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Publication Date

2015

DOI

10.1016/j.riob.2015.09.001

Peer reviewed

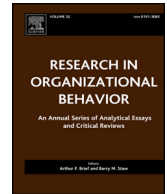


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Contents lists available at [ScienceDirect](#)

Research in Organizational Behavior

journal homepage: www.elsevier.com/locate/riob



How to motivate yourself and others? Intended and unintended consequences

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ARTICLE INFO

Article history:

Available online xxx

Keywords:

Motivation
Goals
Incentives
Feedback
Targets

ABSTRACT

To achieve goals, individuals and organizations must understand how to effectively motivate themselves and others. We review three broad strategies that people employ to increase motivation: giving feedback, setting goal targets, and applying incentives. Although each of these strategies can effectively motivate action under certain circumstances and among certain people, they can also result in unintended consequences: not helping or even hurting motivation. For example, employers may give positive feedback that leads employees to relax their effort or negative feedback that undermines employees' commitment, organizations may set goals that are overly ambitious and consequently reduce motivation, and certain incentives might appear attractive before pursuing an action but uncertain incentives better motivate action during goal pursuit. By identifying when and how these common motivational strategies work versus fail, we are able to prescribe a specific set of guidelines that will help people understand how to motivate themselves and others.

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Success in the workplace – and in life – hinges on effectively directing the behavior of oneself and others. As such, understanding which motivational tools to select and how to employ these tools is critical. Indeed, the study of motivation has historically been a cornerstone in psychological, organizational, and economic research. Several prominent theories on motivation emerged pre-1990, ranging from goal setting theory (Locke & Latham, 1984) to expectancy theory (Vroom, 1964), to social cognitive theory (Bandura, 1977). Each theory implicated a set of motivational tools for the workplace and beyond (e.g., pay for performance, Haire, Ghiselli, & Gordon, 1967).

These classic motivational theories have been extremely influential in organizational research; the tools they provide can be quite effective when appropriately used. However, modern research suggests these tools do not always work as originally predicted. Rather, they can have unintended consequences whereby the intervention backfires and instead decreases motivation. To direct the behavior of oneself and others successfully in field settings (e.g., the workplace), a more nuanced understanding of motivational theory is required. Here we highlight the contributions of a novel, growing body of research that documents when and why some tools are effective and the unintended consequences that can occur for each of these motivational tools.

In particular, we consider three leading categories of strategies that organizations employ to increase motivation: (A) giving feedback, (B) setting goal targets, and (C) providing incentives. Decades of experiments support the

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assertion that, to motivate people, it is useful to provide performance feedback (Kluger & DeNisi, 1996), to set specific goal targets or performance standards (Locke & Latham, 1984), and to incentivize goal-directed behavior (Eisenberger & Cameron, 1996; Eisenberger, Rhoades, & Cameron, 1999). However, we propose that each of these operations can result in undesirable consequences. For example, positive feedback can make people relax their effort whereas negative feedback can undermine people's commitment, setting goals can reduce motivation if the specific target is too ambitious (or alternatively, after it has been achieved), and certain incentives can undermine motivation compared with uncertain incentives. Accordingly, we identify when and how these common motivational strategies work, and when do they fail. We review theory and discuss practical implications. Our propositions and conclusions are summarized in Table 1.

Part A: Feedback

Feedback is critical for goal pursuit. When individuals receive information on successful and failed actions, they can adjust their efforts accordingly to improve their ability to fulfill their goals (Bandura, 1991; Dweck & Leggett, 1988; Festinger, 1954; Locke & Latham, 1990). By this perspective, any type of feedback should be beneficial, helping individuals to pursue their goals more effectively. But consider the following three scenarios. A manager writes a glowing performance evaluation for an employee who has just met the standard expectations. A piano instructor tells a student who just started playing the piano last week that her technique is terrible. Finally, an editor whom a writer has never met tells him that his writing style needs work. In each of these cases, feedback might actually dampen the motivation of the person pursuing his or her goals.

We distinguish between the two primary forms of feedback: positive and negative. In pursuing any long-term goal, a person is likely to encounter both failures and successes. She can consider the progress made, or the progress still missing to meet the goal. In this way, performance can be evaluated positively or negatively. Hence, a person can choose to motivate oneself or others by focusing on the positive or negative aspects of the goal pursuit. In the earlier examples, the manager chose to give positive feedback whereas the piano teacher and editor gave negative feedback. Positive feedback refers to accomplishments, strengths, and correct responses, whereas negative feedback refers to lack of accomplishments, weaknesses, and incorrect responses.

