vs. failing to do so), their strong versus weak academic areas, and correct versus incorrect exam answers. In addition to these various types of positive and negative feedbacks, often the same level of objective achievement can be presented as either positive or negative. For example, a teacher can emphasize that a student solved correctly 90 percent of the questions on an exam or that she failed to solve 10 percent of them. Because of these different framings of performance, asking when positive feedback (e.g., emphasizing 90% correct answers) has different motivational consequences than negative feedback (emphasizing10% of mistakes) is possible, regardless of the objective level of performance on a goal.

We organize this review of feedback and goal persistence in several parts. We start with a review of research that offers a universal answer: people express greater motivation to persist on a goal after they receive either positive or negative feedback. This research helps us identify the unique self-regulatory processes in which positive versus negative feedback facilitate goal pursuit. We then review research that identifies the circumstances under which each self-regulatory process is more likely and therefore positive versus negative feedback will increase motivation to persist on a goal. We address the impact of feedback on goal striving (i.e., persistence on a goal) as well as goal setting (i.e., people's level of aspiration). In the last part of this chapter, we test implications for how people use feedback strategically in motivating their own and others' goal pursuits. We explore how self-regulators give and seek feedback that is instrumental and helps them maintain and increase their motivation.

## How Feedback Affects Motivation

Several theories that explore how feedback affects goal persistence offer a universal answer to the question of whether people persist on a goal more when they receive positive rather than negative feedback on their performance. These theories identify distinct self-regulatory processes in which feedback influences performance motivation. By exploring the separate "cases" for positive versus negative feedback as a motivational force for goal pursuit, we can thus identify the different self-regulatory processes and the role of feedback in each of them.

### *Positive feedback increases motivation*

Classic research on attitudes argues that positive feedback encourages individuals to invest more resources in a goal. A key finding in that literature is that people desire to be consistent and express stable preferences over time (Bem, 1972; Cialdini, Trost, & Newsom,

1995; Festinger, 1957; Harmon-Jones & Mills, 1999). Therefore, after successfully carrying out an action, the likelihood of choosing similar actions on the next opportunity increases. For example, if a person agrees to display a small sign to advocate driving safety, the person will later feel she should choose to engage in actions consistent with her earlier behavior such as displaying a much larger lawn sign to advocate for the cause (Freedman & Fraser, 1966). Specifically, self-perception theory posits that people learn about their stable preferences from watching themselves act in a particular way (Bem, 1972). For example, when an individual considers she was successful at her job, she might come to infer she cares for her job more than if she considers her lack of success. As a result, positive feedback will increase effort investment.

Goal research has often made a similar point, suggesting that positive feedback promotes goal persistence by increasing outcome expectancy, which increases commitment to a goal (see value × expectancy model, Fishbein & Ajzen, 1974). Specifically, goal research suggests that positive feedback increases individuals' sense of self-efficacy—that they are competent in pursuing a goal—therefore, their efforts will pay off (Bandura, 1991). Congruent with this analysis, social agents whose role is to give feedback often use positive feedback to increase recipients' commitment. In doing so, they assume such feedback encourages individuals to internalize or integrate new goals with the individuals' self-concept, thus increasing the likelihood the individuals will be more committed to pursuing the goal on subsequent occasions (Ryan & Deci, 2000). According to this view, negative feedback may undermine self-efficacy and promote disengagement. For example, research on the what-the-hell effect finds that after failing to pursue a goal, individuals conclude they are (at least temporarily) less able to succeed on a goal and, consequently, they disengage (e.g., they give up on their attempt to quit smoking after smoking a single cigarette; Cochran & Tesser, 1996; Soman & Cheema, 2004).

Positive feedback can take an explicit form, such as when individuals receive information on their accomplishments, strengths, and correct responses, or when they choose to focus on these positive aspects of their performance. In addition, positive feedback can take an implicit form, such as when individuals form an implicit association between a goal activity and positive evaluations, which provide positive feedback that increases goal persistence. Research on affective conditioning illustrates this process, showing that when cues for a goal are paired with positive stimuli, individuals feel good about pursuing their goals and are more likely to initiate and persist on these goals. In this way, positive feedback increases the value of the goal and promotes persistence (Aarts et al., 2008; Custers & Aarts, 2005; see also Ferguson, 2008). For example, participants in one study grew fond of doing puzzles when the word "puzzles" appeared in proximity to positive stimuli and, as a result of this manipulation, they engaged in puzzles in their free time more than in the absence of positive association. Similarly, associating puzzles with negativity decreased pursuit of this activity below baseline.

Overall, the case for positive (and against negative) feedback comes from research that examines how feedback impacts the value individuals assign to a goal or the expectancy of attainment. When feedback impacts the value or expectancy of attainment, it will increase commitment to the goal when it is positive and decrease goal commitment when it is negative.

***Negative feedback increases motivation***

Other research assumes negative feedback promotes goal persistence more than positive or no feedback. This assumption is a key one in cybernetic models of self-regulation, which describe the process of self-regulation as discrepancy-closing (Carver & Scheier, 1998; Miller, Galanter, & Pribram, 1960; Powers, 1973). According to cybernetic models, when a person strives toward a desired end state, the motivational system calculates the size of the discrepancy

between the present state and the desired state and guides action toward closing the gap. The acronym “TOTE” (Test, Operate, Test, Exit) is often used to denote this process. According to this notion, once the person identifies a desired end state, she assesses the required effort to reach this state (Test), which leads her to put effort into achieving it (Operate), which then requires another assessment of the distance (Test), which cycles around recursively until the process ends once the end state is achieved (Exit). For example, a person may perceive he needs to go on a diet. He calculates how much weight to lose, trims calories and exercises, and steps on the scale from time to time. He stops dieting when the gap is closed because he reached his goal (success), unless he concludes the goal is out of reach and alters it.

Research by Carver and Scheier (1990) developed this feedback model into a self-regulatory model of feedback loops. Their model claims that positive and negative emotions provide feedback for self-regulation. Positive emotions provide positive feedback, suggesting the rate of closing the gap to goal attainment is faster than expected. In this case, people reduce their effort or “coast.” In contrast, negative emotions provide negative feedback, suggesting the rate of closing the gap is slower than intended. In this case, people increase their effort investment. A main prediction from this model is that people will work harder toward a goal when they receive negative feedback that makes them feel bad about their goal than when they receive positive feedback that makes them feel good about that goal.

In his self-discrepancy theory, Higgins similarly assumes discrepancies motivate goal adherence (Higgins, 1987). His model distinguishes between the different types of goals individuals pursue and how they may evoke different processes of discrepancy-closing. The basic distinction is between the goals to obtain pleasure versus goals that avoid pain (e.g., get food vs. stay alive). Self-regulation with a promotion focus enables increasing the presence of

positive outcomes or gains, whereas self-regulation with a prevention focus enables decreasing the presence or absence of negative outcomes or losses. The emotional consequences of pursuing promotion goals further differ from those of prevention goals. For promotion goals, successful pursuit results in happiness and failure results in sadness, because these emotions characterize the presence versus absence of gains. In contrast, for prevention goals, successful pursuit results in calmness and failure results in anxiety, because these emotions characterize the absence versus presence of losses.

Congruent with the prediction put forth by cybernetic models (including self-discrepancy theory), other research also finds that positive feedback on successes signals that one has done enough work and can attend to other goals. Such inferences "license" the individual to direct her efforts elsewhere (Khan & Dhar, 2006). For example, research on moral licensing finds that expressing egalitarian attitudes in one context increases the likelihood that a person will engage in discriminatory actions in another context because the positive feedback from the initial behavior justifies disengagement with the egalitarian goal (Monin & Miller, 2001). By that analysis, negative feedback should increase persistence. Indeed, research on the sunk-cost effect has found that people justify their prior efforts by persisting with a course of actions that pursue the same failed goal, because they perceive lack of progress on what appears to be an important cause (Arkes & Ayton, 1999; Arkes & Blumer, 1985; Thaler 1991).

