

Motivation Resulting from Completed and Missing Actions

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Abstract

This article asks, when does motivation increase as a result of attending to accomplishments and when does it increase as a result of attending to their absence? We propose that attention to accomplishments increases motivation among uncommitted and inexperienced individuals by increasing their goal commitment. In contrast, attention to lack of accomplishments increases motivation among committed and experienced individuals by increasing their perceived need to make progress on a goal. We document parallel influences of attention to completed and missing actions on the pursuit of personal and shared goals, and document similarities between the types of information on completing versus missing actions that individuals include in the feedback they seek and give to each other and how they respond to this information.

Keywords: Motivation, Goals, Self-regulation, Feedback, Commitment, Progress

There are many goals a person wishes to fulfill: long-term aspirations and short-term desires, ambitions that define a person's identity and secondary wishes, and objectives people pursue on their own and those they pursue as part of a group. All these various aspirations, desires, ambitions, and objectives form "goals," namely, desired states that guide cognition and action (Aarts & Dijksterhuis, 2000; Chartrand and Bargh, 1996; Fishbach & Ferguson, 2007; Kruglanski et al., 2002). Most often, goals operate simultaneously in different configurations: goals can compete, complement, override, and be overridden, depending on the circumstances (Bargh, Gollwitzer, Lee-Chai, Barndollar, & Troetschel, 2001; Higgins, 1997; Locke & Latham, 1990; Shah, Friedman, & Kruglanski, 2002).

When pursuing goals simultaneously, *prioritization* is a primary challenge: deciding which goals to attend to and how much to invest in each of them in the present (Fitzsimons & Fishbach, 2010). Determining the priority of a goal is a unique mental task that differs from deciding whether to adopt a goal in the first place or from deciding its relative importance and, hence, its position in a personal goal hierarchy. Prioritization refers to a present pursuit of goals that were adopted and that can vary by importance. For example, a person who has decided to acquire a new skill needs to decide whether to invest personal resources in this goal in the present and, if so, how much. Prioritization relies on consideration of how much one has done as well as how much one has left undone. Indeed, people monitor their goals by attending to either what they have accomplished to date or what is still missing. For example, people may consider recent healthy choices, career achievements, or the opening of a savings account (completing actions), and these actions in turn will influence the present priority of health, career, and financial goals. Alternatively, people can consider what is still missing to improve their health,

how far they are from their desired position or career, and how much they need to save to meet their financial goals (missing actions), which again provide input for present prioritization.

This article seeks to provide a theoretical framework for when either of these two ways of monitoring goals—focusing on what has been done versus left undone—is more effective at increasing motivational priority (which, for sake of brevity, we will mainly refer to as “motivation”). In particular, we explore what aspects of the meaning of actions and what characteristics of the pursuers determine whether motivation is stronger after attending to completed versus missing actions.

Our investigation includes goals of different degrees of abstraction. Abstract goals are associated with subgoals, which are concrete actions (or “means”) that help achieve the more abstract goals and that also serve as goals for other, even more specific actions and means. Whereas concrete goals often have clear end states (e.g., read 100 pages), the abstract goals that override them are ongoing and lack such end states (e.g., be a scholar). Regardless of the presence of an end state, we propose that monitoring goals in terms of completed or missing actions is possible. We note that our definition of goals and, in particular, the inclusion of ongoing goals, is broader than the definition everyday language and some psychological researchers commonly refer to, because we do not limit our investigation to goals that have clear and well-defined end states or that pose performance standards (“targets,” e.g., Locke & Latham, 1990). In addition, our scope is not limited to externally imposed goals (e.g., Trope & Fishbach, 2005). A desired state can be presented by external agents, such as a parent, an educator, or a boss, as well as be internally generated by the pursuer.

Our scope of investigation is limited only in the sense that it focuses on goals for which achievement (rather than pursuit) is rewarding (see also Carver & Scheier, 1998; Higgins, 1987;

Gollwitzer, 1999). For example, we investigate reading for an academic course in order to pass this course or be a successful scholar. We focus less on reading for pleasure. Indeed, most of goal research addresses such extrinsic goals, for which the benefits for pursuing the goal are conditional on goal progress. We do discuss implications of our framework for pursuing intrinsic goals, for which the benefits are internal and implicit in goal pursuit rather than in goal progress (Deci & Ryan, 1985; Lepper, Greene, & Nisbett, 1973; Sansone & Harackiewicz, 1996).

We organize the rest of this article as follows. First, we discuss the signals in completed and missing actions for setting motivational priority. We propose that the focus on what has been accomplished increases motivation by signaling to the self that the self is committed to a goal, whereas the focus on what is still missing increases motivation by signaling to the self a need to make progress. Second, we examine situations in which individuals are likely to focus on commitment estimates and, thus, attention to completed actions will increase their motivation; and we examine situations in which individuals are likely to focus on progress estimates and, thus, attention to missing actions will increase their motivation. We discuss these types of situations in the context of personal goals (e.g., career achievement) as well as shared, group goals (e.g., participation in social movements). In the third part of this article, we move to situations in which people seek and give others feedback on completed and missing actions, as well as positive and negative feedback more generally. We propose that similar variables influence how people respond to feedback, what feedback they seek, and what feedback they receive. Finally, in the fourth part of our review, we present implications of the present framework for research and theory on the psychophysics of motivation (the goal-gradient and the small-area effects), substitution in self-regulation (licensing effects), and intrinsic motivation

(goals for which pursuit rather than attainment is rewarding). We summarize our main propositions in Table 1.

Part A: How Completed and Missing Actions Increase Motivation – Dynamics of Self-Regulation

The pursuit of most goals involves a sequence of actions that unfold over time. These actions can be similar to each other—for example, when a health-conscious person eats healthfully for breakfast, lunch, and dinner—or they can be different—for example, when an avid environmentalist conserves water and recycles. Regardless of the degree of similarity, people choose their actions with respect to other, completed or absent actions toward the same goals. Research on the *dynamics of self-regulation* has explored the relations between several such actions toward the same goal (Fishbach & Dhar, 2005; Fishbach, Dhar, & Zhang, 2006; Fishbach & Zhang, 2008; Koo & Fishbach, 2008; Zhang, Fishbach, & Dhar, 2007).

This framework suggests that one possible self-regulatory dynamic involves choosing actions that reinforce previously selected actions (i.e., a dynamic of highlighting; for example, conserve water and recycle). The other possible self-regulatory dynamic involves choosing actions that compensate for other, missing actions (i.e., a dynamic of balancing; for example, do not conserve water but recycle; see also Dhar & Simonson, 1999). When people highlight a goal, they are more likely to attend to it in the present if they have attended to it in the past or plan to attend to it in the future; in other words, they wish to display behavioral consistency. In contrast, when they balance, people are more likely to attend to a goal if they have not previously attended to it or do not plan to attend to it in the future.

Whether actions reinforce or substitute each other may depend on the mental representation of goal-related actions, that is, how pursuers interpret their own actions. We

distinguish between two potential representations of actions: as *expressing commitment* toward a desirable state and as *making progress* toward this state. In a commitment representation, people ponder whether a goal is worth pursuing, and they infer from observing themselves pursuing that goal that, indeed, the goal is important or enjoyable (hence valuable) and expectancy of attainment is high (Emmons, 1989; Fishbein & Ajzen, 1974; Feather, 1982; Lewin, Dembo, Festinger, & Sears, 1944; Liberman & Förster, 2008; Vroom, 1964). Thus, people infer commitment based on engagement (Arkes & Ayton, 1999; Bem, 1972; Cialdini, Trost, & Newsom, 1995; Higgins, 2006). Not only does prior engagement increase motivation by suggesting high commitment, but also future engagement plans often signal commitment and therefore increase motivation (Hart & Albarracin, 2009; Oettingen & Mayer, 2002; Zhang et al., 2007). In contrast, the focus on missing actions toward a goal cannot signal the presence of goal commitment and could even undermine perceived commitment if individuals consider not pursuing a goal or not planning to do so.

In a progress representation, individuals monitor their rate of progress toward a goal. They infer from completed actions and actions scheduled to take place in the future that their rate of progress is sufficient. On the other hand, they infer from the lack of past and planned actions the need for progress. Discrepancy theories of self-regulation subscribe to this representation of goal-related actions as enabling progress. These theories assume that motivation is a function of the perceived discrepancy between current progress level and the level expected for the goal (Carver & Scheier, 1990; 1998; Heath, Larrick, & Wu, 1999; Higgins, 1987; Kivetz, Urminsky, & Zheng, 2006; Locke & Latham, 1990). Individuals who adopt a progress representation of actions pursue a goal if they consider missing actions and conclude they are falling behind because the discrepancy is too high.

These representations of actions—commitment and progress—have opposite implications for motivation priority (i.e., people’s motivation to pursue their goals in the present). When actions signal a boost in commitment, people highlight goals: attending to what one has accomplished encourages goal-congruent actions more than attending to what one has left undone, because completed actions increase commitment. However, when actions signal progress has been made, people balance goals: attending to what one has left undone encourages goal-congruent actions more than attending to what one has accomplished, because missing actions signal a need to progress. We thus propose that:

1. *Completed actions increase motivation by signaling to the self that the self is committed.*
2. *Missing actions increase motivation by signaling to the self a need for progress.*

Empirical Support: Standing in Lines

A demonstration of the impact of attending to completed and missing actions comes from studies that explored inferences people make about products from standing in line (Koo & Fishbach, 2010b). Queues provide a natural setting for manipulating goal progress: as people progress, their position in the line changes such that more people are lining up behind them and fewer are in line ahead of them. The presence of other people behind and ahead of a person in turn is a proxy for completed versus missing progress to reach a goal. In several field studies, we accordingly surveyed people standing in lines in various places. We documented that the value of a queuing goal increases as more people line up behind a person (completed progress), though the number of people ahead of a person did not affect evaluation. The number of people lining up ahead of a person (missing progress) influenced the expected effort to reach the goal.

For example, in a study conducted in a bagel shop, the more people queued behind shoppers—the better the shoppers expected their meal to taste. The number of people ahead had no such effect on taste expectations, but it affected estimates of how much effort was required to get the meal (Figure 1). In another study, conducted in an amusement park, attentional focus on the people behind (vs. ahead of) someone was sufficient to increase enjoyment expectations even in the absence of an actual change in this number. In this latter study, we asked park visitors who were standing in approximately the middle point of the line to a ride to either estimate the number of people behind them or ahead of them. Those who looked backward indicated their expected enjoyment of the ride would be higher than did those who looked forward. This effect held as long as the value of the ride was somewhat ambiguous such that the expected enjoyment from the ride (and, hence, the commitment to stand in line) was partially unknown. When enjoyment was sure to be high, that is, for the park's signature ride, the focus on the people behind did not improve evaluation, although the focus on those ahead still influenced estimates of the size of the discrepancy between present position and end of the line.

Another study manipulated the line system to more subtly focus people's attention on the presence of others behind or ahead of them. Participants were queuing to test taste a new snack and they received numbered tickets to indicate their position in the line. In the line system that focused people's attention on those behind them, participants saw what number was available for the next person to join the line. To focus their attention on that number behind them, once each participant took a number, he or she revealed the next available number for the next person on a board (e.g., if someone picked "No. 3" she saw the next "No. 4" card). In the system that focused people's attention on those ahead, participants saw what number was being served at the moment. That is, once they were called in to complete the taste test, participants posted their

numbers on the board (e.g., participants who were holding the “No. 3” card could see “No. 2” on the board, which indicated that that person is served and they come next). We found that a line system that emphasized the presence of people behind (versus ahead) of a person increased the perception of completed progress in the queue and, consequently, the expected enjoyment of the sampled snack. In a study that documented actual expenditure in a cafeteria line as a proxy for valuation, the number of people who lined up behind a person increased expenditure, and there was no similar impact for the number of people ahead of a person when one joined the line. Taken together, these studies explore one context in which monitoring goals by considering completed actions increases goal valuation, which affects commitment, whereas considering missing actions provides information on discrepancy and required effort. Interestingly, even minimal actions (or non-actions), as when people wait to act, are sufficient to increase commitment to pursuing a goal (see also Dai & Fishbach, 2013).

Empirical Support: Goal Valuation and Level of Aspiration

A second line of evidence comes from research that tested the implications of monitoring completed and missing actions for how people value their present goal actions and what level of goal pursuit they ultimately aspire to achieve. To test the level of aspiration people set for a goal, research addresses “goal ladders” in which each level of achievement is a step toward another, more challenging level. For example, people’s career paths often follow a goal ladder in which an entry-level position is a step toward a more advanced position in the organization, and goal ladders also characterize learning goals, such as when people move from a beginner to an intermediate level after acquiring a new skill. In goal ladders, people set their level of aspiration, defined as the ultimate level of goal performance they wish to achieve (Dembo, 1931/1976; Kruglanski, 1975; Lewin, 1926; Lewin, Dembo, Festinger, & Sears, 1944; Locke & Latham,

1990). A desire to progress to the next, more advanced level would often be in opposition to expressing positive evaluation of the current level of goal pursuit.