On the one hand, several motivation theories suggest that positive feedback is more effective for motivating goal pursuit because it increases outcome expectancy of the goal and perceived self-efficacy of the pursuer (Atkinson, 1964; Bandura & Cervone, 1983; Lewin, 1935; Weiner, 1974; Zajonc & Brickman, 1969). These findings demonstrate that positive feedback can increase people's confidence that they are able to pursue their goals. Negative feedback, in contrast, can undermine people's confidence and hence their expectations of success. Consequently, positive feedback is often used to encourage individuals to

internalize or integrate new goals to their self-concept, with the expectation that these individuals will then be more committed to pursue the goal on subsequent occasions (Ryan & Deci, 2000).

On the other hand, other motivation theories suggest that negative feedback is more effective for motivating goal pursuit. For example, cybernetic models of self-regulation propose that positive feedback on successes provides a sense of partial goal attainment, signaling that less effort is needed to accomplish the goal. In contrast, negative feedback on lack of successes signals that more effort is needed and encourages goal pursuit (Carver & Scheier, 1998; Higgins, 1987; Kluger & DeNisi, 1996; Locke & Latham, 1990; Miller, Galanter, & Pribram, 1960; Powers, 1973). According to cybernetic models, then, social agents would be more effective if they emphasize negative feedback.

We suggest that *neither* form of feedback is generally better. When is positive feedback effective for motivation, and when is negative feedback effective? In the following section, we propose that each type of feedback can be effective (or ineffective), but their effectiveness depends on at least two factors: (1) action representation (commitment vs. progress), and (2) experience (goal expertise: experts vs. novices; relationship between feedback giver and receiver: close vs. distant). We consider each factor in turn.

Proposition 1a. Positive (vs. negative) feedback is effective when it signals a boost in commitment, whereas negative (vs. positive) feedback is effective when it signals a lack of goal progress.

Research underlying the dynamics of self-regulation (e.g., Fishbach & Dhar, 2005; Fishbach, Dhar, & Zhang, 2006; Fishbach & Zhang, 2008; Koo & Fishbach, 2008; Zhang, Fishbach, & Kruglanski, 2007), suggests that there may exist two distinguishable representations of actions. Actions can represent commitment toward a desirable state (Klein, Wesson, Hollenbeck, & Alge, 1999; Locke, Latham, & Erez, 1988), or they can represent making progress toward the 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; Lewin, Dembo, Festinger, & Sears, 1944; Liberman & Förster, 2008). 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 plans for future engagement often signal commitment and therefore serve to increase motivation (Hart & Albarracín, 2009; Oettingen & Mayer, 2002; Zhang et al., 2007).

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

Table 1
List of propositions and conclusions.

	Propositions	Modifications	Recommendations
Part A: Feedback			
	1. Positive and negative feedback motivate action.	1a. Positive feedback is effective when it signals a boost in commitment, whereas negative feedback is effective when it signals a lack of goal progress. 1b. Positive feedback is motivating for novices or when in distant relationships whereas negative feedback is motivating for experts or when in close relationships.	Use more positive feedback toward the beginning of goal pursuit, for novices, and in distant relationships but use more negative feedback toward the end of goal pursuit, for experts, and in close relationships.
Part B: Goal Target			
Goal setting	2. Setting goal targets motivates action.	2a. Goal targets can be miscalibrated when set, undermining their utility.	When setting goals, beware of the potential discrepancies between the measurable goal and the behavior you would like to promote.
The course of goal pursuit	3. There is greater motivation closer to the goal target. 4. There is greater motivation when people focus on completed (vs. lack of) progress at the beginning and lack of (vs. completed) progress toward the end of goal pursuit. 5. The course of the goal pursuit influences adherence to standards such that people tend to “slack” their standards in the middle of goal pursuit.		To increase outcome-focused motivation (“getting it done”), set closer goals and focus on completed progress in the beginning of goal pursuit and remaining progress at the end to maximize motivation. To increase means-focused motivation (“doing it right”), avoid the middle of goal pursuit by reframing it as the beginning or end.
Choosing means to achieve a goal	6. People prefer means that achieve multiple goals (i.e., “multifinality”).	6a. Multifinal means dilute the association between the means and the goal.	Use multifinal means for multiple goals but recognize these means are less valued for pursuing a single goal.
Part C: Incentives			
Immediate vs. delayed incentives	7. Immediate incentives are more motivating than delayed incentives.	7a. Immediate temptation can undermine longer-term goals.	Use immediate incentives when possible but reduce immediate temptations. To exert self-control in the face of immediate temptation and thereby successfully pursue the long-term goal, the person must first identify the short-term motive as undermining long-term interests and then counteract this temptation by increasing the motivational strength of the goal while reducing the pull of temptation.
Certain vs. uncertain incentives	8. People tend to prefer certain over uncertain incentives.	8a. People prefer uncertain (vs. certain) losses. 8b. Uncertain (vs. certain) gains can confer at least three independent motivational advantages: 1) they may be preferred when they offer a higher possible reward, 2) they make people work harder when they provide excitement in the midst of goal pursuit, and 3) they result in longer extinction for learned behaviors.	Use certain incentives for most gains and uncertain incentives for most losses to motivate. Use uncertain incentives for gains when: the best possible outcome is much higher, you want to extend extinction, you want to motivate achievement, or the person is in the midst of goal pursuit and you want to motivate persistence.