Research on implicit processes in self-regulation similarly finds that positive feedback on goal completion results in disengagement or "post-fulfillment inhibition": a temporary state of inhibiting the goal that was achieved. Goal inhibition is presumably a functional self-regulatory strategy that enables individuals to put aside a completed goal and switch to a goal that was neglected (Förster, Liberman, & Higgins, 2005). Thus, studies on automatic self-regulation find

that before feedback on goal completion is received, accessible goals inhibit competing goals, as indicated by longer times for recognizing concepts related to alternative goals' pursuit (e.g., working out inhibits the goal to study, Shah, Friedman, & Kruglanski, 2002). However, once one receives positive feedback on goal attainment, the goal is inhibited and competing goals become more accessible and ready to be pursued.

To summarize, the research that emphasizes the motivating impact of negative feedback often portrays self-regulation as a process of discrepancy-reducing. The individual who pursues a goal wishes to progress at a sufficient speed and negative feedback increases her motivation by signaling her progress is insufficient. This process of self-regulation is different than the one portrayed by research emphasizing the motivating impact of positive feedback, and we conclude that no universal answer exists regarding which feedback is more motivating. Rather, it depends on the self-regulatory processes, which can give advantage to either valence of feedback. Specifically, feedback that provides information on the value of a goal and expectancy of attainment (i.e., commitment) has a different impact than feedback that provides information on the level of progress toward a goal. In what follows, we identify when each of these self-regulatory processes will take place and thus the circumstances under which each feedback—positive versus negative—is more effective at motivating goal pursuit.

## When Positive versus Negative Feedback Increases Motivation

We reviewed research that examines the self-regulatory process that gives advantage to either positive or negative feedback. That research further assumes that when positive feedback is motivating, negative feedback undermines motivation for goal pursuit, and when negative feedback is motivating, positive feedback undermines motivation. But whereas the reviewed research identifies these different processes of self-regulation, it inevitably leaves open the

question of when each process is more likely and thus when each type of feedback is more effective.

Research on attribution theory addresses the relative advantage of positive and negative feedback in the context of achievement motivation. This research suggests that the attribution of feedback determines its impact. Thus Weiner's attribution theory attests that individuals make three types of attributions of achievement feedback: locus of control (internal vs. external), stability (causes change over time or not), and controllability (high vs. low; Weiner, 1974). These attributions give meaning to the feedback and determine its motivational consequences. For example, a student who receives positive feedback on her academic achievement will increase her efforts if she attributes her success to an internal (vs. external) locus of control and stable causes (vs. causes that change over time), such as talent. That student, however, will be more motivated to study if she receives negative feedback and attributes it to an external factor (difficult test) or an internal factor that is unstable (lack of effort).

Research by Dweck and colleagues explores attributions in the context of learning and evaluating one's academic performance. Their model draws a distinction between two implicit theories of intelligence that vary by the attribution of academic performance: "Entity" theorists view intelligence as an unchangeable, fixed characteristic, whereas "incremental" theorists view intelligence as malleable and increasing through effort. In turn, negative feedback undermines learning motivation among entity theorists, who infer their ability is low, but less so for incremental theorists, who infer they have not put enough effort into the task (Dweck & Leggett, 1988; Elliott & Dweck, 1988).

Other attribution research examines the impact of mood attribution on goal persistence and change. Because mood mediates the impact of feedback on goal persistence (Baumeister,

Vohs, DeWall, & Zhang, 2007; Carver & Scheier, 1998; Higgins, 1987), attribution of negative and positive mood can alter the impact of feedback. In particular, research on stop-rules suggests positive mood results in disengagement more than negative mood when people interpret it as a signal that they have done enough ("stop when you feel you have done enough"). In contrast, positive mood increases goal engagement when people interpret it to as a signal that they like the task ("stop if you do not like the task;" Hirt, Melton, McDonald, & Harackiewicz, 1996; Martin, Ward, Achee, & Wyer, 1993).

## Dynamics of Self-Regulation

Our research on the dynamics of self-regulation distinguishes between two patterns of goal pursuit that have opposite implications for when positive and negative feedback facilitate goal persistence versus justify disengagement and switching to another goal (Fishbach & Dhar, 2005; Fishbach, Dhar, & Zhang, 2006; Fishbach & Zhang, 2008; Koo & Fishbach, 2008; Zhang, Fishbach, & Dhar, 2007). We suggest that for a person pursuing a goal, the level of performance can signal either greater commitment to a desirable end state or faster progress toward this state. When people interpret the pursuit of a goal as a signal of their commitment, they *highlight* that goal. That is, they prioritize the goal by making consistent choices after successes and forgoing the goal after lack of successes. When people interpret pursuing a goal as a signal of their progress, they *balance* between this goal and others. In doing so, they alternate goals after successes and focus on pursuing the focal goal after unsuccessful actions. To illustrate, a student who infers her level of commitment based on academic performance will highlight by focusing on her academic work after experiencing successes, and forgoing her academic work after experiencing a lack of success. In contrast, a student who infers his level of progress on the basis of academic performance will balance by forgoing academic work after successes, because

sufficient progress was achieved, but increasing his effort after lack of successes, because more work is needed.

According to this model, two factors increase people's motivation to work on a goal: (a) the presence of goal commitment, which people infer from positive feedback on successes, and (b) the lack of goal progress, which they infer from negative feedback on failures. Conversely, low commitment, which people infer from failing to pursue a goal, and sufficient progress, which they infer from successfully pursuing a goal, can both undermine the motivation to choose actions that further a focal goal. Importantly, these two representations of goal pursuit—expressing commitment versus making progress—characterize goals that do not have a particular end state as well as goals that do (e.g., general health and career goals vs. meeting a charity goal or completing an assignment at work). Often, both representations are equally plausible; however, at times, one representation is more plausible than the other. For example, when people invest in a goal without making progress (e.g., in sunk cost situations, Arkes & Ayton, 1999), they will infer greater commitment but not progress. Or when people pursue a goal under externally imposed controls, they will infer progress without also inferring greater commitment. As an illustration, we (Finkelstein & Fishbach, in press) foun that imposed healthy eating (e.g., when we asked people to eat food framed as "healthy") makes people hungrier than when they choose to eat healthy food or when they eat the same food framed as "tasty" without emphasizing its healthy characteristics.

When both representations of goal actions are plausible, a number of variables will influence whether people represent goal pursuit in terms of commitment or progress and whether they then exhibit a dynamic of highlighting and increase engagement in response to positive

feedback, or a dynamic of balancing and increase engagement in response to negative feedback. We next review these variables, which we summarize in Table 1.

***Framing questions***

Asking individuals whether their actions reflect their commitment to a goal versus progress on the goal may influence how they frame these actions to themselves and consequently whether their motivation increases in response to positive or negative feedback. The reason framing questions have such impact is that to answer the questions, individuals need to adopt the appropriate goal frame, at least temporarily.

In a study that demonstrates the effect of framing questions, we (Fishbach & Dhar, 2005) asked participants to recall goal pursuits in several domains, including academic, saving, and health goals. We manipulated the representation of goal pursuits by asking participants whether they expressed their level of goal commitment or had made progress toward their goals by pursuing them. Participants then indicated their motivation to switch to a competing goal. For example, with regard to academic goals, student participants in the commitment frame indicated whether they felt committed to academic tasks when they studied, whereas participants in the progress frame indicated whether they felt they had made progress on their academic tasks when they studied. They all then indicated their interest in socializing with friends the night following a day of studying. We found that regardless of participants' agreement with the framing questions, those who answered progress questions expressed more interest in switching to the socializing goal than those who answered commitment questions; hence, they were more likely to seek a balance between the focal goal and alternative ones.