The way individuals monitor their current goals—in terms of attending to either completed or missing actions—should then influence their aspiration levels. When the focus is on completed actions, the sense of personal commitment to the present goal level increases: the goal level appears more valuable and people are satisfied to adhere to this level at the next opportunity. In contrast, when the focus is on missing actions, people consider their missing progress and wish to move forward to the next goal level. In a goal ladder, a desire to move forward translates into greater motivation to finish the present goal level and move to a higher level.

To demonstrate these effects of goal monitoring, one study assigned participants the role of a music reviewer who needed to evaluate 10 unfamiliar musical pieces (Koo & Fishbach, 2010a). Participants received continuous progress feedback while working on the task. The feedback emphasized either the portion of the task they had completed (e.g., “You have completed 10% of the task”), their remaining progress (e.g., “You have 90% left to finish the task”), or their present position in the task (i.e., control condition; e.g., “you are at number 2”). After completing the task, participants could choose a lower, a higher, or a similar task level for their next reviewing task. This study found that receiving continuous feedback on remaining (vs. completed) progress decreased participants’ enjoyment of the task but increased their level of aspiration, as reflected in their choice of a higher level subsequent task that was presented as more demanding and time consuming. The control-condition participants fell in the middle on these measures of enjoyment from present level and choice of subsequent level, suggesting the

presence of a unique impact for attending to completed actions (on value) as well as remaining actions (on the desire to advance; see Figure 2).

The focus on completed versus remaining actions often overlaps with a temporal focus (Bandura & Schunk, 1981; Miller & Brickman, 2004), such that actions completed occurred in the past and remaining actions are planned for the future. Remaining actions might therefore increase aspiration level because they emphasize future plans (rather than making progress). To separate the effect of attention to completed/missing actions from past/future focus, another study directed participants to consider completed and missing actions that either occurred in the past or would occur in the future (Koo & Fishbach, 2010a). Participants in this study were University of Chicago students enrolled in the first (beginner-level) foreign language course in a sequence of five courses offered in a language program. Those in the completed-actions conditions considered either the topics they had covered (in the past) or would cover (in the future) in this class. Those in the missing-actions conditions considered either the topics they did not (in the past) or would not (in the future) cover in this class. Across the past and future frames, when participants focused on missing actions, they aimed for a higher level as their ultimate goal for learning the foreign language than when they focused on completed actions.

Research that manipulates the focus on completed and missing actions often uses goals with a clear end state; however, these foci should have similar motivational impacts in the absence of a clear end state for the current goal level. For example, although career goals often do not have an end state, employees in a South Korean advertising agency reported enjoying their current roles more and wished to maintain them for another year if they considered what they had accomplished over the past year. When these agency employees considered what they

had yet to accomplish in that current year, they felt more motivated to move up the hierarchy to a more challenging role (Koo & Fishbach, 2010a).

Another question is whether people strategically attend to their own completed versus missing actions in order to motivate staying on the present level or moving to a more advanced one. For example, do more ambitious individuals spontaneously attend missing actions? In a study that confirms this possibility, participants focused on missing actions more when they wished to progress as opposed to remain on the same level. Specifically, participants completed a lexical task that was framed as either a “practice” for the main task, thus promoting a higher aspiration level, or the “main task” itself, thus inducing a low level of aspiration. When asked to report their progress mid-task, participants tended to report missing actions (e.g., “I have three more trials” rather than “I have completed three trials”) when their aspiration level was high but not when it was low. Thus not only do missing actions increase the desire to move up, but to motivate themselves, those who hold higher levels of aspiration strategically focus on what is left to be done.

Overall, in Part A, we show that how people monitor their goals has important motivational consequences. Variables that focus people’s attention on completed actions increase commitment to pursuing the goal (i.e., the value of the goal and/or the expectancy of attainment), whereas variables that focus people’s attention on remaining actions increase the desire to progress (e.g., the ultimate level of aspiration individuals wish to achieve in a particular goal domain). Specifically, more completed actions imply more commitment, and looking at completed (vs. missing) actions increases commitment. For example, a person who completed 90% of the task will feel more committed than a person who completed 10%, and for the person who completed 10%, attending to the 10% completed task will increase commitment more than

attending to the missing 90% of the task. Notably, it is further possible that attending to very few completed actions decreases commitment compared to not monitoring progress at all; however, our research does not make a comparison to no-monitoring.

In addition, more missing actions increase the desire to progress, and looking at missing (vs. completed) actions increases the desire to progress. For example, a person who is 90% away from task completion will feel greater need to progress than a person who is only 10% away, and, for the latter person, attending to the missing 10% will increase the desire to progress more than attending to the completed 90%. Again, it is also possible that attending to very few missing actions would reduce the desire to progress compared with not monitoring at all, although this is not the comparison research typically makes.

Part B: When Actions Signal Commitment versus Progress

Attention to things done often increases goal commitment, and attention to things left undone often increases eagerness to progress on a goal (e.g., level of aspiration). But whereas completed and missing actions can convey these different types of input for setting motivational priority, whether the input is actually conveyed further depends on (a) the individual and (b) the context. For example, in the study reported above, amusement park visitors inferred the value of a ride from the presence of people behind them in line only if they did not have prior information on the ride's popularity (i.e., if it was not the park signature ride; Koo & Fishbach, 2010b). When information on value is available, people rely less on their accomplishments to infer value. Similarly, if people are looking for ways to get out of a goal (e.g., reasons to quit a job), information on missing actions should not motivate them to make progress and aspire for a higher level; it might have just the opposite impact.

More generally, people's preexisting tendency to evaluate either their commitment or progress influences the meaning they derive from their goal pursuits. Only when people wish to assess their own commitment, would they infer commitment from their accomplishments, and only when people wish to evaluate their progress, would they infer a need for progress from what they have yet to accomplish. Further, when people wish to evaluate their goal commitment, attending to missing actions undermines commitment, and when people wish to evaluate need for progress, attending to completed actions ensures progress is sufficient thus undermining motivation.

In this section, we accordingly describe variables that influence the meaning people imbue to their actions (commitment vs. progress) and thus influence whether attending to completed or missing actions has greater impact on increasing motivation. We propose that actions are unlikely to convey information on commitment and progress simultaneously, and the meaning of actions depends on the question people ask themselves (Am I committed? Have I made sufficient progress?). We further argue that similar variables influence the meaning people derive from personal actions toward individual goals and their group's actions toward the group goals. Therefore, the impact of groups' completed and missing actions on an individual's contribution of resources to the shared goal is similar to the impact of a person's completed and missing actions on motivation toward personal goals.

Personal Goals

Goal commitment. Individuals' preexisting commitment to a goal affects the meaning they assign to goal-related actions and thus the impact that completed and missing actions have on their motivation. When commitment is uncertain or low, individuals wish to evaluate their commitment, that is, whether the goal is important, enjoyable, and attainable. But when

commitment is certain or high, individuals wish to calculate their rate of progress on that goal.

We thus propose that:

Uncommitted individuals evaluate their commitment, whereas committed individuals evaluate their progress.

To demonstrate the impact of preexisting commitment, research manipulated goal commitment and the focus on what has been accomplished versus what remains to fulfill a goal (Koo & Fishbach, 2008). That research used goals with clear end states and held the actual level of goal attainment constant at about half of the goal. The participants' attention was either directed to completed actions (e.g., 50% to date) or missing actions (e.g., 50% to go). For example, in one study, students reported their motivation to study for two exams: one for which they would receive letter grades (an important exam) and another for which they would receive pass or fail grades (a less important one). When studying for an important exam, commitment is high and certain. However, commitment is rather low when studying for an unimportant exam. Accordingly, attending to materials students had not yet covered (vs. covered) signaled insufficient progress and increased students' motivation to study for the important, letter-grade exam. In contrast, attending to materials they had covered (vs. not yet covered) signaled personal commitment and increased students' motivation to study for the less important exam (see Figure 3).

Another study examined the motivation to participate in a loyalty program (Koo & Fishbach, 2008). Loyalty programs (like standing in lines) lend themselves nicely to our investigation: they provide clear beginning and end points and participants receive continuous feedback on their movement between these points. Participants in one study received a mock frequent-buyer card that was either presented as half full (emphasizing completed purchases) or

half empty (emphasizing remaining purchases to receive a reward). Specifically, to direct visual attention to the number of completed slots, the study used a card on which a stamp was added for each purchase, and to direct visual attention to the number of remaining slots, it used a card on which a stamp was removed for each purchase (see Figure 4). In both cases, the reward was a bookstore credit, which participants could use to buy either only luxury items such as university-branded clothes and mugs (low purchase commitment) or necessity items such as textbooks (high purchase commitment). As predicted, for luxury rewards, frequent-buyer cards that emphasized completed slots elicited commitment and greater usage than those emphasizing remaining slots. In contrast, for necessity rewards, emphasizing remaining slots elicited greater usage of cards than emphasizing completed slots, because attention to missing slots increased the urge to make progress on acquiring these necessities.

The notion that as commitment increases, people shift from evaluating commitment to monitoring progress implies a certain time course: people are concerned about monitoring their progress only toward goals they already deem valuable and feasible (i.e., they are committed). For example, those opening a saving account will contemplate whether their saving goal is important or feasible. Once they are committed to the saving goal, they will wish to monitor progress toward that goal (Brunstein & Gollwitzer, 1996; Gollwitzer & Bayer, 1999). Indeed, several models of self-regulation suggest a two-stage process of goal pursuit: individuals first assess and evaluate information in order to set their goals and standards of performing these goals. Next, they move to a stage of channeling resources toward meeting the goal (e.g., goal setting vs. goal striving, Locke & Latham, 1990; the Rubicon model of action phases, Heckhausen, 1987, Heckhausen & Gollwitzer, 1986, 1987; see also assessment vs. locomotion, Kruglanski et al., 2000).

Our model is consistent with the two-stage models in the sense that we assume people wish to evaluate their goal commitment before they begin to monitor their progress on that goal. But unlike a strict two-stage model, we suggest that the timeline is not fixed: commitment can decline or stay stable over time. For example, salient social standards can influence a person's commitment in the situation. She may perceive herself as highly committed compared with some individuals but less committed compared with others, and these shifting comparison standards as the social environment changes will affect the impact of attending to completed versus missing actions on her motivation.

Experience and expertise. Similar to commitment, people's experience or expertise determines whether attending to accomplishments increases the priority of a goal more or less than attending to the lack of accomplishments. Experts are those individuals who have extensive experience in terms of knowledge, formal as well as informal training, and frequency of performing goal-related actions (Alba & Hutchinson, 1987). Additionally, expertise is often in the eye of the beholder. When individuals compare themselves with someone who performs an action infrequently or who is less knowledgeable, they might feel more experienced than if they were to compare themselves with someone who performs an action frequently. For instance, a newly appointed assistant professor will feel experienced in her chosen field if she compares herself with a graduate student and less experienced if she compares herself with the head of her department. In turn, perceived or actual experts wish to monitor their progress because their commitment to the goal is secure, whereas novices (perceived or actual) wish to evaluate their commitment because they still question their commitment. Therefore, experts are more motivated when they focus on their lack of accomplishments (e.g., ways they can improve),

whereas novices work harder when they focus on their accomplishments (e.g., things they do well). We thus propose that:

Novices evaluate their commitment, whereas experts evaluate their progress.

Research that explored the impact of expertise often moved beyond attention to completed versus missing actions per se, to exploring the impact of positive versus negative feedback more generally. Positive feedback refers to accomplishments and also strengths and correct responses, and negative feedback refers to lack of accomplishments and also weaknesses and incorrect responses. Based on our analysis, positive feedback should be more effective for novices and negative feedback should be more effective for experts. Indeed, motivation theories identify that positive feedback is effective whenever it increases commitment, including the expectation of successful goal attainment (i.e., feasibility; Atkinson, 1964; Bandura 1991; Bandura & Cervone, 1983; Lewin, 1935; Feather 1982; Fishbein and Ajzen 1975; Förster, Liberman and Higgins 2005; Vroom 1964; Weiner, 1974; Zajonc & Brickman, 1969). According to Bandura (1991), positive feedback increases individuals' sense of self-efficacy—that they are competent in pursuing a goal; therefore, their efforts will pay off. In support of his ideas, research on academic performance has demonstrated that students' sense of self-efficacy, which is largely determined by their successful academic experiences, predicts their academic performance after controlling for other variables, including previous academic performance and other people's expectations (Bandura, Barbaranelli, Gian, & Conchetta, 2001). Similarly, research within an organization context (Audia, Locke, & Smith, 2000) found that employees in the airline and trucking industries who received positive feedback (e.g., they had a fast turnaround time between flights or unloading a shipment) developed a strong sense of self-efficacy and exhibited greater motivation to subsequently pursue their work-related goals. In addition to

increasing positive expectations, positive feedback increases the value of the goal. For example, positive feedback increases goal valuation through implicit associations (Aarts, Custers, & Holland, 2007; Ferguson, 2008; Markman & Brendl, 2000). Because positive feedback increases the sense of commitment, it can further act as a buffer, protecting individuals' commitment to a goal from the detrimental effects of negative feedback (Linville, 1987; Raghunathan & Trope, 2002; Trope & Neter, 1994).