Table 1 (Continued)

	Propositions	Modifications	Recommendations
Extrinsic vs. intrinsic incentives	9. Extrinsic incentives tend to motivate action.	9a. Intrinsic incentives are effective during pursuit more than outside pursuit. 9b. People tend to believe they are more motivated by intrinsic incentives than are others.	Extrinsic incentives are often necessary for motivation. Limit extrinsic incentives if: the person is already intrinsically motivated and extrinsic incentives signal the task is unpleasant, or the person is in the midst of goal pursuit and you wish to motivate persistence. In general, recognize that others also value intrinsic incentives and try to provide more intrinsic incentives to them.

subscribe to this representation of goal-related actions as enabling progress. These theories assume that motivation increases with attention to the discrepancy between current progress level and the level expected for achievement of the goal (Carver & Scheier, 1990; Carver & Scheier, 1998; Heath, Larrick, & Wu, 1999; Higgins, 1987; Kivetz, Urminsky, & Zheng, 2006; Locke & Latham, 1990). Individuals who adopt a progress representation, whereby they are monitoring their rate of progress toward a goal, will exert greater effort to achieve the goal when they consider their lack of progress (e.g., missing actions). If they notice a discrepancy between the goal target and the amount of work remaining to achieve the goal, they will conclude they are falling behind and thereby exert greater effort to reach the goal target.

These representations of actions – commitment and progress – have opposite implications for people's motivation. When actions signal a boost in commitment, attending to what one has accomplished (positive feedback) increases motivation more than attending to what one has left undone (negative feedback), because completed actions increase commitment. However, when actions signal progress has been made, attending to what one has left undone (negative feedback) increases motivation more than attending to what one has accomplished (positive feedback), because missing actions signal a need to progress.

Thus, positive feedback is effective only when it signals a boost in commitment, whereas negative feedback is effective only when it signals a lack of goal progress. Fishbach, Zhang, and Koo (2009) identified several variables that determine the degree to which individuals interpret goal actions in terms of expressing commitment or making progress. One of these variables is attention to a superordinate goal as opposed to a specific action or subgoal (e.g., attending to one's career goal versus attending to a specific work task). When the superordinate goal is salient, it appears far from reach. Consequently, actions signal commitment to a goal more than provide a sense of significant progress. However, if a person focuses on the action itself, the action signals goal progress and even fulfillment.

Accordingly, Fishbach et al. (2009) predicted that positive feedback would increase a person's motivation to pursue another, congruent action when the superordinate goal is salient but decrease that person's motivation

otherwise. For example, in one study gym users who were primed with a superordinate health goal expressed greater interest to eat healthily when they received positive (vs. negative) feedback about how much they exercised. In contrast, gym users who were not primed with the goal expressed lower interest to eat healthily when receiving positive (vs. negative) feedback (Fishbach et al., 2006).

These findings suggest that positive feedback should be given when recipients are uncertain in their commitment to the long-term goal (e.g., new employees, employees with high turnover, or employees who have explicitly expressed lack of commitment to the organization). Conversely, negative feedback will be more effective when commitment is already clear. For example, when committed employees receive performance reviews that contain negative feedback, they may find these reviews to be motivating because they focus on required progress to meet their personal goals rather than on using the review to evaluate their commitment to their jobs.

Proposition 1b. Positive feedback is motivating for novices or when in distant relationships (low commitment) whereas negative feedback is motivating for experts or when in close relationships (high commitment).