Framing questions impact the meaning people imbue to past actions and thus whether they highlight the focal goal or balance between the focal goal and competing alternatives in the

present. In addition, framing questions can also change the meaning of actions people plan to pursue in the future, and these planned actions will then influence present choices as a function of the dynamic of self-regulation. To demonstrate the effect of planned, future goal actions, we (Zhang et al., 2007) compared goal pursuit among those who considered the meaning of future actions to their commitment versus progress toward their goal. We found that planned actions can signal commitment and competence (Bandura, 1997; Taylor & Brown, 1988; Weiner, 1979), which promotes persistence towards the focal goal in the present, or they can signal upcoming progress toward goal attainment, which substitutes for present actions and encourages the pursuit of inconsistent goal actions (Oettingen & Mayer, 2002). For example, a planned workout can signal to the gym user that he is highly committed to staying in shape or that he is about to make progress toward the health goal. If the gym user infers commitment he will be inclined to exercise today, whereas if he infers progress he will be more inclined to procrastinate today.

***Presentation Format***

Another factor that influences the dynamic of self-regulation is the arrangement of choice options. People often make selections from choice sets that include options that serve multiple goals. For example, people can search for movies at a video store that contains educational films and light comedies, select from highbrow news magazines or lowbrow tabloids on a newsstand, or select songs from a set that includes classical or popular music. In such situations, the presence of multiple-choice alternatives activates the goals that correspond to each option (Shah & Kruglanski, 2003) and the arrangement of the alternatives influences people's perceptions of them as competing against versus complementing each other, and accordingly, the dynamic of self-regulation. For example, the presence of healthy fruits and unhealthy candies activates health versus indulgence goals, and the perceived relationship between these goals as competing

versus complementary influences the dynamic of self-regulation individuals follow across several choices (e.g., whether a person who had a fruit chooses another fruit or a candy subsequently).

Specifically, we (Fishbach & Zhang, 2008) find that presenting choice options apart in two separate choice sets (e.g., two bowls) versus together in one choice set (e.g., one bowl) determines whether individuals perceive the choice as conflicting versus complementary. When the options are apart, they seem conflicting and thus promote a highlighting dynamic of choice; when the options are together, they seem complementary and hence promote a balancing dynamic of choice. One consequence is that in a choice between two competing motivations—a goal and a temptation item (e.g., between healthy and fatty foods)—if the choice alternatives are presented apart from each other and seem to compete, people are more likely to assign a greater value to goal alternatives than to tempting alternatives. As a result, they are more likely to consistently choose the goal alternatives for both immediate and future consumption. If, however, the choice alternatives appear together and seem complementary, people tend to resolve the self-control conflict in favor of the immediately gratifying temptation option. As a result, they value the tempting alternatives more than the goal alternatives and prefer to immediately consume the tempting options, thereby postponing the consumption of goal alternatives to a future occasion. The reason tempting alternatives are selected first is that their value is immediate, whereas the value of the goal alternatives, although larger, is delayed. Thus, in a self-control conflict, a balancing dynamic would most often take the form of “first temptation then goal” rather than “first goal then temptation.”

To demonstrate these effects, we (Fishbach & Zhang, 2008) asked participants to rate the appeal of different healthy and unhealthy food items in one of three presentation formats: (a)

together, to induce complementarity; (b) apart, to induce a sense of competition between the healthy and unhealthy food; and (c) a control condition where participants evaluated each category of items in a separate experimental session. We intentionally selected healthy and unhealthy food items that were similarly appealing when participants evaluated them in separate experimental sessions (e.g., fresh tomatoes vs. a cheeseburger). We found that when healthy and unhealthy food items appeared complementary (together), participants exhibited a greater preference for unhealthy food. In contrast, when healthy and unhealthy foods appeared to compete (apart), participants exhibited greater preference for healthy food (see Figure 1).

In another study (Fishbach & Zhang, 2008), participants chose between a healthy bag of carrots and an unhealthy chocolate bar. Presenting the items in separate piles increased participants' likelihood of making healthy choices (taking the carrots), compared with presenting the items in a single, unsorted pile. Thus, separating the items made them seem to be in competition, and this presentation format, as opposed to presenting the items together, prompted highlighting of the healthy choice.

As these findings demonstrate, in a self-control dilemma, balancing often implies a person is more likely to resolve the conflict in favor of the temptation. Then, to the extent that a person's choices for the future are not binding, a dynamic of balancing may result in a repeated choice of tempting alternatives and postponing of goal alternatives (e.g., when dieters promise to start the diet tomorrow). Under these circumstances, a dynamic of highlighting the overall goal would promote the consistent choice of goal-congruent options and would characterize successful self-control.

***Superordinate goal***

Whether individuals increase goal pursuit in response to positive feedback in a

commitment frame or negative feedback in a progress frame partially depends on their attention to the specific action or subgoal (e.g., a workout) as opposed to its superordinate goal (e.g., a workout vs. health goals). If the superordinate goal is salient, successful performance can signal commitment to this goal more than it can provide a sense of progress, since the overall goal is far from reach. Therefore, positive feedback would increase a person's motivation to highlight the goal by pursuing consistent actions. If, however, the superordinate goal is not salient and a person focuses on the specific activity, positive feedback signals goal progress and even fulfillment, and motivates balancing by moving away from the goal.

In a study that tested the effect of superordinate goal accessibility, we (Fishbach et al., 2006) examined when gym users choose to accompany their workout with a healthy beverage. In order to increase the accessibility of the superordinate health goals, participants completed an experimental survey attached to either a "health and fitness" hardcover book or a phone directory. Both books served as clipboards. We provided feedback on participants' successful workouts by having them evaluate their own workouts relative to another (fictitious) participant who either exercised very little or a lot. We found that when the superordinate health goal was salient (the "health and fitness" clipboard), those who received positive feedback that they exercised more than another person (low-comparison standard) expressed greater interest in a healthy food (e.g., fruits and vegetables over pizza) than those who received negative feedback that they exercised less than another person (high-comparison standard). In contrast, in the absence of the superordinate goal prime, those who received negative feedback expressed greater interest to eat healthily than those who received positive feedback (see Figure 2).

Other studies (Fishbach et al., 2006) found that temporal distance has a similar impact on how people respond to feedback because temporal distance increases the focus on abstract goals

(Liberman & Trope, 1998; Trope & Liberman, 2003; Vallacher & Wegner, 1987). Thus positive feedback on distant goals increases motivation to pursue one's goals because it signals a boost in commitment. In contrast, negative feedback on proximal goals increases motivation because it signals insufficient progress.

***Commitment certainty***

Pre-existing levels of commitment to a goal also influence whether people interpret their actions as a signal of commitment or of progress and how they then respond to feedback. People wish to evaluate their commitment when it is uncertain or relatively low, and they then persist on a goal more after receiving positive rather than negative feedback, because positive feedback signals that the goal is important and worth pursuing further. However, once people are certain about their commitment to a goal, they ask about progress and persist on a goal more after receiving negative rather than positive feedback because negative feedback signals greater discrepancy and need for progress (see also Brunstein & Gollwitzer, 1996; Wicklund & Gollwitzer, 1982).

To demonstrate the impact of commitment certainty on how individuals respond to feedback, we (Koo & Fishbach, 2008) used goals with a clear end state to which we manipulated initial commitment (certain and high vs. uncertain and low) and participants' attention to what they had accomplished versus what remained for them to accomplish. When goals have a clear end state, any accomplishment (e.g., 50% to date) can be framed also as a lack of accomplishment (e.g., 50% to go) without altering the objective information on the level of goal attainment. The question we addressed was which feedback is more motivating: Feedback on completed or remaining actions. We found that when commitment is uncertain, emphasizing completed actions increases goal persistence more than emphasizing remaining actions. An

emphasis on uncompleted actions, in contrast, increases goal persistence when commitment is certain.