Motivation theory further identifies that negative feedback is effective when it signals a discrepancy and need for progress and it is not detrimental or threatening to self-esteem. In particular, cybernetic models of self-regulation propose that negative feedback on lack of success signals the need for more effort toward pursuing a goal and encourages goal pursuit (Carver & Scheier, 1998; Higgins, 1987; Kluger & DeNisi, 1996; Locke & Latham, 1990; Miller, Galanter, & Pribram, 1960; Powers, 1973). Negative feelings, in particular, signal a discrepancy between present and ideal states and motivate goal pursuit (Higgins, 1987).

Research in learning offers further evidence that people either evaluate commitment or monitor progress in pursuit of learning goals (Weiner, 1974). Specifically, attribution research by Dweck and colleagues (Dweck & Leggett, 1988; Elliott & Dweck, 1988; Hong et al., 1999; Nussbaum & Dweck, 2008) explores lay learning theories people hold and that guide their response to feedback. These researchers identified two types of theories people hold regarding the attribution of academic performance (i.e., lay theories): "entity" theorists view intelligence as stable, that is, unchangeable and fixed, whereas "incremental" theorists view intelligence as unstable, that is, malleable and increasing through effort. 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. In terms of our model, entity

theorists likely make inferences about their commitment and, in particular, the expectancy component (i.e., “can I do it?”). Incremental theorists, in contrast, make inferences about their level of progress and whether they have invested enough effort in learning. Possibly, therefore, these lay theorists travel along a common course of development such that new learners start with an entity theory and interpret feedback as a signal of their ability or intelligence. Then in the course of learning, people adopt an incremental theory and interpret feedback as a progress marker.

In our research, we found that novices express greater motivation in response to positive feedback and experts express greater motivation in response to negative feedback (Finkelstein & Fishbach, 2012). For example, in a study on the pursuit of environmental goals, participants reported their recycling habits and were then randomly assigned to receive feedback that emphasized either their effective habits (positive) or ineffective habits (negative). These participants were either members of an on-campus environmental organization (experts) or not (novices). We found that upon receiving positive feedback on their environmental actions, novices were willing to donate more money to an environmental organization (Greenpeace) than experts; hence, they responded to positive feedback by increasing goal pursuit. In contrast, upon receiving negative feedback on their environmental actions, experts agreed to donate more money than novices; hence, negative feedback was effective for experts. (Notably, research that explored general positive and negative feedback often looked at how gained expertise influences the response to positive feedback and how it influences the response to negative feedback. Thus the basic unit of comparison is novices vs. experts, and studies compare this effect under negative and positive feedback).

These findings share similarities with findings from research on addiction and, in particular, opponent process theory (Solomon, 1980; Solomon & Corbit, 1974). We find that the focus on successful performance encourages novices, whereas the focus on unsuccessful performance encourages experts. Opponent process theory addresses the phenomenon by which addicts' initial desire to experience positive rewards from substance abuse turns into a desire not to have the negative experience of absence of these rewards. For example, whereas the novice is motivated to obtain the positive experience from the addictive substances, the addict is motivated to avoid the negative experience from the absence of addictive substances. But notably, the difference between our model and opponent process theory is that similar to other models of self-regulation, we study goals individuals wish to pursue. We study for example, the addicts who would like to quit using an addictive substance (rather than prolonging the addiction). According to our analysis, once the addict wishes to quit, her goal becomes to abstain from some substance, and if she is a novice starting on the withdrawal process, she would respond better to positive feedback on successful attempts. An expert who has been on the withdrawal path for a while, on the other hand, would be more motivated by negative feedback on failures to abstain.

Shared Goals

Moving from personal goals to goals shared by a group, we examine the motivational impact of completed versus missing actions of other group members and how people coordinate with others. Shared goals are goals that a collection of individuals achieves together (Haslam, Wegge, & Postmes, 2009; Weldon, Jehn, & Pradhan, 1991; Zander, 1980). To successfully achieve these goals, individuals in a group have to coordinate their efforts. For example, individuals combine efforts in pledging to charity, volunteering for community outreach programs, generating ideas in team meetings, and accomplishing household chores. Although

shared goals are common and provide benefits that are difficult to achieve on an individual level, there are substantial motivational deficits when people combine efforts, a phenomenon researchers refer to as “social loafing” (Karau & Williams, 1993; Latané, Williams, & Harkins, 1979; Shepperd, 1993). Research on social loafing assumes people loaf to the extent that they expect others will get the job done for them, namely, to the extent that they can “free ride” on others’ behavior and expect lack of action to pay off.

Our research tests this potential cause of loafing by examining the circumstances under which individuals do not contribute to a goal because they perceive that others do contribute or because they perceive that others do not contribute. Whenever individuals decrease their contributions if others contributed, we can refer to them as “free riders,” because others’ contributions justify the individuals’ loafing. However, whenever individuals decrease their contributions if others did not contribute, we cannot refer to these individuals as free riders, because free riding assumes the person loafs if others work. In the latter case, loafing individuals are not free riding on others’ efforts but rather following a perceived group norm of low commitment and, hence, low contributions to the shared goal.

Because parallels exist in how people coordinate their own actions and how they coordinate between their own and others’ actions, individuals can choose to balance for others’ lack of actions by contributing to a shared goal mainly if others have not, or individuals can highlight others’ actions by contributing to a shared goal mainly if others did. In what follows, we explore the variables that determine the pattern of coordination and when an emphasis on others’ existing versus missing actions increases personal contributions. We assume that the relative impact of attention to completed/missing actions depends on whether people ask

themselves one of two questions: Is the goal worth pursuing? Or (for those who are already committed) is the goal progressing at a satisfactory pace?

Commitment to a shared goal. Group members who are less committed to a shared goal (e.g., new group members) wish to assess whether the shared goal is worth pursuing. Others' prior contributions should increase their own contributions more than missing contributions, because these less committed individuals are more likely to infer the goal is worth pursuing on the basis of existing contributions. Thus, less committed group members follow (or highlight) other group members' actions. Rather than free riding on others' contributions, they increase contributions if others have contributed and decrease contributions if others have not contributed. In contrast, highly committed group members wish to contribute to a shared goal mainly to facilitate progress; thus they wish to assess others' pace of progress. Committed group members infer a need for progress from others' missing contributions more than others' existing contributions. These individuals increase their own contributions when they can compensate for (i.e., balance out) others' insufficient actions and they free ride if others have contributed. We thus propose that:

Uncommitted individuals evaluate the group's goal commitment, whereas committed individuals evaluate the group's goal progress.

A field experiment with a charity organization—the South Korean office of Compassion International—demonstrated the effects of group actions on one's contributions (Koo & Fishbach, 2008). A campaign that established a fund to support AIDS orphans was created. The solicited population included uncommitted supporters, who provided their contact information but had not yet contributed to Compassion's ongoing and one-time campaigns (the "cold list"), and committed supporters, who had donated an average of \$32 per month over the past year (the

“hot list”). They all learned the campaign goal was to raise 10 million won (about US\$10,000) to help AIDS orphans in Africa and that approximately half the money had already been raised through various channels. Half the participants received a solicitation letter that emphasized how much others had donated, and the other half received a letter that emphasized how much was still required to achieve the campaign goal. As predicted, among potential donors from the cold list (low commitment), an emphasis on existing contributions increased donations more than an emphasis on the money that was still missing; hence, they mimicked others. But among regular donors from the hot list (high commitment), an emphasis on missing contributions to achieve the goal increased donations more than an emphasis on existing contributions; hence, they compensated for others’ lack of efforts (and free rode on others’ existing efforts).

Identification with members of a shared goal. In addition to goal commitment, group identification affects individuals’ concerns with whether a shared goal is worth pursuing versus whether the pursuit is progressing at a sufficient pace (Fishbach, Henderson, & Koo, 2011). Group identification refers to a person’s readiness to consider herself a member of a particular social group. Individuals identify highly with those they categorize as part of themselves and toward whom they experience belongingness and connection, and they identify less with those they deem as separate or socially distant (Cameron, 2004; Tajfel & Turner, 1979, 1986). The more individuals identify with a group, the more they feel part of the group (Doosje, Branscombe, Spears, & Manstead, 1998; Ellemers, Spears, & Doosje, 1997; McCauley, 2001); thus, they are less likely to ask whether a shared goal is worth pursuing and are more likely to question whether the group has made sufficient progress. We propose that:

Individuals identifying lowly with other group members evaluate the group's goal commitment, whereas individuals identifying highly with other members evaluate the group's goal progress.

Because of this impact of identification, an emphasis on other members' resource expenditures should increase contributions among low group identifiers more than an emphasis on others' lack of resource expenditure, whereas an emphasis on other members' lack of resource expenditure should encourage high group identifiers to increase their own efforts more than emphasis on others' resource expenditures. These effects can appear ironic because low identifiers mimic other group members' actions (they contribute if others did) more than high identifiers, who contribute if others have not. In this sense, people conform more to groups they identify with less. Moreover, low identifiers, like less committed group members, do not free ride. They actually work harder if they perceive others have been working toward the goal than if they perceive others have not.

A study illustrating these effects used nominal groups in which participants worked individually but assumed their unidentified input would be collapsed with other group members (Jackson & Williams, 1985). The specific group goal was to generate 50 promotion ideas for a protein cereal bar. Identification was manipulated by having student participants purportedly form a group either with people from their own university who are socially close fellow students (high identification) or with people from different academic institutes (low identification). Participants learned that some of the group members had already completed the study, and we manipulated the framing of contributions by others (purportedly 50%) by informing participants either that those other group members had contributed about half of the ideas or that half of the ideas were missing to meet the goal. This study found that attending to accumulated (vs.

remaining) contributions increased the perceived value of the shared goal and, in turn, idea generation among low identifiers, those who worked with socially distant others. In contrast, attending to remaining (vs. completed) contributions increased the perceived need for progress, which, in turn, increased the number of generated ideas among high identifiers, those who worked with socially close others.

Identification with beneficiaries of group's efforts. Identification with other group members who contribute to a shared goal influences individuals' motivation. In addition, identification with those who benefit from the group's efforts matters. Contributors and beneficiaries share the goal of improving the beneficiaries' situation, and together they form a social group with which both can identify. At times, an overlap is present between contributors and beneficiaries, for example, when household members join forces to implement house improvement. At other times, these social groups are distinct, for example, when people make donations to a victimized group in another country and do not expect to personally use the created resource. Regardless of the extent of the overlap between group members, identification with the beneficiaries should have an impact similar to identification with the contributors, such that individuals who identify less with beneficiaries evaluate goal commitment and individuals who identify highly with beneficiaries evaluate goal progress.

To explore identification with beneficiaries of a shared goal, studies assessed how identification with victimized groups affects contributions to charity goals (Fishbach et al., 2011). These studies showed that individuals who think of the beneficiaries as socially distant contribute based on their evaluation of the charity's cause, which is higher if others have contributed. However, individuals who think of the beneficiaries as socially close to them contribute based on an inferred need for progress toward a fundraising goal, which appears

greater if others have not contributed. For example, one study assessed Illinois residents' willingness to help the victims of Southern California's 2007 wildfires. It manipulated identification with the beneficiaries by describing the victims in socially distant terms separating them from the self-category ("they, the residents of Southern California") or socially close terms including the beneficiaries in the self-category ("we Americans;" see also Cialdini et al., 1976; Turner et al., 1994). Providing information about how much money had been raised to date (vs. money still required to achieve the campaign goal) increased positive evaluation of the campaign and, in turn, willingness to donate to beneficiaries described in socially distant terms. In contrast, information on missing (vs. existing) donations increased the perceived need for progress and, in turn, willingness to donate to beneficiaries described in socially close terms.

Another field study launched a campaign with a charity organization (Compassion) to support children in Kenya (Fishbach et al., 2011). We conducted the study shortly after the Kenya riots, which started in December 2007. At that time, Kenya's incumbent president was declared the winner of the presidential election and was suspected of election fraud, which resulted in mass riots throughout the country. The violence created a political, economic, and humanitarian crisis across the country for several months. The solicitation letter manipulated identification with the victims by presenting them as socially distant ("they, the children of Kenya, etc.") or close ("our Compassion children, etc."), and it manipulated the focus on accumulated versus missing donations. We found that emphasizing accumulated (vs. missing) donations increased donations when the victims were described in socially distant terms. But accumulated (vs. missing) donations decreased donations in our population when the victims were described in socially close terms (see Figure 5).

Overall, setting priorities for shared goals follows similar principles as setting priorities for personal goals: people's predisposition to evaluate the group commitment versus pace of progress influences whether they contribute to the goal more when they consider others' existing or missing contributions. Notably, these findings also have implications for the decision to forgo goal pursuit. People can forgo shared goals because they want to attend to other causes that are important for the group or because they do not find the group causes are important. On the basis of the present analysis, we assume that when committed individuals or high identifiers forgo a goal, they potentially do so because they wish to invest their resources in other shared group goals that are presumably neglected, such that they balance their efforts across the shared goals. In contrast, uncommitted individuals and low identifiers conclude from others' missing contributions that shared group goals are not worth pursuing and they could potentially reduce their efforts across all the shared goals. These predictions refer to what else group members do when they forgo a focal goal. Notably, although existing research mainly explored resource investment in the focal shared-goal, future research could explore whether people attend to other shared goals or help the group in other ways whenever they forgo a focal goal.