We propose that with greater expertise, negative feedback becomes increasingly motivating. Consistent with this, as people gain expertise, they will seek more negative feedback and less positive feedback on their performance in order to motivate themselves. An initial demonstration of the shift from positive to negative feedback comes from research by Louro, Pieters, and Zeelenberg (2007). These researchers followed people over the course of pursuing a goal (e.g., weight loss). They found that beginners increased their efforts in response to success (versus failure) feedback, but as they advanced toward their goal, they tended to increase their efforts in response to failure (versus success) feedback.

Koo and Fishbach (2008) documented similar shifts from positive to negative feedback when individuals work together toward a group goal and receive feedback on the performance of their group as one unit. In one study, the authors looked at contributions individuals made to a charitable organization ('Compassion'). They compared those experienced individuals who contributed regularly to the organization ('hot list'—committed) with those inexperienced individuals who expressed interest in the

organization but had not donated yet ('cold list'—uncommitted). They manipulated feedback on the success of the campaign by sending a solicitation letter that either emphasized that half of the money had already been raised through various channels (successful fundraising) or that half of the money was still missing to meet the campaign goal (unsuccessful fundraising). Although the objective accomplishment level was identical across conditions (half of the money was donated), depending on the commitment of the donors (experienced donors versus novices), the differential emphasis on successful versus unsuccessful fundraising influenced contributions. Specifically, uncommitted novice donors who received information on existing contributions donated in greater proportions than novices who received information on missing contributions. The opposite pattern emerged among committed, experienced donors, who donated in greater proportions if they received information on missing, compared with existing, contributions.

People also tend to give more negative (and less positive) feedback to committed, experienced, and expert recipients. In a study that demonstrated this trend (Finkelstein & Fishbach, 2012), 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), although in actuality they all watched the same video. 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 (after all, it was the same person), they included more negative feedback in communicating with the former. Interestingly, the authors observed a similar increase in negative feedback to a 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.

People further often seek and receive feedback in close relationships. For example, friends, family members, and romantic partners often criticize and praise each other. Their feedback can refer to the receivers' performance on achievement goals as well as to their performance as relationship partners (that is, how much they invest resources in pursuing the relationship goal).

Whereas self-enhancement motives often affect feedback-seeking in organizations (see Anseel, Beatty, Shen, Lievens, & Sackett, 2015; Ashford, Blatt, & VandeWalle, 2003), other motives also affect feedback-seeking (e.g., getting accurate information, getting information that is consistent with self-perception). Here, we propose that the status of the relationship between the feedback giver and receiver, as new versus long-standing, may influence the valence and motivational consequences of the feedback

exchanged. Specifically, new relationship partners wish to evaluate the strength of their commitment. It follows that negative feedback will undermine commitment for new relationship partners, thereby reducing their motivation to pursue the relationship. However, as the relationship deepens, relationship partners could become more secure in their level of commitment to the relationship and less concerned with the potential detrimental impact of exchanging negative feedback (i.e., their relationship depth acts as a buffer; Linville, 1987; Showers & Kling, 1996; Trope & Neter, 1994). In addition to a lower concern with relationship commitment, partners in a long-standing relationship wish to monitor the progress of their relationship. They should therefore be responsive to negative feedback not only because they can tolerate it but also because they find it more motivating than positive feedback. Specifically, the deeper relationship partners perceive their relationship to be, the more they will give each other negative feedback, seek negative feedback, and respond to negative feedback by increasing their efforts.

Finkelstein, Fishbach, and Tu (2015) studies test this proposition. In one study that manipulated perceived relationship-depth, 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. Taken together, these studies suggest that people in close versus distant relationships prefer and respond more to negative feedback by increasing goal investment.

1.1. Summary: How to give motivating feedback

To achieve one's goals, a person must have feedback so that he or she can optimize his or her goal pursuit efforts. Feedback may either focus on the person's accomplishments and strengths (positive feedback), or on the lack of accomplishments and weaknesses (negative feedback). Both positive and negative feedback can effectively motivate action, but we propose their effectiveness depends on two factors: action representation and experience. Action representation refers to when a single goal-directed behavior is construed by the actor as progress toward a goal or as commitment toward a goal. For example, behaviors at the beginning of goal pursuit (novices) are often construed as commitment, whereas behaviors at the end of goal pursuit (experts) feel like progress. As such, we recommend using more positive feedback toward the beginning of goal pursuit but more negative feedback toward the end of goal pursuit. Finally, the feedback-recipient's relationship with the

feedback-giver can affect responsiveness to type of feedback. Negative feedback is sought and received more when recipients and givers are in close relationships.