For example, in one study (Koo & Fishbach, 2008), student participants rated their motivation to study for either an elective-course pass/fail exam, for which commitment to study was uncertain and relatively low, or to a core-course letter-grade exam, for which the commitment to study was certain and high. Before they rated the amount of time and effort they would devote to studying for one of the exams, participants considered either the exam materials they had already covered or those they had yet to cover. We found that for the elective-course exam (uncertain commitment), emphasizing completed coursework increased students' motivation to study more than emphasizing remaining coursework. However, for the core-course exam, emphasizing remaining (vs. completed) coursework increased motivation to study more (see Figure 3). This pattern reflects participants' distinct representations of goal pursuits. When commitment was uncertain, they chose to study because they had completed some coursework before (positive feedback) and thus they highlighted the study goal. When commitment was certain, they chose to study because they had remaining, uncompleted coursework (negative feedback), thus exhibiting a dynamic of balancing between past and present efforts.

Whereas most of the research on self-regulation concerns pursuit of personal goals (e.g., career and health goals), many goals individuals pursue are group goals, which a collection of individuals works together to achieve (Weldon, Jehn, & Pradhan, 1991; Zander, 1980). For example, individuals often engage in social movements with others, pledge to charities, and accomplish chores with housemates. In studies that examined performance on group goals, we tested how feedback on group performance influences a person's contribution to the group goal as a function of the person's commitment or identification with the group. We found that when

commitment to the group goal is low, people invest more resources if they receive information on other group members' contributions (positive feedback) versus lack of contributions (negative feedback), because existing contributions indicate the goal is important. That is, people's actions follow (or highlight) other group members' actions. In contrast, if people are already committed to the group goal and wish to evaluate the group's progress, they invest more resources if they receive information on other group members' lack of (vs. existing) contributions, because lack of contributions indicates more effort is required to achieve the goal. That is, people's actions compensate (or balance) for other group members' lack of actions. For example, in one field study, we measured contributions to a charity organization ("Compassion Korea," Koo & Fishbach, 2008). We ran a special campaign to help AIDS orphans in Africa. The solicited population included regular donors who made monthly donations to this charity ("hot list") and new donors who indicated interest in donating but had not yet made any contributions ("cold list"). The two groups varied by their commitment level, which was higher for those on the hot list than the cold list. The solicitation letter indicated Compassion set a goal to raise 10 million won and that approximately half of the money had already been raised through various channels. Depending on the experimental condition, the letter further emphasized either accumulated or missing contributions to complete the campaign goal. We measured the effectiveness of the charity appeal by the amount of donations we raised. As Figure 4 shows, among the cold-list donors, an emphasis on accumulated contributions (50% to date) increased the average contribution more than an emphasis on missing contributions (50% to go). This pattern reflects highlighting other group members' contributions by contributing more if others already did. In contrast, among the hot-list donors, an emphasis on missing contributions (50% to go) increased the average contribution more than an emphasis on accumulated contributions (50% to date).

This pattern reflects a dynamic of balancing by using one's own contributions to make up for others' lack of contributions.

## Feedback and Goal Setting

We reviewed research on when positive versus negative feedback increases goal striving: the motivation to persist on a goal. In addition, feedback can influence goal setting: the goal or performance standards individuals plan to pursue after completing a present goal.

To explore goal setting, we examined situations in which individuals' goals followed a goal ladder, in which each goal is a step toward pursuing another, more advanced goal. For example, career paths often follow a trajectory in which an entry-level position is a step toward a more advanced position in the organization, and learning goals often follow a path from a beginner level to an intermediate level and then to an advanced level, in acquiring a new skill. In these goal ladders, a tradeoff exists between repeating the same level and moving forward to a more advanced level. For example, a student who completes a class can choose to take a more advanced class in the same topic or repeat the same (beginner) level for another topic.

The feedback individuals receive on their present goal influences what goal level they set for themselves subsequently, or their *level of aspiration* (Lewin, Dembo, Festinger, & Sears, 1944). Specifically, feedback on missing actions to complete the goal increases the level of aspiration for the next goal more than feedback on completed actions. The focus on missing actions puts people in a progress goal frame, in which they desire to move upward, whereas the focus on completed actions to date puts them in a commitment frame of goals, in which they find the present level satisfying and are less concerned about progress.

To demonstrate this impact of feedback, in one study, we (Koo & Fishbach, in press) asked participants to review a set of unfamiliar musical pieces. After each piece, participants

received one of the following pieces of feedback: (a) the portion of the task they had completed, (b) the portion of the task that remained, or (c) their position in the task (e.g., “you are on #3”). Upon completing their evaluations, participants chose what they would like to do for their next review task. They could choose to advance to a higher level, complete a similar level, or complete a less advanced reviewing task. We found that feedback on remaining actions decreased participants’ liking of the task but increased their level of aspiration, such that they were more likely to choose an advanced level for their next review task (see Figure 5).

In another field study, we (Koo & Fishbach, in press) examined goal setting among employees in an advertising agency. We asked these employees to consider either their completed or upcoming tasks for that year, and then indicate whether they would like to move on to more challenging roles for the next year and how satisfied they were with their current roles in their organization. We found that when employees focused on missing (vs. completed) actions, they set more challenging goals by expressing greater interest in advancing to more demanding roles for the next year, but they were less satisfied with their current roles. Thus negative feedback on missing actions increases level of aspiration in the workplace whereas positive feedback on completed actions increases job satisfaction.

We conclude that whereas feedback on remaining actions directs attention to making progress and increases motivation to move to more advanced levels, feedback on completed actions increases commitment and hence satisfaction with the present level of engagement. Interestingly, in a goal ladder, a commitment frame and the resulting dynamic of highlighting imply staying on the present level of goal engagement to which one is committed, whereas feedback on completed actions and the resulting dynamic of balancing imply setting another, more advanced goal.

This analysis also has implications for research on incentives for goal pursuit. We find that feedback on completed actions increases the incentives associated with engaging in a goal, including the experience of enjoyment, involvement, or importance, whereas feedback on remaining actions increases the incentives associated with making progress and attaining the goal (see also Higgins & Trope, 1990; Kruglanski, 1975; Sansone & Harackiewicz, 1996).

## Strategic Feedback

Because feedback is instrumental for self-regulation, people often use it strategically (though not necessarily consciously) to increase their own or someone else's motivation to persist on a goal. Thus, not only do people respond to feedback but they also give and seek positive and negative feedback in order to increase their and others' motivation to pursue goals. Whereas a large proportion of feedback research concerns people's responses to feedback—how it influences their tendency to persist on a goal—we next explore feedback giving and seeking. We assume feedback providers (e.g., educators, coaches, parents, and bosses) give feedback in order to help individuals adhere to their goals. Additionally, feedback seekers actively solicit feedback from those around them (e.g., friends, family members, colleagues, and neighbors) in order to receive help meeting their goals. The feedback people give and seek can refer to mastery goals, such as how well they perform new skills, but also to relationship goals, such as how well they maintain their relationships.

The basic finding is that across these different goals and three modalities of feedback—giving, receiving, and responding—a relationship exists between experience and valence of feedback, such that individuals shift toward negative feedback as the receiver of the feedback gains more experience or expertise in a goal domain. We next explore this shift.

### *Shifting in responding to feedback*

Positive feedback increases goal pursuit when it signals commitment for less committed individuals, and negative feedback increases goal pursuit when it signals insufficient progress for committed individuals. For example, feedback on materials already covered increased motivation to study for an important exam, and feedback on course materials not covered yet increased motivation to study for a less important exam (Koo & Fishbach, 2008).