Contributing to a shared goal: how many and how much

We have identified two sources of motivation to contribute to a shared goal: expressing commitment and making progress. These motivations in turn, determine how many group members contribute resources to the goal and how much resources those who contribute invest. Indeed, these are distinct measures of participation in a shared-goal: (1) response rate, that is, the proportion of people who contribute to the goal and (2) amount, that is, how much those who contribute invest. When the motivation is to express commitment, group members might be looking for symbolic giving and invest fewer resources than when their motivation is to help the

shared goal move forward. In turn, we would expect that expressing commitment (because it is “cheaper”) draws higher proportions of participation than making progress.

We explore these distinct measures of participation in shared-goals—amount versus response rate—in reaction to persuasive appeals that emphasize either expressing commitment (e.g., “express your support”) or the need for progress (e.g., “make a difference”). We propose that:

A higher proportion of group members would respond to a message on expressing commitment (vs. make progress); however, the average contribution amount would be larger in response to a message emphasizing progress (vs. commitment).

In a study that tested these predictions, we invited visitors to a university main website to participate in a charity campaign to help fight hunger among children in Africa. Their task was to write a message of support for the cause, with the understanding that for each character they wrote, the university would donate 1 cent to the charity. Participants who clicked on the campaign invitation saw one of three solicitation messages, which emphasized commitment (e.g., “express your support”), progress (e.g., “make a difference”) or control (e.g., “help”). Beginning with response rate, we found that a greater proportion of website visitors chose to participate in the campaign (i.e., write something) in response to an “express support” (commitment) message than the other messages. In addition, among those who participated, those in the “make a difference” (progress) condition wrote the longest messages and, hence, raised more money, compared with the other conditions (Koo, Park, & Fishbach, 2013; Figure 6). Another study confirmed that information on the proportion of givers signals the degree of commitment in the solicited population and information on the size of the donation signals the desire to make progress in the solicited population. Participants learned about a campaign and

the response in the solicited population. Specifically, they learned that many versus few solicited people had donated small versus large amounts to a campaign. They then inferred greater commitment (e.g., “donors wanted to express support, importance of the campaign...”) from higher response rate, and they inferred a greater desire to make progress (“donors wanted to make a difference, meaningful impact...”) from higher average contribution.

Another study by Koo et al. (2013) documented a fit between the message and the required contribution. In this study, we measured participation rate as a proxy for motivation. We found that a solicitation message emphasizing commitment (“express support”) was more effective than a message emphasizing progress (“make a difference”) for low-effort actions, specifically, when we asked participants to write a single petition letter calling to reduce unemployment. However, a solicitation message emphasizing progress was more effective than a letter emphasizing commitment when we asked for high-effort actions, specifically, when we asked participants to write eight letters to reduce unemployment (see Figure 7). We conclude that not only do different messages induce different sizes of contributions and likelihoods of participation in a shared-goal, but further the act of participation matters, such that symbolic actions fit messages on commitment, whereas effortful actions fit messages on progress.

Overall, in Part B we showed that individuals’ goal commitment or identification with the group pursuing a shared goal determines whether they work harder in response to information on completed or remaining actions. When commitment or identification is low, attention to completed actions increases motivation more than attention to missing actions. However, when commitment or identification is high, attention to missing actions increases motivation more than attention to completed actions. In what follows, we move to a related question, namely, how the

question people ask (am I committed vs. am I making sufficient progress?) influences the feedback they seek from and give to others in goal pursuit.

Part C: Seeking and Giving Feedback

Beyond feedback on accomplishments or lack thereof, feedback can come in the form of praise versus criticism, correct responses or mistakes, and more (Bandura, 1991; Dweck & Leggett, 1988; Festinger, 1954; Locke & Latham, 1990). Our theorizing extends to these other forms of positive and negative feedback. In addition, our theorizing encompasses other modalities of feedback, beyond the response to feedback. In particular, we explore the feedback receivers seek and the feedback givers choose to provide to receivers. Variables that affect the response to feedback will likely also bear influence on the feedback individuals seek and give. In this regard, individuals can be quite strategic (though not necessarily consciously) in seeking the type of feedback that best motivates them to adhere to their goals, and in giving feedback that best helps others persist in their goals. For example, not only positive feedback (e.g., on completed actions) motivates individuals who are unsure about their goal commitment, but these individuals will likely spontaneously seek positive feedback more than those who feel certain about their commitment, and the uncertain individuals will likely also receive positive feedback more frequently than the sure individuals. Thus, there is a match between the valence of feedback people seek, receive, and respond to best.

When exploring feedback seeking and giving, consideration of other functions of feedback (beyond motivating the receiver) that could influence the feedback one chooses to seek or give is important. The exchange of feedback satisfies various social motives, including enhancing self-esteem (Tesser, 1988) and validating a person's self-view (Swann, 1987; Swann & Read, 1981). Self-enhancement and self-verification motives promote exchange of mainly

positive feedback, because most people generally hold a favorable view of themselves and their actions. Positive feedback will therefore make them feel good about themselves and will be considered consistent with self-views. In contrast, to the extent that people's motivation in exchanging feedback is partially (if not mainly) to motivate goal pursuit, both negative and positive feedback can be useful.

An Increase in Seeking Negative Feedback

We propose that:

Goal commitment, experience, and expertise increase negative (and decrease positive) feedback seeking.

Variables that increase the impact of negative feedback on motivation (commitment, experience, and expertise) further increase seeking of negative feedback. For example, one study investigated feedback seeking among University of Chicago students enrolled in beginning- and advanced-level French classes (Finkelstein & Fishbach, 2012). Compared with beginners, advanced students (i.e., experts) expressed greater interest in learning from an instructor who teaches using a style that emphasizes their mistakes and how they can improve. In addition, these advanced students preferred a negative over positive instructor (see Figure 8). Because experts sought negative feedback more than novices and more than they sought positive feedback, we assume experts seek negative feedback not only because they can tolerate it (i.e., negative feedback does not undermine their commitment), but mainly because experts sense negative feedback will increase their prioritization of a goal. They actively seek negative feedback.

An Increase in Giving Negative Feedback

A related idea is that people could potentially intuit that positive feedback increases motivation initially, but negative feedback increases motivation once the receivers gain

experience or expertise. As a result, when they assume the role of feedback givers, either formally (e.g., as teachers, parents, and coaches) or informally (e.g., as friends and colleagues), people increase the share of negative feedback over time in their communication with feedback receivers. We thus propose that:

People give more negative (and less positive) feedback to committed, experienced, and expert recipients.

In a study that demonstrated this trend, participants provided feedback to a presumed colleague on his videotaped professional presentation. Participants gave more negative feedback to that colleague when they assumed he was on the job for a long versus short while (2 weeks vs. 2 years; Finkelstein & Fishbach, 2013). When probed about the reasons for their feedback, participants indicated they wished to instill commitment for the supposed new person while encouraging the supposed expert to work harder. Therefore, although they did not rate the expert's performance as worse than the novice's, they included more negative feedback in communicating with the former. Interestingly, we observed a similar increase in negative feedback to an presumed colleague when participants had assumed that they themselves rather than their colleague were on the job for a long versus short while (i.e., 2 weeks vs. 2 years in), suggesting that having a long-term relationship with a colleague, like expertise, allows for more negative feedback. Experts as well as long-term colleagues, it appears, receive more negative feedback than novices, even if their performance is equal or better.

An increase in negative feedback can also result from the rarity of negative performance: the reduced frequency of bad performance with gained expertise. People learn more from feedback on unusual than usual performance. If positive feedback is rarer for novices—those who are less likely to perform a task well—this feedback could be more informative for them,

and if negative feedback is rarer for experts—those who are unlikely to perform poorly—this feedback could be more informative for them (Ashford & Tsui 1991; Tesser 1988). For instance, for a beginning piano player, who rarely plays the right note at the right time, learning she played a series of correct notes would be more informative than when a professional pianist who already knows he plays most of the notes correctly gets this information. On the other hand, learning that one played incorrect notes would be more informative for a professional pianist than for a novice.

This analysis, based on statistical frequency of successful performance, suggests that novices might get more positive feedback than experts just because successful performance is actually rarer. However, this (frequency-based) account assumes novices and experts are evaluated on a similar scale. On that scale, novices would indeed perform poorly more frequently than experts. But because the evaluation scales are different (Brown & Hanlon 1970), novices do not necessarily perform poorly more frequently than experts, and, as we documented, they do not experience receiving more negative feedback. For example, a professional pianist expects to be evaluated based on his ability to express his emotions, and his likelihood of succeeding should not be higher than the amateur pianist, who expects to be evaluated based on her ability to play the right notes.

Beyond expertise, a similar increase in giving negative feedback exists for goals for which experience does not create expertise (i.e., improved performance). Studies that separated experience from expertise investigated the feedback friends exchange with each other as a function of the depth of their relationship. When friends experience their relationships as deeper, they exchange more negative feedback in pursuit of their relationship (and other) goals, and respond more to negative feedback by increasing their investment in the relationship (and other)

goals. The reason is that the social context of the feedback—the relationship—similar to expertise, shifts the self-regulatory focus from establishing commitment by reassuring each other of the relationship strength, to making progress by maintaining relationship investment. As a result, as the relationship deepens, friends motivate each other more through negative feedback.

To demonstrate an increase in negative feedback as the relationship deepens, one study assessed the feedback friends exchange when writing a speech for a special occasion (e.g., a toast; see Keltner et al., 1998). Such speeches provide a natural setting for providing feedback because people might be less conscious of the fact that they are giving feedback to friends, focusing instead on the funny, less serious aspect of the presentation. In that study, we first created the impression that participants' relationship was deep or shallow by having them list the name of a friend and then answer questions on their relationship with that person, which activated social comparison to either a shallow- or deep-relationship standard. For example, participants listed how often they communicated with their friend on a scale that activated a shallow-relationship standard (1 = less than 1 day per week, 2 = 1-2 days per week, 3 = more than 2 days per week) or a deep-relationship standard (1 = less than 5 days per week, 2 = 6 days per week, 3 = daily). Participants felt their relationship was deep compared with a shallow standard of friends who rarely communicate, but that their relationship was shallow compared with a deep standard of friends who communicate daily. Analysis of the speeches participants wrote revealed that those who perceived their relationships as relatively deep gave their friends more negative feedback than those who perceived their relationships as relatively shallow. For example, those who experienced their relationship as relatively deep were more likely to comment on their friend's weight and lack of investment in the relationship. Although both close and distant friends wrote lightweight speeches, those in deeper relationships rated their own

speeches as more negative, and further included more negative adjectives in their writings (e.g., “inconsiderate,” “grouchy,” Finkelstein & Fishbach, 2013).

Other studies on the exchange of feedback among friends have documented a parallel trend toward increasing negativity in feedback seeking and responding to feedback. Thus not only do friends give each other more negative feedback as the relationship deepens, but they also seek and respond more to negative feedback. For example, in a study that manipulated perceived relationship-depth (as described above), the majority (66%) of those who were led to perceive their relationships as deep sought negative over positive feedback from friends, but only about half (45%) of those led to perceive their relationships as shallow sought negative over positive feedback from friends. Another study showed that after receiving negative feedback from a long-standing friend, people invest more in the relationship by making plans to spend time with their friend. Specifically, those participants who received negative feedback from a long-standing friend were more likely to make plans to spend time with their friend soon in an effort to restore the relationship compared to those who received similar negative feedback from an acquaintance or positive feedback from either a long-standing friend or an acquaintance (Finkelstein & Fishbach, 2013).

Overall, there is a tendency toward increasing negative feedback across three modalities: seeking, giving, and responding to feedback (see also Fishbach, Eyal, & Finkelstein, 2010). A certain level of synchrony appears to be present between the feedback individuals seek and receive, or between the feedback that best motivates action and what individuals either seek or receive. But importantly, this level of synchrony in feedback should only occur if people have matching perceptions of the status of goal pursuit or the relationship. For example, as long as a person’s experience of herself as either novice or expert corresponds to how a feedback giver

perceives her, a synchrony should exist between seeking negative feedback and receiving such feedback. In contrast, in situations in which perceptions do not match—for example, if friends do not share their perceptions of relationship depth—we would expect less synchrony, such that one friend could give more (or less) negative feedback than what the other would care to receive.

Part D: Implications

The present framework has implications for several findings and theories in the field of motivation. This section reviews research exploring the implications of the present framework for theory on the psychophysics of goals' beginning and end states, substitution in goal pursuit, and intrinsic motivation.

The Psychophysics of Goals

We propose:

A “small area hypothesis:” For goals with a clear end state, individuals exhibit greater motivation when they focus on their completed progress at the beginning and their lack of progress toward the end.

We addressed the motivational consequences of attending to completed versus remaining actions when pursuers are about halfway toward the goal end state. The reason for studying motivation at the midpoint of goal pursuit is that it allows researchers to manipulate pursuers' attention without also influencing the amount of goal pursuit under consideration. Around the midpoint, the amount of goal pursuit that has been accomplished is similar to the amount that is yet to be accomplished (50% to date is 50% to go), whereas at any other level of goal progress, the amount under consideration varies with the emphasis on completed versus remaining actions (e.g., 10% to date is 90% to go). When two factors vary simultaneously—the emphasis and the size of the area that is emphasized—identifying the cause of the motivational impact is harder.