2. Part B: Goal targets

Setting goal targets, such as performance standards (e.g., complete x amount of work) and deadlines, is a common practice for anyone who would like to motivate performance. Indeed, classic research suggests people work harder when a goal target is set (Locke & Latham, 1990, 2002) and further increase their effort as they approach the finish line (Hull, 1932). Following from this logic, to motivate others and oneself the most, one should set challenging and proximal goals.

Here we discuss when goal targets are effective and what are some of the caveats and risks of setting goals. First, we suggest goal targets can increase motivation but can also be miscalibrated (overly challenging, narrow, or numerous). Second, we suggest that the course of goal pursuit affects how motivating (or demotivating) a goal target is. Finally, we distinguish when a person is motivated to simply “do it” (accomplishing a goal) versus motivated to “do it right” (accomplishing a goal with the highest possible quality).

Specific, high (hard) goal targets tend to cause a higher level of task performance than do easy goals or vague, abstract goals such as the exhortation to “do one’s best” (Locke & Latham, 1990, 2002). Indeed, the “S.M.A.R.T.” goal theory (Doran, 1981) suggests that goal setting is most effective when the goals are Specific, Measurable, Assignable, Realistic, and Time-related. In particular, these types of goals are motivating at least in part because they require greater attainment in order to be satisfied. That is, setting goals creates a psychological discrepancy between one’s current position and one’s desired position. Goal setting theory proposes that the larger the discrepancy, the harder people will work in order to resolve it, as long as the goal is attainable.

Setting goals can also be effective for the self. One particularly effective type of goal setting for the self is setting an “implementation intention,” whereby one creates an if-then plan for how to achieve a goal. To create an if-then plan, a person selects a critical cue for the if-component, which is then linked to a goal-directed response in the then-component (Oettingen & Gollwitzer, 2010). The plan takes the form: “If situation X is encountered, then I will perform the goal-directed response Y .” As such, implementation intentions define when, where, and how one wants to act on one’s goal intentions. For example, a critical cue for exercising may be the onset of a particular day or time: If it is Thursday at 5 PM, then I will exercise. One benefit of these types of plans is that they can help people consider the possible upcoming hindrances in achieving their goals. For instance, a person with the goal to reduce alcohol consumption might form the following implementation intention: “If a waiter suggests ordering a drink, then I’ll ask for club soda.” A meta-analysis based on close to one hundred studies shows a significant effect on increased rate of goal attainment

when implementation intentions are set (Gollwitzer & Sheeran, 2006).

Setting challenging goals for the self is, in particular, an effective motivational strategy. For example, Zhang and Fishbach (2010) showed that in response to obstacles or temptations, people committed themselves to more challenging goal targets to motivate themselves. Such “counteractive optimism” results in greater effort investment when “the going gets tough.” For example, in one of their studies, students who expected a take home exam to be difficult (vs. easy) set an earlier deadline for completing it. In another study, students who considered the time they would spend socializing (vs. did not consider that time) planned to spend more hours studying on that night (although technically, they had less time than those who did not plan to socialize). Interestingly, this pattern reversed when people were asked to make certain they would achieve their goals. That is, when the researchers offered a bonus for meeting one’s goal targets, participants reduced their goal targets. When people are trying to set an achievable goal rather than a productive goal, people may strategically set lower targets that they are sure to meet. Indeed, in response to obstacles, those who wished to be certain of goal achievement lowered their targets, for instance by setting a later deadline for finishing the work. In the workplace, for example, employees may commit to do more and do it sooner if they are aware of obstacles and there are no penalties for lagging behind one’s self-imposed goal targets (i.e., people are incentivized based on overall performance, not by whether they met the target). But this pattern would reverse if people are only trying to meet their goal targets.

Goal setting theory further identifies at least four conditions under which goal setting may be less effective (see Locke & Latham, 2006). First, feedback is needed for people to track their progress and know when they have reached their goal. When feedback is absent, goal setting is less effective. Second, people must be committed to the goal (i.e., consider the goal important) for goal-setting to be effective. Goal commitment is also enhanced by self-efficacy. Third, the more complex the task, the harder is acquiring task knowledge and the more difficult is setting appropriate goals. Finally, situational constraints such as role overload can affect goal setting. When role overload is high, goals are less likely to affect performance (Brown, Jones, & Leigh, 2005). In addition to these four conditions under which goal setting is less effective, we suggest goal targets can be “miscalibrated,” or inappropriately set in predictable ways, which can lead to unexpected negative consequences.