Then, because goal commitment increases as individuals gain experience in pursuing goals, another factor that determines whether positive versus negative feedback promotes goal pursuit is expertise: novices tend to view their actions as a signal for commitment, whereas the same actions will signal goal progress for an expert. For example, college freshmen are more likely to ask themselves whether college is right for them, whereas college seniors are more likely to ask about the pace of their progress toward earning their degree and whether they will graduate on time. These changes in emphasis imply that freshmen persist more on studying after receiving positive (vs. negative) feedback (e.g., a good grade), and seniors persist more after receiving negative (vs. positive) feedback (e.g., a bad grade). In a study that illustrates this point, Louro, Pieters and Zeelenberg (2007) found that dieters who felt good about their achievement at the beginning of their diet increased their effort, but those who felt good toward the end of their diet, when they were about to meet their goal, relaxed their dieting efforts.

***Shifting in seeking feedback***

A similar shift from positive to negative feedback exists in feedback seeking. To motivate goal persistence, novices seek positive feedback that increases commitment and experts seek negative feedback that signals insufficient progress. To illustrate this point, we (Finkelstein & Fishbach, 2010) manipulated actual or perceived expertise in several domains and assessed feedback seeking. In one study, we compared feedback seeking among American students

enrolled in advanced and beginner French classes. Students in both classes indicated their interest in taking the class with an instructor that would emphasize what they did well (positive feedback) and one that would emphasize how they could improve (negative feedback). We found that students enrolled in the beginner class were more interested than advanced students in taking the class from an instructor who would emphasize positive feedback. The advanced students, in contrast, were more interested than beginner students in taking the class from an instructor that would emphasize negative feedback.

In another study (Finkelstein & Fishbach, 2010), participants learned a new task (American students typing in German) and could choose between receiving feedback either on their mistakes or on their correct responses after each typing session, comprised of a medium-length paragraph, for up to six sessions. As participants progressed through the learning sessions, they gained expertise. Consistent with our previous findings, a larger proportion of them sought negative (vs. positive) feedback as they progressed through the sessions (see Figure 6).

***Shifting in feedback giving***

A shift toward negative feedback also exists for feedback givers. As the recipient of the feedback moves from a novice to an expert status in a particular domain, they provide more negative feedback. We demonstrated this effect in a study that examined the feedback individuals give to a team member as a function of his assumed expertise (Finkelstein & Fishbach, 2010). Participants had to help their team member prepare for an important presentation by providing positive and negative feedback on his practice presentation. They thought their team member was either new to the team (two months in) or not (two years in). We found that evaluators provided more negative feedback (but not less positive feedback) when they believed their team member was experienced (vs. a novice). Importantly, evaluators who

thought the presenter was experienced (vs. novice) did not rate the quality of the presentation as lower, yet they provided harsher feedback.

***Feedback shift in relationship goals***

People pursue their goals with significant others who are helpful in achieving these goals. People feel closer to significant others who are instrumental for the self's goals—that is, those who encourage the advancement of the goals—and they draw further from non-instrumental others (Fitzsimons & Fishbach, in press; Fitzsimons & Shah, 2008). For example, people feel closer to those they believe will help them achieve their active academic-achievement and fitness goals, such as a sibling who serves as a role model, and they draw further from those who thwart these goals, such as a friend who parties all the time. In addition, once the goal has progressed successfully, people cease to draw closer to these useful others and draw closer to those who are instrumental for alternative goals. For example, once the academic goal has progressed sufficiently, people feel less close their studying partner.

In addition, people seek and provide feedback to significant others. In particular, friends criticize or praise one another on their investment of resources (e.g., time, thoughts, and efforts) toward the relationship goal. This type of feedback is unique in the sense that it is inseparable from the goal—it is from the relationship partner and refers to the person's investment in the relationship.

The status of the relationship as new versus long standing may then influence the valence of the feedback friends exchange on relationship goals. Specifically, new relationship partners wish to evaluate the strength of their commitment to the relationship, and negative feedback will undermine their commitment, thereby reducing their motivation to pursue the relationship. However, as the relationship deepens, relationship partners feel more secure about their level of

commitment to the relationship goal and are less concerned with the negative impact of exchanging negative feedback (i.e., relationship depth acts as a buffer; Linville, 1987; Showers & Kling, 1996; Trope & Neter, 1994). Once the relationship is fully established, negative feedback is further motivating because people in a long-standing relationship are more responsive to negative feedback. Not only can they tolerate it, but it also motivates them to invest resources in the friendship.

We demonstrate in several studies that the deeper partners perceive their relationship to be, the more likely they are to give, seek, and respond to negative feedback by increasing their efforts (Fishbach & Finkelstein, 2010). In a study that demonstrates the shift in feedback giving, we examined the feedback friends give each other as a function of whether they feel their relationship is relatively new or long standing. We manipulated participants' perceived depth of their relationship with a non-romantic friend by having them answer a set of questions about their relationship. For example, participants in the perceived new-relationship condition listed how long they had been friends with the person on a wide scale (1 = less than 20 years; 2 = 20-25 years; 3 = more than 25 years), whereas those in the perceived long-standing-relationship condition answered how long they had been friends with the person on a narrow scale (1 = less than 2 years; 2 = 2-5 years; 3 = more than 5 years). Participants then wrote a short toast for their friend for an upcoming event, such as a birthday party, in which they could give feedback on their appreciation of as well as criticism toward that individual. We found that participants who felt their relationship was long standing were more likely to "roast," that is, to give their partner negative feedback, than were those who felt their relationships were new (see Figure 7).

Using a similar manipulation, we (Fishbach & Finkelstein, 2010) further tested for feedback seeking among relationship partners. In our study, friends chose between receiving

positive feedback about what they do well or negative feedback regarding how they could improve. We found that those who perceived their relationships as long standing sought more negative feedback from their friends than did those who perceived their relationships as new. Moreover, in a study that tested friends' response to feedback, we found that the strength of the relationship influences the length of the conversation after receiving negative feedback from a friend. Participants in this study were chatting with either a new or a long-standing friend using instant messenger programs online. They started the conversation by soliciting either positive or negative feedback from their partner (depending on experimental condition), and we measured the length of the conversation that followed. We found that participants who asked for negative feedback from a close friend sent more messages (i.e., had a longer conversation) than those who received negative feedback from a new acquaintance, but we found no difference in the length of the conversation among those who asked for positive feedback (Figure 8).

Overall, we see a shift toward negative feedback as people gain expertise or experience on their goals. We find uncertain commitment and low experience increase the frequency and impact of positive feedback, and certain commitment and high experience increase the frequency and impact of negative feedback. This shift exists across three modalities: seeking, giving, and responding to feedback. Notably, the shift toward negative feedback can also reflect an objective increase in the value of this feedback for the individual, because as people gain expertise, the proportion of their correct responses presumably increases and incorrect responses provide more information. For example, the foreign language student in a beginner class might make more mistakes than the one enrolled in an advanced class, thus feedback on mistakes will be less informative for her. However, beyond these differences in the objective value of the information, we find that when positive and negative feedback are similarly informative (as with relationship

goals), feedback becomes more negative, which implies that positive and negative feedback often serve different functions in motivating goal pursuit.

## Summary and Conclusions

Feedback on self-regulation determines when individuals persist on a goal and when they seek change. In this chapter, we started by reviewing research that provides a universal answer: either positive or negative feedback increases the motivation for goal pursuit. The research finds that positive feedback increases motivation when it signals the goal is valuable and the person is able to successfully pursue it. Negative feedback, in contrast, increases motivation when it signals discrepancy with a desired end state.