Yet considering the strength of motivation as people progress on a goal and, in particular, how the impact of completed versus missing actions changes as goals progress is theoretically useful. In general, regardless of attentional focus, motivation increases with proximity to a goal's end state. Researchers have titled this phenomenon "the goal-gradient hypothesis" and the "goal-looms-larger effect" and have shown that people (and other animals) exert more effort as they get closer to a goal's end state (Brown, 1948; Förster, Higgins, & Idson, 1998; Hull, 1932; Heath, Larrick, & Wu, 1999; Kivetz, Urminsky, & Zheng, 2006; Nunes & Dréze, 2006). For example, rats in a straight alley progressively increased their running speed as they proceeded from the beginning of the alley toward the food at the end of the alley (Hull, 1934), and people enrolled in a coffee-shop frequent-buyer program ("buy 10, get one free") accelerated their purchases as they progressed toward earning a reward. The closer they were to the reward, the shorter their inter-purchase intervals became (Kivetz et al., 2006). The leading explanation for the goal-gradient effect is psychophysical: the perceived contribution of each step toward goal achievement increases over the course of goal pursuit. For example, the last action accomplishes 100% of the remaining progress, which is twice the impact of the second-to-last action (i.e., 50%). As a result, the motivation to complete the goal increases monotonically with proximity to the goal's end state.

A similar psychophysical approach can be applied to analyzing the motivational consequences of completed and missing actions. It suggests that the smaller the comparison standard, the more impact toward goal attainment a single goal-congruent action will appear to have. For example, after completing 20% of a goal, an action that completes another 5% of the goal will appear to have greater impact if a person compares it with 20% completed actions than to 80% remaining actions. At the point when the person has already completed 80% of the goal,

the same action that completes 5% of the goal will appear to have greater impact if the (more advanced) person compares it with 20% remaining actions than with 80% completed actions. We title this phenomenon the *small-area hypothesis*: individuals striving toward a goal's end state exhibit greater motivation when they focus on whichever is smaller in size: their accumulated or their remaining progress. Up to the midpoint (50%) of a goal, an emphasis on completed actions increases motivation more than an emphasis on remaining actions. Beyond the midpoint, this pattern reverses such that an emphasis on remaining actions increases motivation more than an emphasis on completed actions (Bonezzi, Brendl & Angelis, 2011; Koo & Fishbach, 2012).

A field experiment that supported the small-area hypothesis tracked the behavior of members of a loyalty program (Koo & Fishbach, 2012). These participants were diners in a sushi restaurant in South Korea that offered a buffet lunch menu and a reward program in the format of “buy 10 meals, get one free” for four months. We manipulated the focus on accumulated versus remaining progress by providing customers with a frequent buyer card on which they either received a stamp for each meal purchase (i.e., focus on accumulated progress) or had a slot removed for each meal purchase (i.e., focus on remaining progress; see Figure 9). Those who were close to receiving a free lunch were more likely to return to the restaurant if they attended to the number of purchases remaining (small area) versus completed (large area) to get the reward. However, those who were far from getting their free lunch reward were more likely to return to the restaurant when their attention was directed to their accumulated progress (small area) rather than remaining progress (large area; Figure 10). A similar pattern was observed for other motivational measures, including inter-visit time (how soon customers returned) and how many people customers brought with them. Interestingly, this effect of focus was orthogonal to

the goal-gradient effect: the higher their initial progress was, the more motivated participants were to use the card.

We offer a psychophysical explanation for this phenomenon: the next action appears to have a greater impact compared with a smaller set of other actions toward the goal; hence the motivation to pursue this action increases. For example, a student who has read two out of a total of 10 chapters in her textbook will see an additional chapter as having a greater impact toward the goal of finishing the book when she considers the two completed chapters (adding 50%: 1 to 2) rather than when she considers the eight remaining chapters (removing 12.5%: 1 out of 8). Conversely, if the student has completed eight chapters, considering the remaining two will make the next chapter appear to have a greater impact (removing 50%) than considering the completed eight (adding 12.5%). Indeed, studies find that emphasizing small areas increases the perceived impact of the next action (Koo & Fishbach, 2012). In addition, consistent with the psychophysical explanation, Bonezzi et al. (2011) documented a phenomenon they titled “stuck in the middle,” by which self-regulators exhibit greater motivation at the beginning and end of goal pursuit than in the middle because the perceived marginal value of progress toward the goal is larger at the initial state and towards the desired end state than in the middle (see also, Louro, Pieters, & Zeelenberg, 2007).

Yet another account for the small-area hypothesis refers to the change in the meaning of actions as a function of their position (beginning or end) in pursuing the goal. Completed actions signal personal commitment and increase motivation for those who are not yet committed to their goals, whereas remaining actions signal a need to progress and increase motivation for those who are already committed to their goals. Then whenever people’s commitment increases as they progress on their goals, these different signals from the same level of objective progress could

create a small-area effect: in the beginning of goal pursuit, when commitment is low, the focus on completed actions increases motivation by signaling commitment, whereas the focus on remaining actions later increases motivation to make progress. Therefore, both factors—perceived impact and the meaning of actions—likely contribute to the small-area effect.

Substitution

Substitution occurs at a variety of levels. Actions toward the same goal can substitute for one another (Fishbach, Dhar, & Zhang, 2006; Freud, 1923; Lewin, 1935; Shah, Friedman, & Kruglanski, 2002; Tesser, Martin, & Cornell, 1996), and symbols that similarly reflect one's desired self can substitute for one another (Wicklund & Gollwitzer, 1982). In an environment with a wide variety of goals and competing demands, completing one action could potentially allow the individual to relax her efforts on conceptually similar actions and move to very different goals that also require attention. In addition, a less investigated phenomenon refers to substitution between goals (Carver, 2003; Eyal, Converse & Fishbach, 2013). For example, Eyal et al. (2013) found that group achievements can substitute for an individual's pursuit of a conceptually similar, yet distinct personal goal (e.g., team victories vs. losses prompted less ambitious workout plans among fans). However, our focus is on substitution between actions toward the same goal (rather than goal substitution) because most of the research refers to this type of substitution.

Action substitution allows one to flexibly choose between actions that serve the same goal. For example, Monin and Miller (2001) demonstrated substitution in studies that provided people with an opportunity to express their egalitarian attitudes or not. Those who had the opportunity to express egalitarian attitudes were more discriminatory in their subsequent behavior, a phenomenon these researchers titled “moral licensing.” Similarly, research on

substitution in self-control has documented licensing in pursuit of goals such as financial responsibility and leading a healthy lifestyle. For example, Khan and Dhar (2006) found that participants who committed to a charitable act subsequently felt licensed to indulge by choosing a luxury item (e.g., designer jeans) over a utilitarian one (e.g., vacuum cleaner). In this and other studies, substitution was more likely for goals that required sacrificing of short-term motives and effortful exercise of self-control (Baumeister, Heatherton, & Tice, 1994; Baumeister, Vohs, & Tice, 2007).

Research on subgoals further has found that substitution in self-regulation occurs when people mistakenly experience completion of a subgoal as goal attainment. For example, Byrne and Bovair (1997) documented post-completion errors when people leave their cards in an ATM machine, the original documents in the photocopier, and when they forget to replace the gas cap after filling the tank. Similarly, Cheema and Bagchi (2011) found when people split a goal into several subgoals, they are less likely to obtain the goal than when a consolidated goal is presented. These errors occur because people ignore the overall goal and focus instead on completion of the subgoal (Anderson & Douglass, 2001; Fishbach et al., 2006).

Not only can one's own actions substitute for each other, but others' actions also substitute for one's own actions (Kouchaki, 2011). For instance, we have reviewed research showing that group members' actions can substitute for self-actions: those feeling socially close to the group contributed less to a shared goal if they were thinking of other group members' existing (vs. missing) contributions (Fishbach et al., 2011). Substitution also occurs when people mistakenly confuse others' actions toward others' goals with self-actions toward the self's goals. McCulloch et al. (2011) addressed the latter phenomenon as vicarious goal satiation: individuals experience goal satiation as a result of unwittingly taking on another person's goal pursuit and

witnessing its completion (see also Fitzsimons & Finkel, 2011). In addition, Ackerman, Goldstein, Shapiro, and Bargh (2009) documented that mentally simulating other people's use of self-control depletes one's own self-control resources. In their studies, participants who simulated the perspective of a person exercising self-control exhibited less restraint than did participants who merely perceived the person.

An underlying assumption in research on actions-substitution is that people frame their actions in terms of making goal progress. Otherwise, the pursuit of goal-related actions should increase rather than decrease the pursuit of other, similar actions. We thus propose an important boundary condition for all action-substitution-related phenomena: the actions need to signal progress rather than establish commitment. When actions signal commitment, there could be substitution on the level of goals (i.e., switching from one goal to another), but for actions substitution, we propose that:

When actions signal progress has been made, one's own actions, another person's actions, and the group's action can all substitute for present goal pursuit.

For substitution to occur, individuals need to perceive actions as getting them closer to goal attainment and therefore as allowing them to relax their efforts at least temporarily in a dynamic of balancing between completed and upcoming goal-related actions. If, alternatively, the self's or other's actions signal goal commitment, these actions are more likely to promote similar behavior in a dynamic of highlighting. Indeed, in studying moral licensing, Monin and Miller (2001) recognized that their effects oppose those of consistency theories (Bem, 1972; Festinger, 1957) and thus identified moderating variables for moral licensing. We propose that all action-substitution-related phenomena should be subject to such moderating variables and could be turned off or reversed if people are in a commitment instead of progress mindset.

Consistent with this analysis, substitution and substitution-related phenomena (including “symbolic self-completion,” Wicklund & Gollwitzer, 1981, 1982; “ego depletion,” Muraven, Tice, & Baumesiter, 1998; and “coasting,” Carver, 2003; Carver & Scheier, 1998) are evident in goal research that addresses effort investment, and this research subscribes to the progress model of self-regulation. In contrast, attitude research has documented a desire for consistency between actions and between actions and attitudes (Aronson, 1997; Bem, 1972; Cialdini, Trost, & Newsom, 1995; Heider, 1958). According to attitude research, once a person engages in an initial behavior, she will feel later that she should choose to engage in actions consistent with the earlier behavior (Cooper & Fazio, 1984; Festinger, 1957). Goal research might mainly subscribe to a progress model of self-regulation because it addresses situations that involve effortful goal striving, and attitude research might tend to subscribe to a commitment model of self-regulation because it examines the process by which people learn about their attitudes and goals (i.e., goal setting). Indeed, our model proposes that substitution should occur more when people monitor their progress in striving for a goal than when they evaluate goal commitment or set themselves a goal. We assume that mainly in a progress mindset do cues that progress has been made discourage or substitute for goal pursuit. Future research could test whether (and which) substitution effects depend on a progress mindset and vanish or even reverse when actions signal commitment.

Intrinsic Motivation: When Pursuing (vs. Attaining) a Goal is Rewarding

Individuals gain two types of benefits from pursuing their goals: internal (intrinsic) benefits that materialize while pursuing the activity and are part of the pursuit, and external (extrinsic) benefits that materialize at a separate point in time and are not part of the pursuit (Deci & Ryan, 1985; Higgins & Trope, 1990). For example, working out, reading a newspaper,

and doing pottery are activities that offer internal benefits for those individuals who enjoy pursuing them, but they also offer external benefits for those individuals, such as staying in shape, being well informed, and having a decorated home. When individuals pursue an activity mainly for the sake of pursuing it, the experience forms its end. When individuals pursue an activity mainly as a means to an end, the activity is instrumental for achieving the end.

This distinction echoes the distinction between process- and outcome-derived motivations. That is, individuals can either perform a goal activity for its own sake or as a means to reach an outcome or an end state (Harackiewicz & Sansone, 1991; Sansone & Harackiewicz, 1996; Sansone & Smith, 2000). This distinction also has parallels to research on consummatory versus instrumental goals (Miller & Tesser, 1992) and endogenous versus exogenous behaviors (Kruglanski, 1975). Although these various frameworks differ in many aspects, they share the assumption that the incentive for pursuing a goal comes from engaging in a goal or from attaining a goal. We use the terms “internal” and “external” incentives because they most closely address the question of whether the benefit for pursuing the activity occurs as part of pursuing it or as a result of completing its pursuit, whereas related concepts may refer to certain contents of motivation (e.g., autonomy, competence, and relatedness, for intrinsic motivation; Deci & Ryan, 1985).

The degree of activities’ external benefits varies by activity—some offer greater benefits than others (e.g., reading a professional textbook vs. magazine). In addition, whether an activity appears more or less instrumental in achieving external benefits often depends on contextual cues that focus a person on these external benefits versus the internal benefits such as positive experience (Choi & Fishbach, 2011; Fishbach & Choi, 2012; Woolley & Fishbach, 2013). Whereas most goal research addresses instrumental goals and most theories of self-regulation

address the process of pursuing goals for the sake of external benefits, such bias may be disadvantageous as it neglects a large proportion of other goals and self-regulatory processes. For example, for activities that offer both internal and external benefits, the focus on the activity's instrumentality renders the activity more valuable yet less pleasant to pursue because people associate usefulness with less enjoyable experience. Then, because experience matters a lot while pursuing the activity, when people consider the activity's instrumentality—relative to not considering it—they show an increase in the intention to pursue an activity but a decrease in persistence during actual pursuit. One study that supports this analysis found that, when gym users elaborated on the benefits of a treadmill exercise (i.e., goals they achieve), they planned to work out for a longer period (because working out appeared more useful) but actually persisted for less time (because working out was experienced as less pleasant) than when they focused on the activity itself (Fishbach & Choi, 2012).