Proposition 2a. Goal targets can be miscalibrated when set, undermining their utility.

There are several ways in which goal targets can “go wild,” in the sense that goal setting may be over-utilized and may have little or even negative consequence (Ordóñez, Schweitzer, Galinsky, & Bazerman, 2009). In particular, we note two ways in which goal targets can be miscalibrated: they may be overly ambitious and people

may set too many goals. First, when people set overly ambitious goals, these goals can promote unethical behavior, shift risk attitudes, and trigger psychological costs of goal failure. Goal setting can motivate people to misrepresent their performance level—in other words, to report that they met a goal when in fact they fell short. In one series of studies, participants were more likely to misrepresent their performance level when they had a specific, challenging goal than when they did not, especially when their actual performance level fell just short of reaching the goal (Schweitzer, Ordóñez, & Douma, 2004). Goal setting can also impede ethical decision making by making it harder for employees to recognize ethical issues and easier for them to rationalize unethical behavior (Barsky, 2007; see also our discussion on “doing it right.”).

Similarly, people who are motivated by specific, challenging goal targets tend to adopt riskier strategies and choose riskier gambles than do those with less challenging or vague goals (Larrick, Heath, & Wu, 2009). Negotiators with goal targets are more likely to reach an inefficient impasse than are negotiators who lack such goals (Neale & Bazerman, 1985; Galinsky, Mussweiler, & Medvec, 2002). For example, Galinsky et al. (2002) found that stretch goals increased the number of impasses, and Larrick, Burson, and Soll (2007) found that goals prompted participants to make larger demands that in turn destroyed value.

Finally, although Locke and Latham (2006) suggest that setting challenging goals can boost self-efficacy expectations, other findings suggest that setting *overly* challenging goal targets can actually reduce perceptions of self-efficacy. For instance, in one study giving people a challenging goal versus easy goal improved performance on an intelligence test but left them questioning their overall intelligence (Mussweiler & Strack, 2000). These goal-induced reductions in self-efficacy can be detrimental because perceptions of self-efficacy are a key predictor of task engagement, commitment, and effort (Bandura, 1977).

Another way in which goal targets can be miscalibrated is that people may tend to set multiple goals. Multiple goals may evoke considerations of the trade-offs among the goals and thus put people in a deliberative mind-set whereas a single goal facilitates goal-related behavior by putting people in an implementation mind-set. Furthermore, multiple goals dilute attention, which can reduce work performance (e.g., Staw & Boettger, 1990). For example, people told to “save for retirement” save more than those told to save for many things (Soman & Zhao, 2011).

2.1. The course of goal pursuit

The pursuit of goals with specific end states (or goal targets) involves a beginning, middle, and end. Here, we explore the psychophysics of goal pursuit, suggesting that positions can influence the perceived impact of goal-related actions, which in turn increases (when impact is high) or decreases (when impact is low) motivation (Touré-Tillery & Fishbach, 2011).

Proposition 3. There is greater motivation closer to the goal target.

In general, motivation increases with proximity to a goal's target. Researchers have titled this phenomenon “the goal-gradient hypothesis” or 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 (Förster, I, Förster, Higgins, & Idson, 1998; Hull, 1932; Heath et al., 1999; Kivetz et al., 2006; Nunes & Dréze, 2006). Thus, whereas a discrepancy generally increases motivation, a small discrepancy often increases motivation more so than a large discrepancy. 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, 1932), 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 with each consecutive action (Heath et al., 1999; Higgins & Brendl, 1995). 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, such that people (and other animals) exert more effort and persistence as they approach the end state (Förster et al., 1998; Hull, 1932; Kivetz et al., 2006). Therefore, to increase motivation one might set multiple goals so that the person in pursuit is often approaching the goal target.

Proposition 4. There is greater motivation when people focus on completed (vs. lack of) progress at the beginning and lack of (vs. completed) progress toward the end of goal pursuit.