It follows that whether individuals wish to evaluate their commitment (a function of value and expectancy) or rate of progress (a function of discrepancy) will determine when positive versus negative feedback increases their motivation for goal pursuit. Accordingly, we next reviewed attribution research and research on the dynamics of self-regulation, which attest that positive feedback is effective for those who wish to evaluate their commitment, and negative feedback is effective for those who wish to evaluate their goal progress.

An underlying assumption in our analysis is that feedback is instrumental; that is, people seek and give feedback to motivate goal pursuit. Clearly, other motives also underlie feedback, such as the desire to enhance self-esteem (Tesser, 1988) or validate a person's view of herself (Swann & Read, 1981). However, although other motives impact the valence of feedback, feedback is first and foremost a mechanism for self-regulation and is a crucial element in effectively pursuing an individual's goals. Thus our focus was not on the different motives feedback can fulfill and how they may interact with each other, but rather on how feedback facilitates (or harms) self-regulation.

In our review, we focused on the impact of feedback. Accumulating evidence suggests emotions underlie this impact: feedback operates through the emotional response it evokes (Baumeister, Vohs, DeWall, & Zhang, 2007; Carver & Scheier, 1998; Higgins, 1987). Specifically, feedback results in positive or negative feelings, and these affective responses enable the change in behavior. Eliminating the feelings the feedback evokes or altering the meaning of those feelings would modify the impact of feedback on behavior. For example, when an individual misattributes positive feedback on goal progress to another source, the feedback may signal greater commitment and have an opposite motivational impact on pursuing that goal (Eyal, Fishbach & Labroo, 2010). We conclude by suggesting that the feedback operates through its emotional and cognitive consequences, and, in this way the motivational system incorporates affective and cognitive input to promote goal pursuit.

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| Commitment-Induced Highlighting | Progress-Induced Balancing |
|---|---|
| Questions on commitment | Questions on progress |
| Options are presented apart | Options are presented together |
| Salient superordinate goal | Non-salient superordinate goal |
| Uncertain and low commitment | Certain and high commitment |

*Table 1.* Factors that determine the dynamic of self-regulation

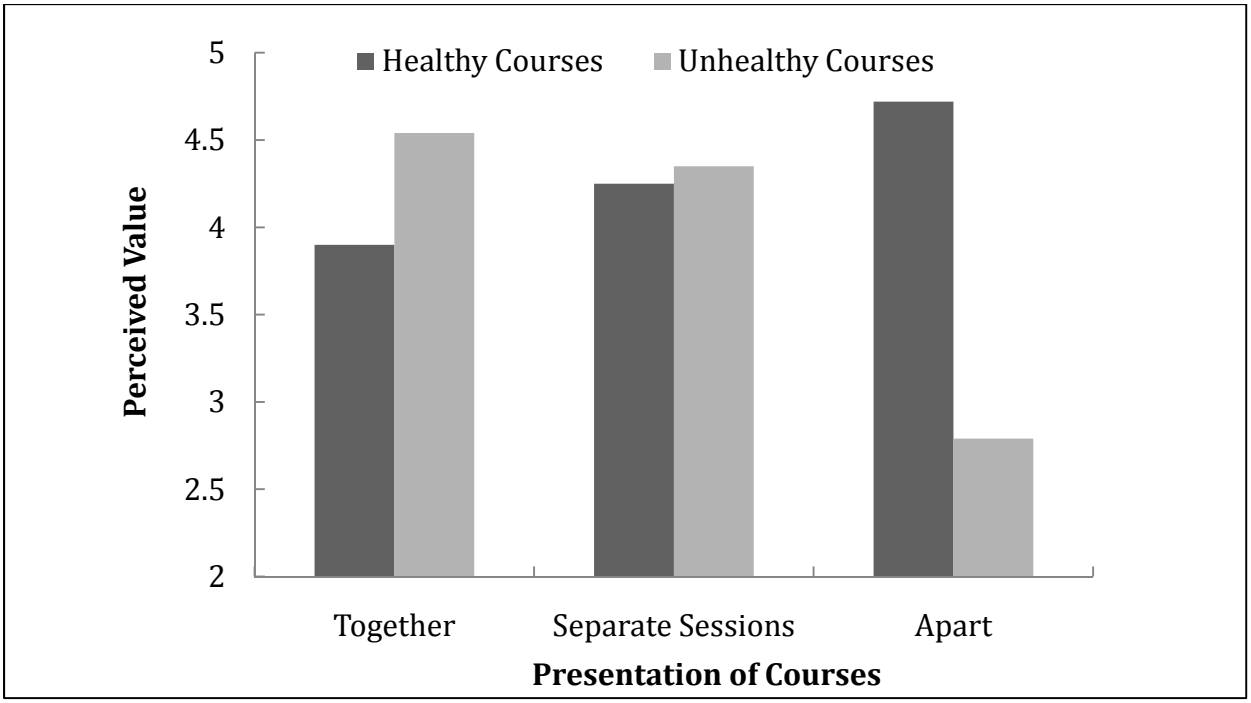


*Figure 1*. Perceived value of healthy and unhealthy menu courses as a function of presentation format

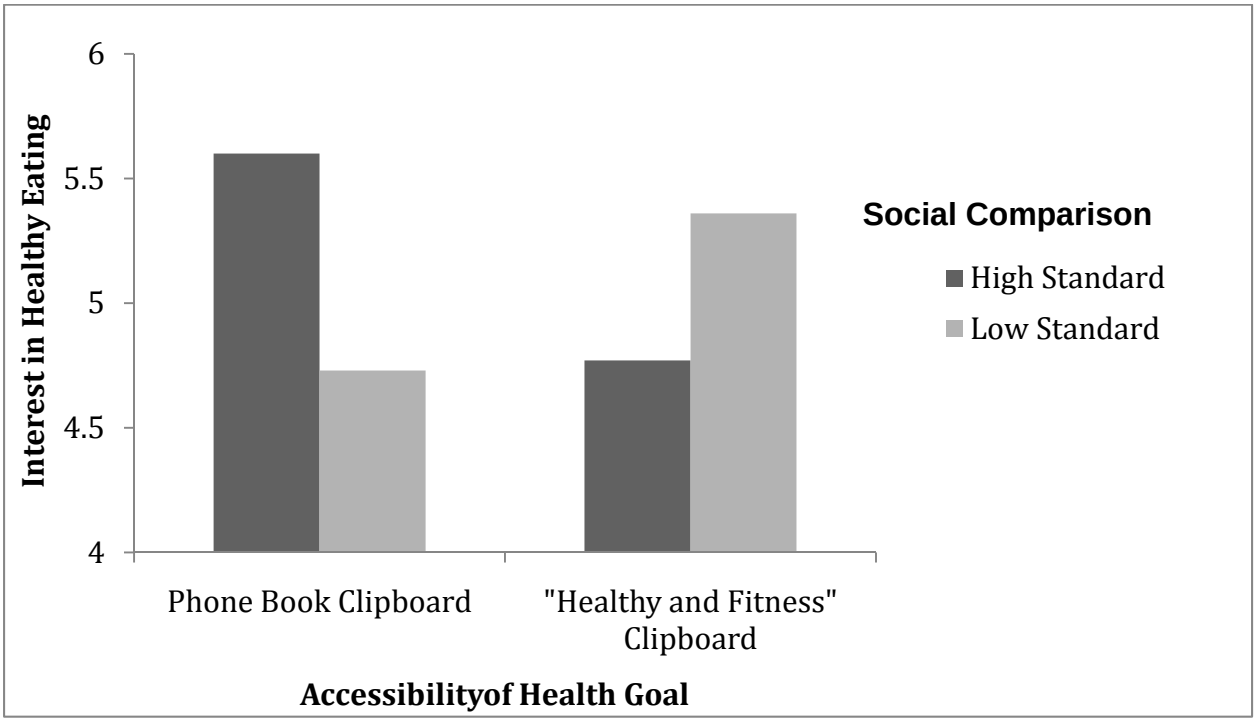


*Figure 2.* Interest in healthy eating as a function of accessibility of health goal and social comparison standard