Other work finds that people value external benefits more when planning to pursue an activity than during actual pursuit, and they value internal benefits more in pursuing than planning an activity. For example, Woolley and Fishbach (2013) found that people value external benefits such as salary in applying for a job or college more than in pursuing a job or a college degree, and that people value internal benefits such as interest and challenge more when pursuing a job or a college degree than when planning to do so. Because of the shift in weights given to different incentives, people often erroneously choose to pursue activities for reasons that turn out to be less important for them during pursuit. For example, study participants chose a task that offered external benefits (higher pay) over internal benefits (interest), but persisted less and slacked more on the task high on external, but low on internal benefits compared with tasks low on internal, but high on external benefits (Woolley & Fishbach, 2013).

This distinction between internal and external benefits further has implications for the effects of attending to completed and missing actions. When people pursue actions to express their goal commitment, they focus on the experience of pursuing the goal, and when they instead monitor progress, they focus on the instrumental benefits of completing the goal. This difference exists because the commitment mindset focuses people on the experience, whereas a progress mindset focuses people on what comes next, after they have completed the present pursuit. Indeed, research on levels of aspiration finds that when people's attention is on their completed actions, they enjoy their goal pursuits more and wish to repeat the same set of activities more than when they attend to their remaining actions (Koo & Fishbach, 2010a). Furthermore, when people attend to remaining actions, they wish to move on to the next level, such that they perceive their current actions as instrumental in moving forward.

The distinction between internal and external benefits has implications for how researchers should measure the strength of motivation (Touré-Tillery & Fishbach, 2013). Some common measures of motivation include effort invested in a goal-related task, the speed at which the task is performed, or persistence in the task. These measures capture the strength of motivation toward instrumental goals. Thus, for example, these measures better capture the strength of the motivation to complete a school assignment than the strength of motivation to read a magazine or a novel. In pursuit of intrinsic goals, these measures will not only provide a poor estimate but they can further be negatively correlated with the actual strength of motivation, because in pursuit of intrinsic goals, strong motivation reflects a desire to prolong goal pursuit rather than finish it quickly. Thus a person who is highly motivated to pursue an intrinsic goal might strategically exert less effort in order to slow down her goal progress, and she might also persist less on goal-related activities—all of which prolong the pursuit of the goal. For example,

a person who reads a novel for intrinsic reasons might take a long time to finish the book, thus extending the experience. She might even slow down as she approaches the end of the book in order to extend her enjoyment, which will reverse the goal-gradient effect. We thus propose that:

When the act of pursuing a goal is more rewarding than making progress, lower engagement (e.g., postponement) reflects high motivation (i.e., savoring).

Some preliminary research that supports this proposition manipulated the incentive to participate in frequent-buyer programs (Koo & Fishbach, 2012). For some participants, the benefits for participating in the program were contingent on goal completion, whereas for the rest, benefits were contingent on pursuit itself (rather than completion). Specifically, the study compared two types of reward programs at a campus bagel store: a reward program in which benefits are earned upon goal completion (“buy 10 sandwiches, get one free”) and a prepaid-card program that provides benefits for a limited number of purchases (“get 10 free bagel sandwiches”). For the prepaid-card program, completion was undesirable and the incentives were to prolong the pursuit and enjoy the benefits. If people wish to prolong the pursuit, perception of faster progress should lead them to slow down by postponing their next step toward goal completion. This study had participants assume someone had left them her reward card (hence, they could earn a free reward after fewer purchases) or prepaid card (hence, they could get some free sandwiches). They received an actual card through which we manipulated the focus on accumulated progress (collecting a logo stamp for each purchase, up to 10) or remaining progress (collecting a sticker that masks a logo stamp for each purchase, up to 10). We further manipulated the level of endowed progress (the card reflected three versus seven existing purchases). Analysis of participants’ eagerness to start using the card revealed that emphasizing small areas in representing progress (i.e., accumulated progress at three purchases and remaining

progress at seven purchases), which leads to perception of fast progress, motivated more immediate usage of the reward card, than emphasizing large areas (i.e., accumulated progress at seven purchases and remaining progress at three purchases). However, emphasizing small areas motivated more delayed usage and increased savoring of the prepaid card, because participants did not want to finish the card. Beyond these initial findings, by considering goals people would not like to complete because pursuit is rewarding, research will likely identify important moderators for motivation phenomena as well as new measures of motivational strength.

Summary

The process of self-regulation involves deciding on a goal's motivational priority, namely, how much to invest in the goal in the present. Setting certain goals is often not enough to secure goal pursuit. A person needs to decide how to pursue these goals in the present while forgoing opportunities to pursue other goals that compete for time or other resources. We suggest that motivational priority is largely determined by the fundamental way people monitor their goals: whether they attend to what they have accomplished to date versus what is missing to meet the goal. More generally, motivation is a function of both positive feedback on accomplishments or strengths—the glass half full—and negative feedback on lack of progress or on weaknesses—the glass half empty.

Accomplishments increase motivation by signaling the goal is valuable and feasible (i.e., high commitment) and lead to highlighting a goal, whereas lack of accomplishments increases motivation by signaling a need for progress and balancing between goals. The person's desire to evaluate her commitment versus pace of progress will, in turn, determine the motivational force of information that boosts commitment (accomplishments) versus information on needed progress (missing accomplishments).

Variables that create a shift from evaluating commitment to evaluating a need for progress include people's preexisting goal commitment, their experience, and expertise. The more people already feel they are committed, experienced, or have expertise, the less they are concerned with evaluating commitment and the more they wish to monitor their progress; hence, their motivation increases when they attend to their insufficient actions to meet the goal. Similar variables further affect the motivational priority given to shared goals people pursue with a group of like-minded individuals. When people are committed to or identify highly with a group, they are more concerned with securing adequate progress (correspondingly, they are less concerned with evaluating commitment) and more responsive to information on missing actions than accomplished actions toward complete the goal.

Beyond responding to feedback that emphasizes different aspects of a person's performance, people often actively solicit feedback from others, and, at other times, they also resume the role of feedback givers and provide feedback they believe will advance others' goal pursuit. The same variables then affect seeking, giving, and responding to feedback. Thus, people seek more negative feedback on their insufficient actions if they are committed to a goal or as they gain experience and expertise, and people also give negative feedback on what is missing to those they believe are committed, experienced, or experts. This shift from positive to negative feedback occurs across several domains including, for example, learning, consumption, and relationship goals.

The present framework further has implications for several well-documented phenomena in motivation research. First, motivation changes over the course of pursuing a goal. At the beginning, people exhibit greater motivation when they focus on their completed progress, but once they cross the midpoint in pursuing a goal with a clear end state, attending to what is

missing is a better motivator. Second, substitution within personal goal-related actions (e.g., licensing) and between personal and other's actions toward a goal occurs only when people wish to estimate their progress, not when they are concerned with evaluating their commitment. Third, the motivation to pursue a goal can, at times, lead to greater postponement and lower engagement to the extent that pursuing, rather than achieving, a goal is rewarding and individuals wish to prolong such pursuits.

To conclude, individuals constantly monitor their goals: from weighing oneself to taking academic and medical tests to checking one's balance on a checking account, individuals always look for information that will help them determine where they stand on their various goals and that would motivate them to take future actions. A large proportion of this information comes in the form of what has been accomplished versus left unaccomplished to meet the goal, and, as we show, which part individuals attend to often has significant consequences for the strength of motivation.

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Table 1. Summary of propositions

Part	Propositions
A. How completed and missing actions increase motivation	1. Completed actions increase motivation by signaling to the self that the self is committed.
	2. Missing actions increase motivation by signaling to the self a need for progress.
B. When actions signal commitment versus progress	1. Personal goals: a. Uncommitted individuals evaluate their commitment, whereas committed individuals evaluate their progress. b. Novices evaluate their commitment, whereas experts evaluate their progress.
	2. Shared goals: a. Uncommitted individuals evaluate the group's goal commitment, whereas committed individuals evaluate the group's goal progress. b. Individuals identifying lowly with other group members evaluate the group's goal commitment, whereas individuals identifying highly with other members evaluate the group's goal progress. c. A higher proportion of group members would respond to a message on expressing commitment (vs. make progress); however, the average contribution amount would be larger in response to a message emphasizing progress (vs. commitment).
C. Seeking and giving feedback	1. Commitment, experience, and expertise increase negative (and decrease positive) feedback seeking.
	2. People give more negative (and less positive) feedback to committed, experienced, and expert recipients.
D. Implications	1. The small-area hypothesis: for goals with a clear end state, attending to completed progress at the beginning and lack of progress toward the end increase motivation.
	2. Substitution: when actions signal progress has been made, one's own actions, another person's actions, and the group's actions can all substitute for present goal pursuit.
	3. Intrinsic motivation: when the act of pursuing a goal is more rewarding than making progress, lower engagement (e.g., postponement) reflects high motivation (i.e., savoring).

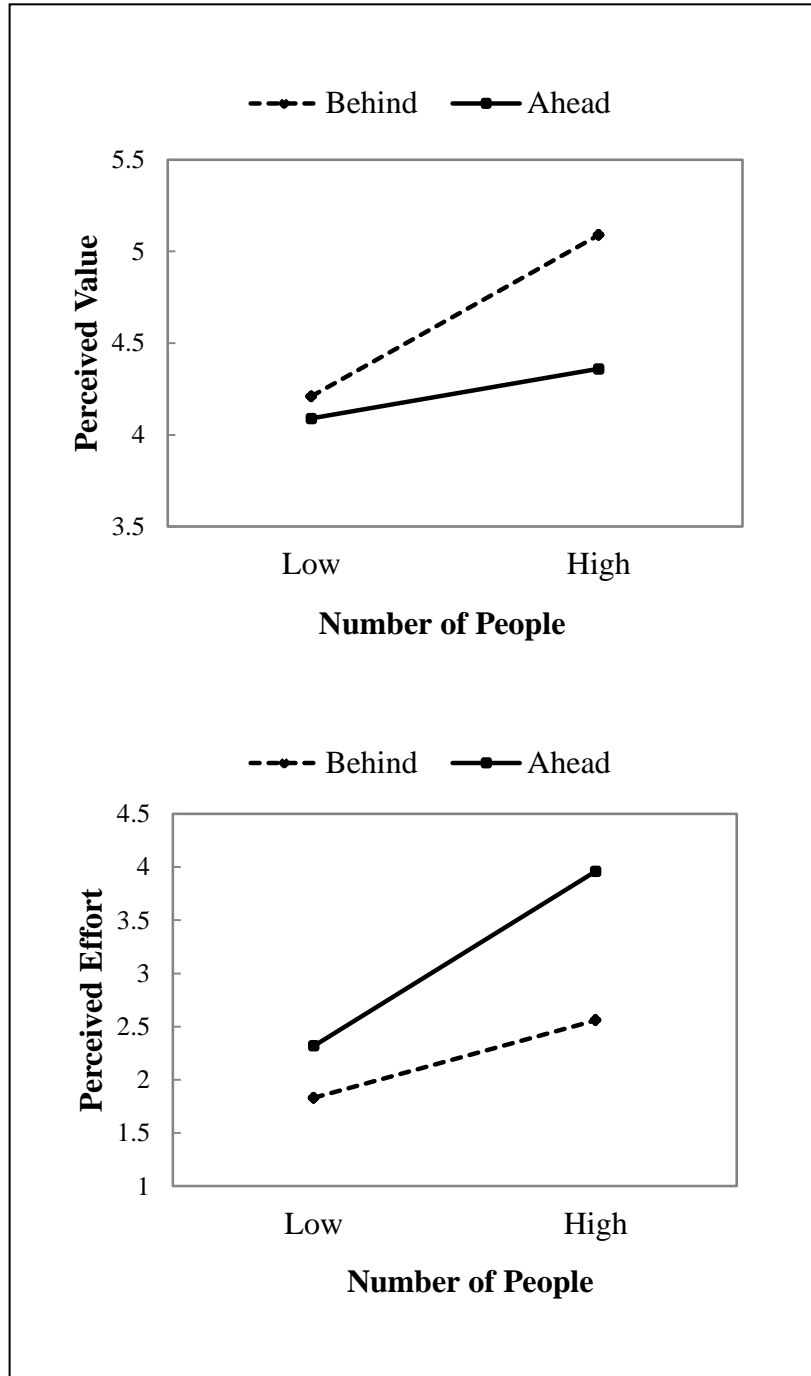


Figure 1. Perceived value of the meal sandwich and perceived effort as a function of the number of people behind (completed actions) and ahead (missing actions; from Koo & Fishbach, 2010b)