The psychophysics explanation underlying the goal gradient effect makes another prediction as well: the “small area hypothesis” (Koo & Fishbach, 2012). This hypothesis suggests that for goals with a clear end state, individuals will exhibit greater motivation when they focus on their completed progress at the beginning and their lack of progress toward the end. 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 (in which case, it adds 20% to the completed part) than with 80% remaining actions (in which case, it reduces around 6% of the remaining part). 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. Therefore, individuals striving toward a goal 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, attention to completed actions increases motivation more than attention to remaining actions. Beyond the midpoint, this pattern reverses such that attention to remaining actions increases motivation more than attention to completed actions (Bonezzi, Brendl, & Angelis, 2011; Koo & Fishbach, 2012).

A field experiment testing this hypothesis tracked the behavior of members of a loyalty program. Participants were diners in a sushi restaurant that offered a buffet lunch menu and for four months offered a reward program in the format of “buy 10 meals, get one free.” Koo and Fishbach (2012) 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). Those who were close to receiving a free lunch were more likely to return to the restaurant, returned sooner, and brought more people with them 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 expressed greater motivation to participate in the reward program across these various measures (likelihood, inter-visit time and number of diners) when their attention was directed to their accumulated progress (small area) rather than remaining progress (large area). This effect of focus was independent of the goal-gradient effect: participants' motivation to use the card increased the greater their initial progress was.

Proposition 5. The course of the goal pursuit influences adherence to standards (e.g., performance, ethical), such that people tend to “slack” their standards in the middle of goal pursuit.

One can distinguish between two dimensions of motivation in the course of goal pursuit: the outcome-focused motivation to reach the end state (“getting it done”) and the means-focused motivation to adhere to one's standards (“doing it right”) in the process of reaching that end state (Touré-Tillery & Fishbach, 2011; Touré-Tillery & Fishbach, *in press*). Whereas research on goal gradient demonstrates that *outcome-focused motivation* increases when approaching a goal target, other research examines the *means-focused motivation* in the course of goal pursuit. Specifically, when pursuing a goal, people can decide how closely to adhere to their personal standards for each action, based on whether the benefits of relaxing these standards outweigh the costs. These costs include the negative social consequences (e.g., reputation damage) as well as negative impact on self-image because relaxing standards can signal to a person that he or she has low standards (Batson, Sager, Garst, & Kang, 1997; Batson, Thompson, Seufferling, Whitney, & Strongman, 1999; Mazar, Amir, & Ariely, 2008).

Touré-Tillery and Fishbach (2012) showed that individuals' concern about their action's impact on their own self-image fluctuates over the course of goal pursuit, leading people to adhere more closely to their standards at

the beginning and end of goal pursuit than in the middle. Specifically, actions that occur at the beginning or end of a sequence seem more diagnostic for self-perception compared to actions that occur in the middle of a sequence. Therefore, people may tend to relax their standards relatively more in the middle of goal pursuit (vs. the beginning or end) because these actions have less self-diagnostic value. For example, participants were more likely to behave unethically in the middle of goal pursuit than at the beginning and end by falsely reporting the favorable outcome of a coin flip and by taking advantage of an experimenter's “forgetfulness” to get undeserved credit (Touré-Tillery & Fishbach, 2012). These findings suggest people may tend to “slack” more in the middle of goal pursuit, adhering less to their personal standards because their actions seem less diagnostic for self-perception.

2.2. Choosing means to achieve a goal

When considering goal targets, it is also important to consider the types of means used to pursue the target and how to offer means to best motivate action. For example, imagine you were selecting a pen as a means for the goal target to write. One pen is also a laser pointer (or a highlighter), and the other pen is just a pen. Which pen would you choose? Objectively, the pen that is also the laser pointer is better because it has greater functionality and writes as well as the pen that is only a pen. However, research on the dilution model (Zhang et al., 2007) suggests that people are likely to infer that the laser-pointer-pen cannot write quite as well as the pen-that-is-only-a-pen. Therefore, when people have the primary goal to write, they are more likely to prefer the pen that only writes instead of pen that is objectively superior (see also the “instrumentality loss effect;” Kruglanski et al., 2013).

Here, we examine which means are most strongly associated with a particular goal target. These means are perceived to be most effective for goal pursuit, and offering these means may increase motivation. In particular, we distinguish between two types of means: a multifinal means that can accomplish multiple goals (e.g., the laser-pointer-pen) versus a unifinal means that can accomplish only one goal (e.g., the pen that can only write).

Proposition 6a. Multifinal means dilute the association between the means and the goal (dilution strength model).