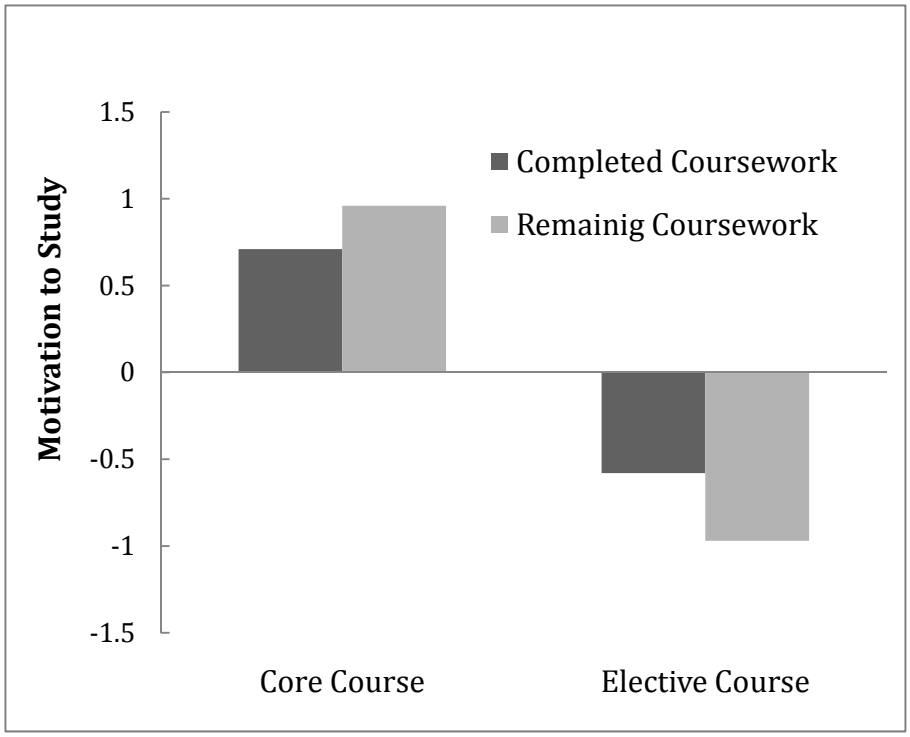


*Figure 3.* Motivation to study as a function of commitment (certain: core; uncertain: elective) and focus on competed versus remaining coursework

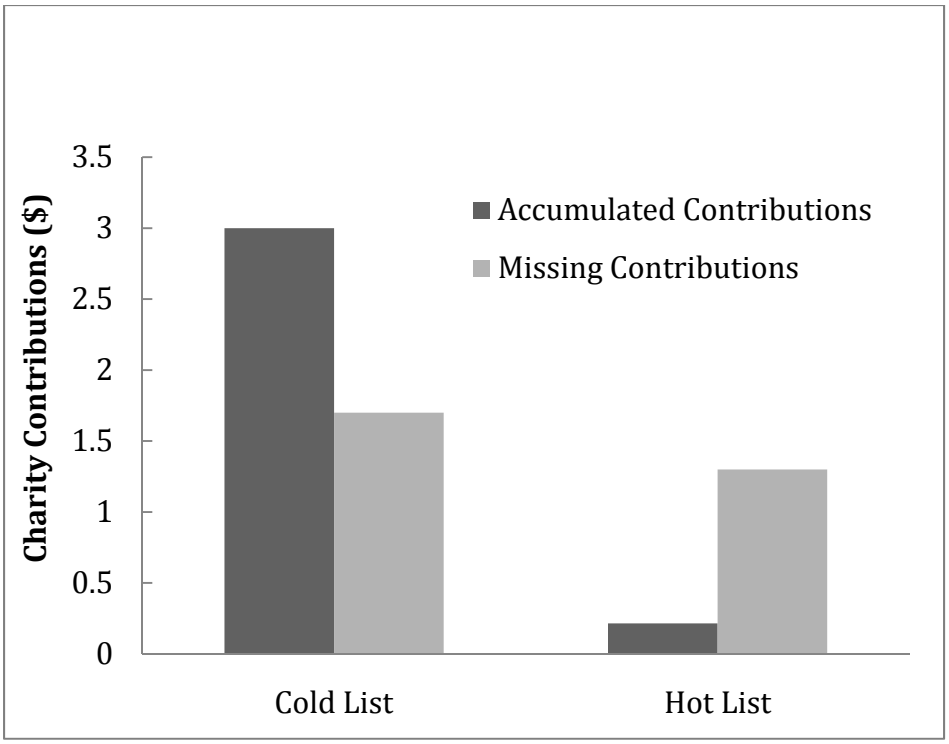


*Figure 4.* Charity contribution as a function of commitment certainty (cold list vs. hot list) and focus on accumulated versus missing contributions

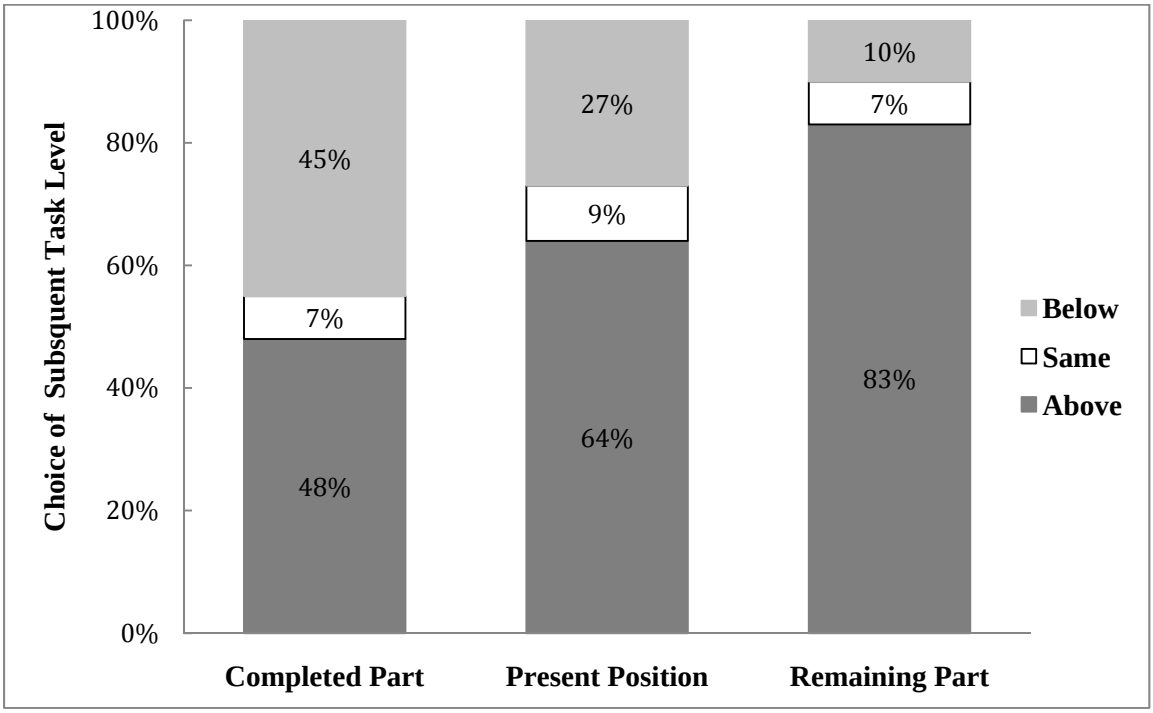


*Figure 5.* Choice of a subsequent task level as a function of feedback on completed progress, present position, and remaining progress on present task