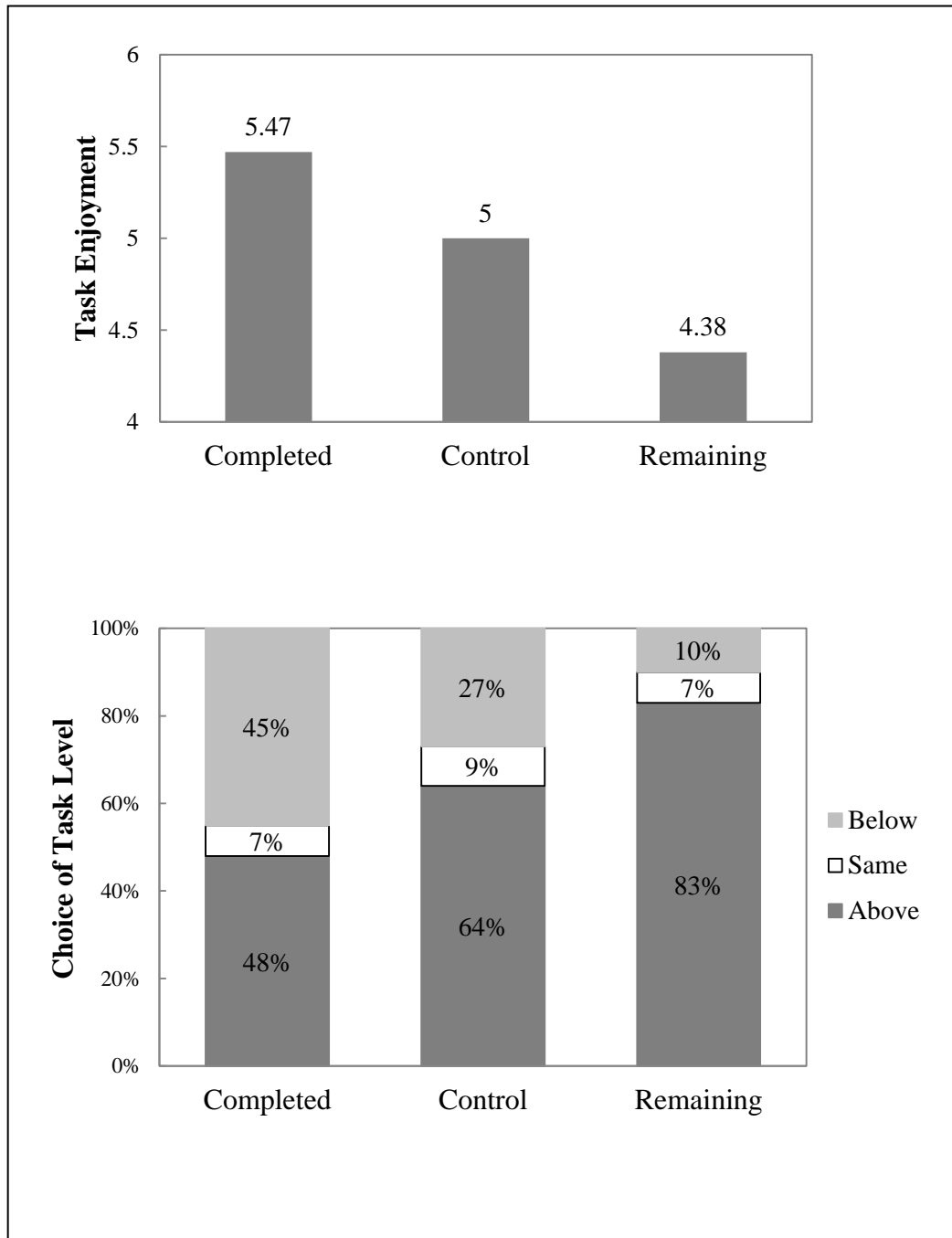


Figure 2. Task enjoyment and choice of a subsequent task level as a function of completed progress, control, and remaining progress feedback (from Koo & Fishbach, 2010a)

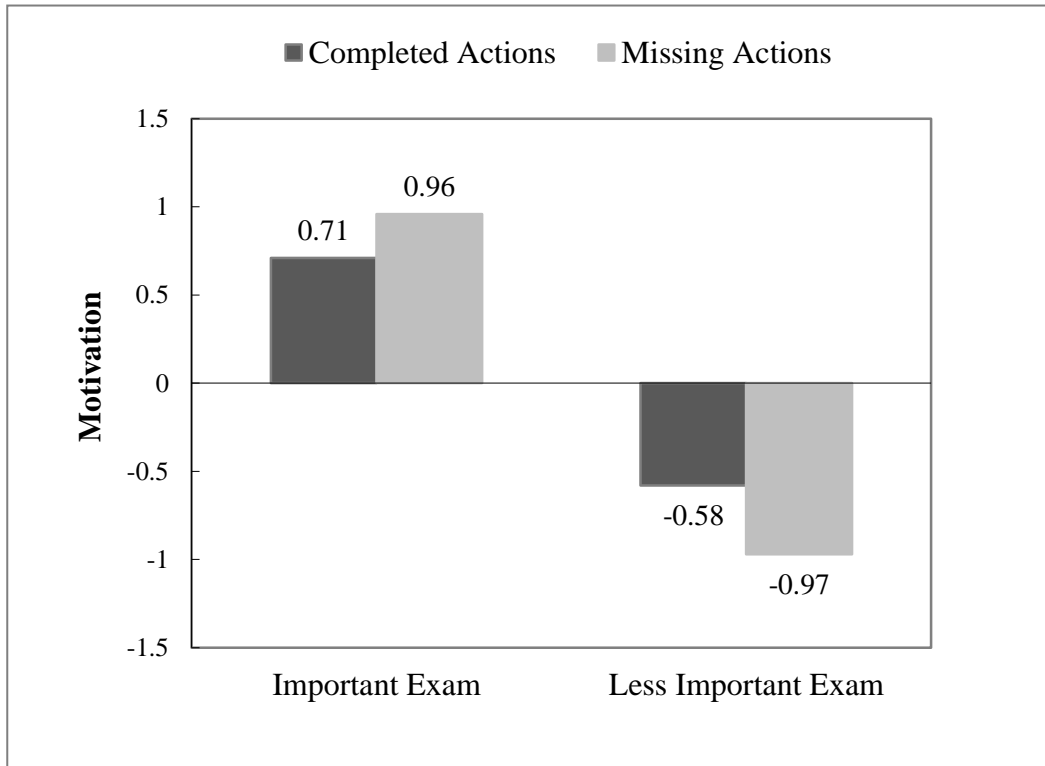
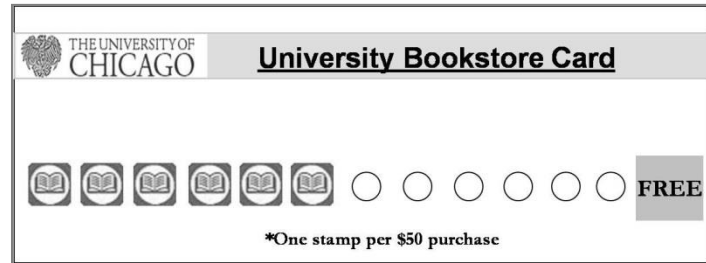


Figure 3. Motivation to study (Z-score) as a function of commitment (high: important exam; low: less important exam) and focus on completed versus missing actions (from Koo & Fishbach, 2008)

(a) Card that emphasizes accumulated progress



(b) Card that emphasizes missing progress

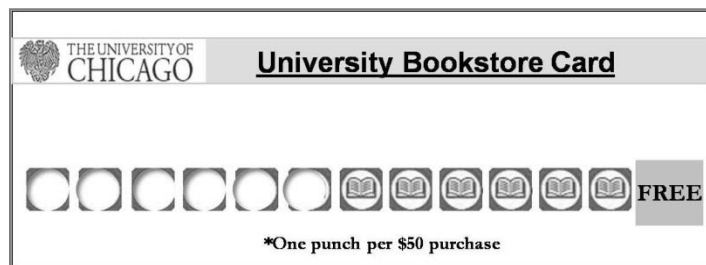


Figure 4. University bookstore cards that emphasize accumulated versus missing progress (from Koo & Fishbach, 2008)

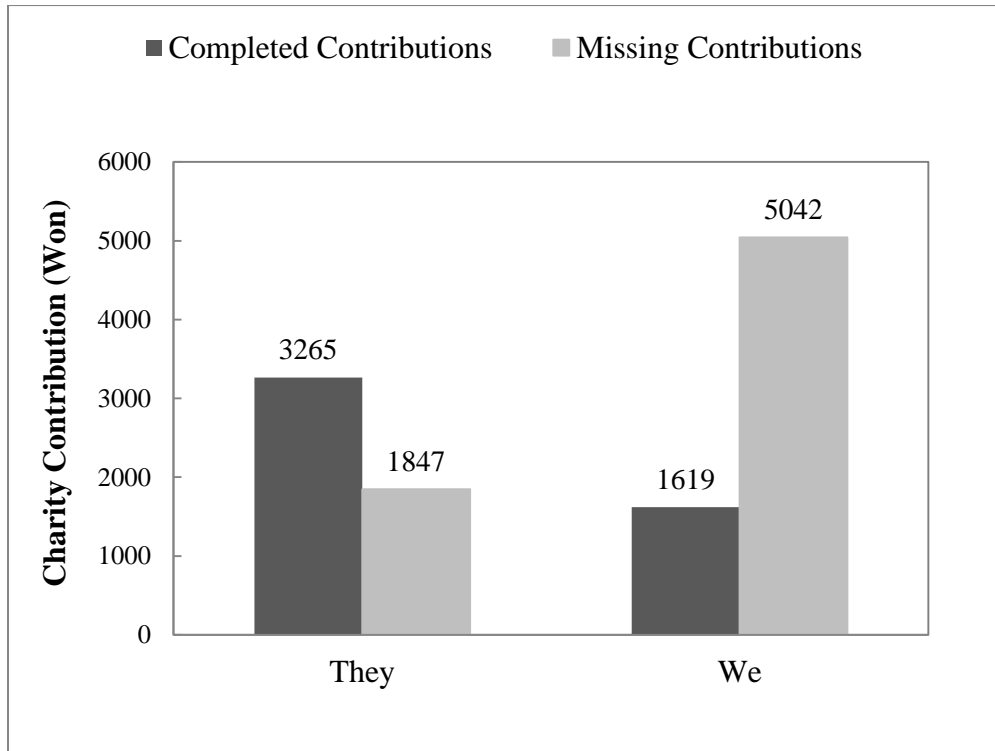


Figure 5. Charity contribution as a function of group identification (low: “they;” high: “we”) and focus on completed versus missing contributions (from Fishbach et al., 2011)

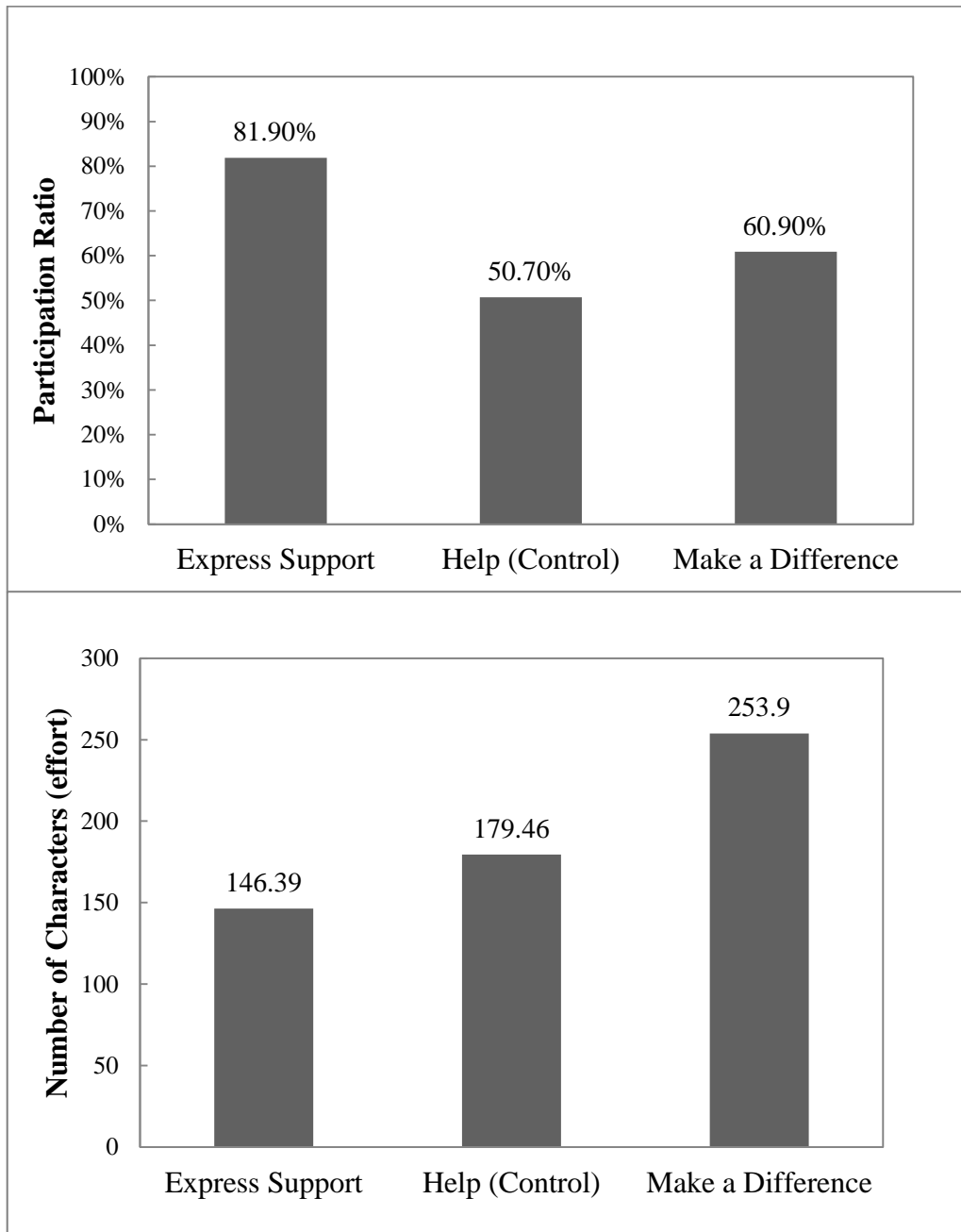


Figure 6. Effort investment and participation ratio in a charity campaign as a function of solicitation message (express support vs. control vs. make a difference; from Koo et al., 2013)