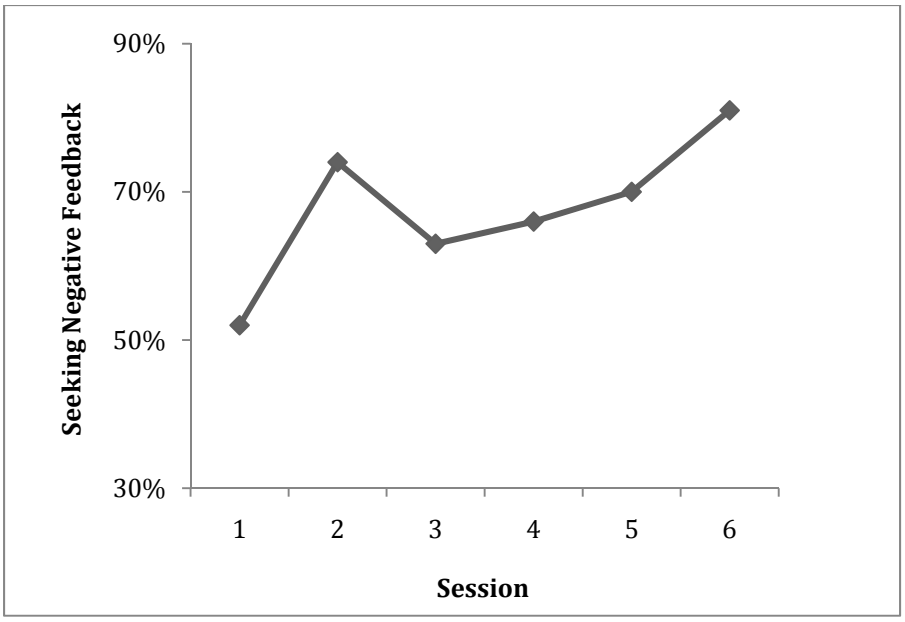


*Figure 6.* Proportion of learners seeking negative feedback as a function of progress on the task

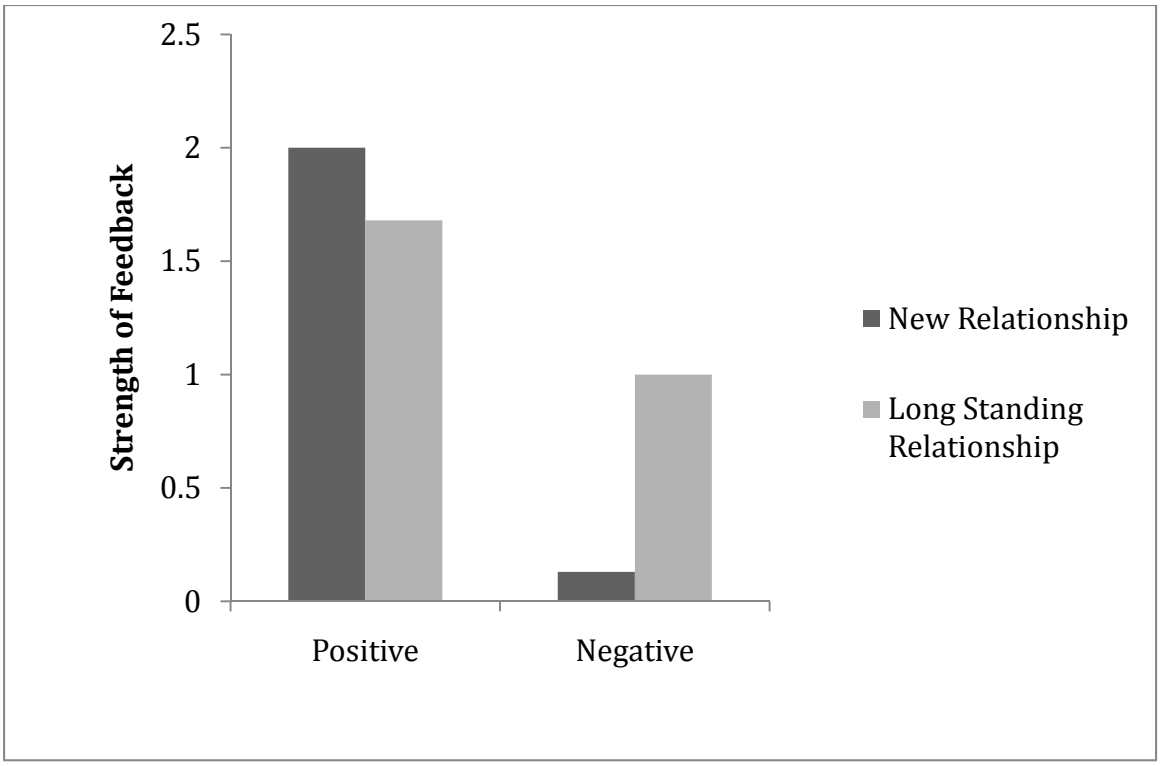


*Figure 7.* Strength of positive and negative feedback as a function of perceived relationship depth

Note: Strength of feedback was assessed by the number of positive or negative adjectives

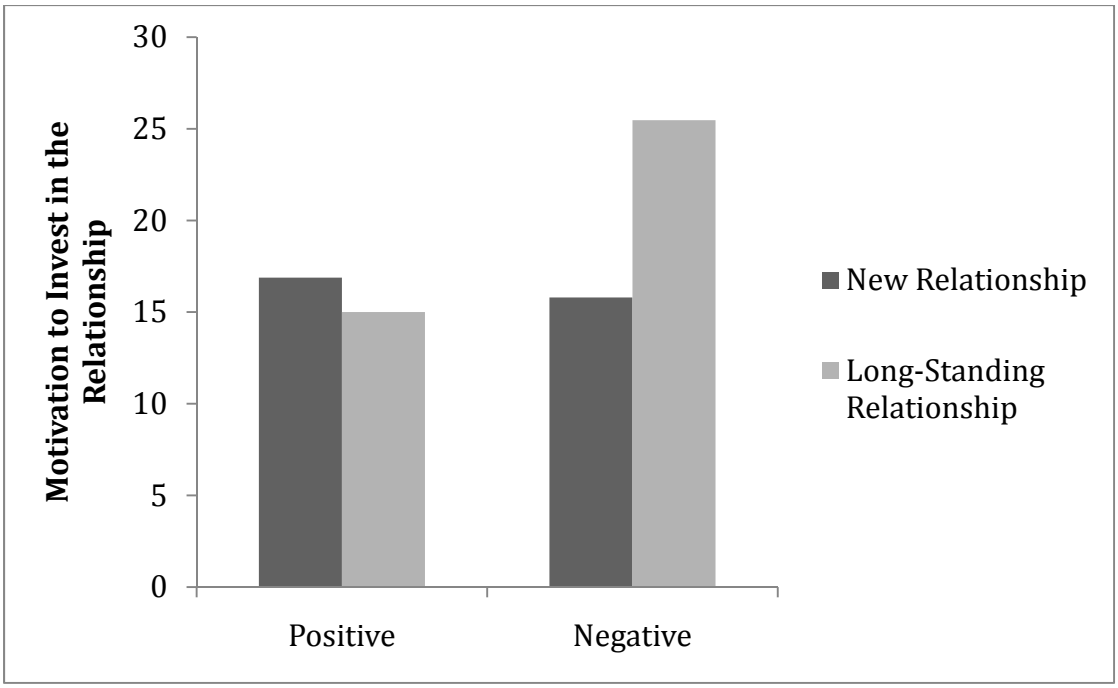


*Figure 8.* Motivation to invest in the relationship (# of messages sent) as a function of initial feedback and relationship depth