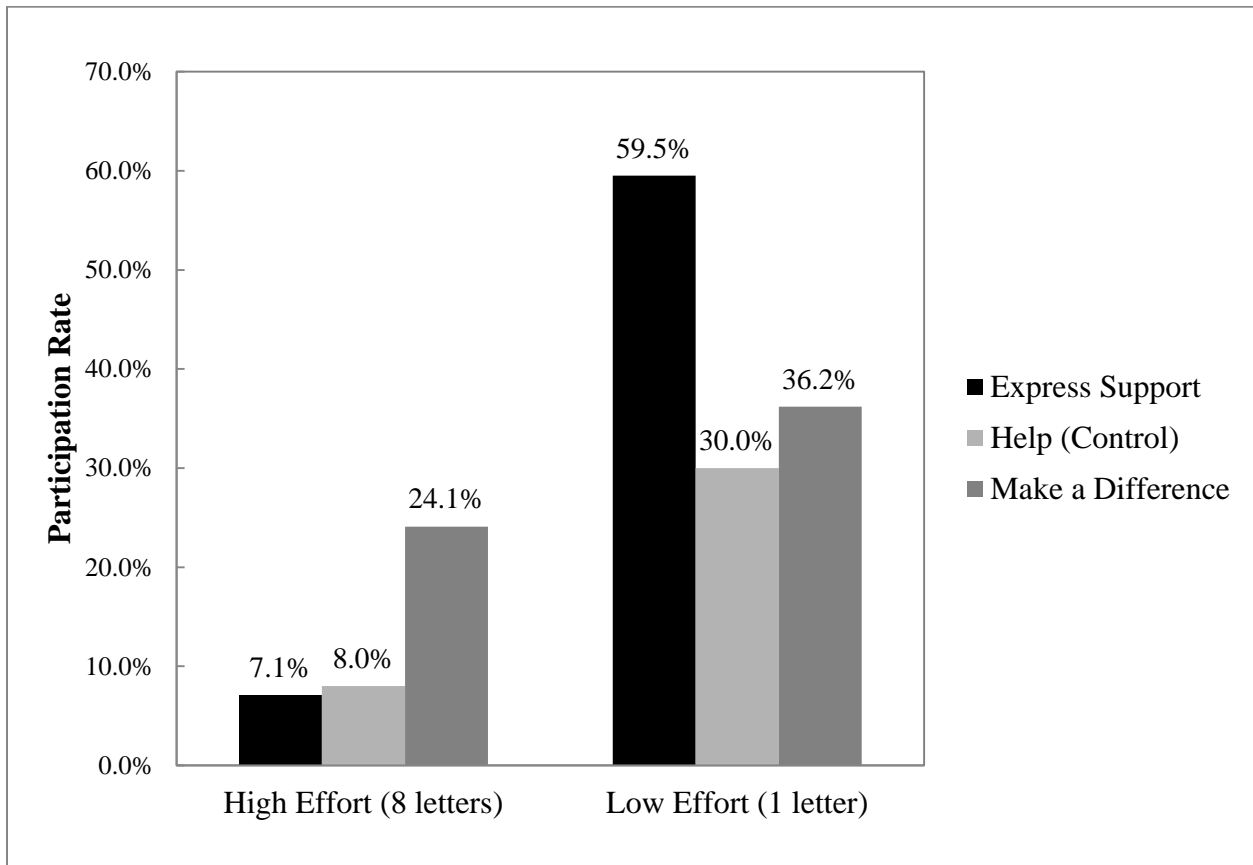


Figure 7. Participation rate as a function of the fit between the message (express support vs. control vs. make a difference) and required effort (from Koo et al., 2013)

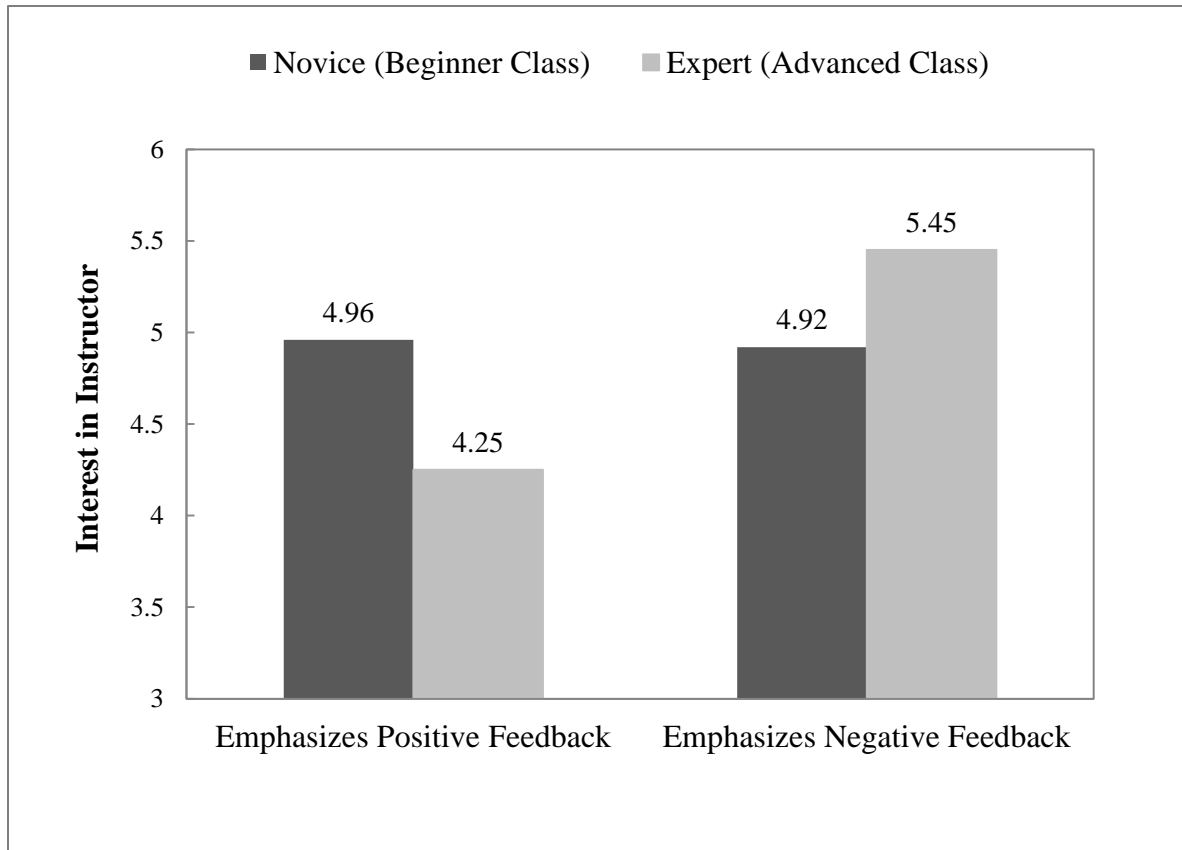
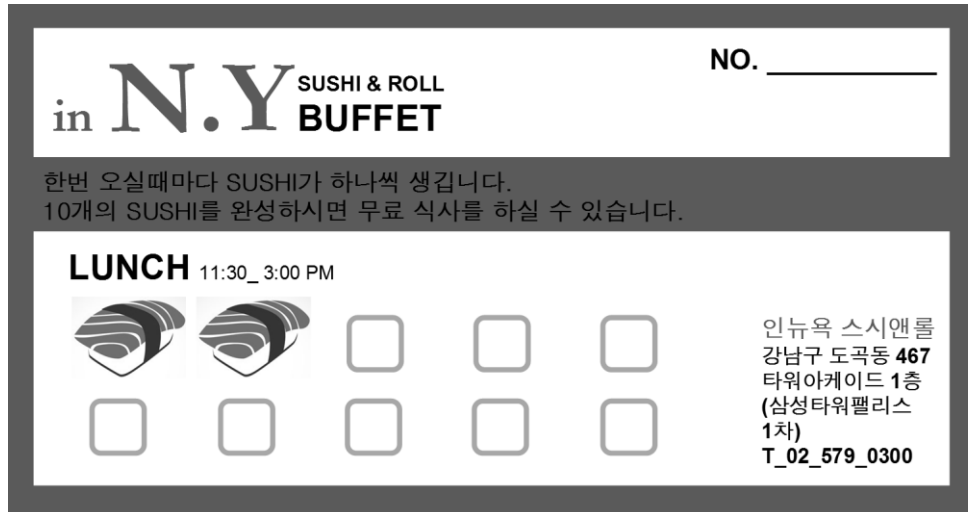


Figure 8. Interest in feedback from an instructor who emphasizes positive versus negative feedback as a function of expertise level (from Finkelstein & Fishbach, 2012)

(a) Reward card that emphasizes accumulated progress



(b) Reward card that emphasizes missing progress



Figure 9. Rewards cards that emphasize accumulated versus missing progress (from Koo & Fishbach, 2012)

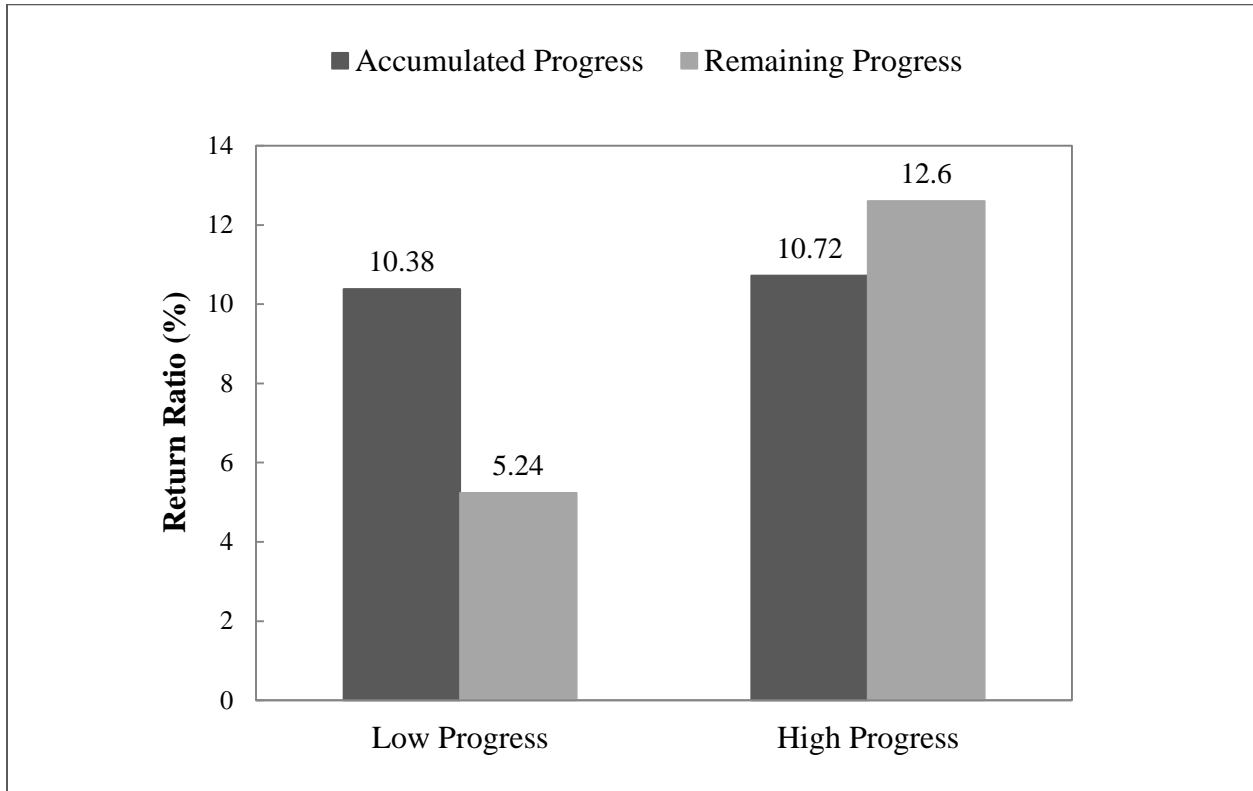


Figure 10: Return ratio as a function of level of progress and focus on accumulated versus remaining purchases to receive a reward (from Koo & Fishbach, 2012).

Note. We present value predicted by the regression model to obtain at ± 1 standard deviation from the means.