People often simultaneously hold multiple goals they hope to accomplish (Cantor & Langston, 1989; Emmons & King, 1988; Fishbach & Dhar, 2005). When a single means (e.g., an action or object) is “multifinal,” it can fulfill multiple goals (Kruglanski et al., 2002). Normatively, the size of the multifinality set should affect the value of the means or the “motivational bang for the buck” (Kruglanski et al., 2002). Consistent with this, means that can satisfy additional goals as well as the focal goal may be more attractive (Thompson, Hamilton, & Rust, 2005; Tversky & Kahneman, 2002). For example, when the means of attending a coffee shop can fulfill both the goal to get coffee and sandwiches, the value of this means increases because more gains can come from it.

Despite this normative value of multifinality, people sometimes prefer a means that satisfies fewer goals (Simonson, Nowlis, & Simonson, 1993; Zhang et al., 2007). In one experiment, participants expressed a lower preference for a brand of ice cream preferred by another person if the latter's preference had to do with the fact that the ice cream was kosher and participants did not adhere to a kosher diet themselves (although their preferred diet did not preclude kosher foods and thus, they could simply be indifferent; Simonson et al., 1993). Therefore, once a means (e.g., consuming a given brand of ice cream) is seen to serve multiple goals (e.g., of tastiness and the satisfaction of religious standards) for one person, it becomes less attractive for other individuals who only subscribe to one of these goals (e.g., tastiness).

According to the "instrumentality loss effect" (Kruglanski et al., 2013), adding more goals to a single means decreases the strength of association between this means and an associated goal (e.g., the association between the coffee shop and getting coffee), which, in turn, may decrease the inferred instrumentality of the means with respect to a specific goal that an individual may be pursuing. As a result, the tendency to pursue a means would be lower if the activated goal was one of several objectives associated with the means because the expectancy of goal fulfillment, based on inferred instrumentality, is reduced. For example when individuals thinking about different means (e.g., "aerobic exercise") for attaining one goal (e.g., "protecting from heart disease"), versus for attaining two goals (e.g., "protection from heart disease" and "maintaining healthy bones"), the second goal decreases the perceived instrumentality of the means to the first goal listed (Zhang et al., 2007). Therefore, although a multifinal means may be normatively preferred to a unifinal means, it has the unexpected consequence of decreasing the strength of association between the goal and means.

2.3. Summary: How to set goals effectively

Whereas prior research explicates which goal targets will most improve motivation (Doran, 1981; Locke & Latham, 1990; Locke & Latham, 2002; Ordóñez et al., 2009), here we focus on two additional aspects of goal setting that affect motivation: the time course of goal pursuit, and the means selected to achieve a goal. Any goal pursuit with a specific end state (or a goal target) involves a beginning, middle, and end. As people approach their goal target, each subsequent action is more influential for reaching the goal, which motivates them to try harder. Furthermore, focus on progress also interacts with goal pursuit. At the beginning of goal pursuit, people may be motivated by considering completed progress, whereas at the end they may become motivated by perceiving what is missing to complete the goal, and in both cases attention to the smaller area is motivating. To maximize motivation, focus on completed progress in the beginning and remaining progress at the end of goal pursuit. Moreover, the time course of goal pursuit may also affect means-focused motivation ("doing it right"). Because people relax their standards more in the middle of goal pursuit, avoid the middle by reframing the

course of goal pursuit as the beginning or end to encourage higher quality work.

Part of setting a goal target involves selecting a means by which to fulfill the goal. Multifinal means, such as an office in which employees can both have staff meetings and lunch meetings, tend to be more effective, and therefore more often selected, than unifinal means (an office in which employees can only meet to discuss work issues) because they can satisfy more goals at once, thereby "killing more birds with one stone." Similarly, a potential hire who can fulfill two different roles should be preferred over one who fits only one role. However, the greater number of goals with which a means is associated, the less strong will be the association strength between the means and each goal. The office that serves multiple goals will seem less instrumental both for working and for hanging out, and the employee who can fulfill two roles will seem less instrumental for each one. Therefore, multifinal means become less valued when they are associated with more goals. When trying to motivate someone for a particular goal, it might be optimal to select the preferred means that has the strongest association with the goal: a unifinal means.

3. Part C: Incentives

To motivate individuals (and other species) to perform some behavior, most people use incentives. On average, the single largest operating cost for an organization is employee compensation (Blinder, 1990; Bureau of Labor Statistics, 2001). Whether a manager at a firm wants to convince her employees to work harder and smarter or a mother wants her sweet-toothed daughter to eat more green vegetables, providing incentives is likely to seem like an appropriate first-line response to elicit the desired behavior. For example, the manager might give her employees a raise and the parent might explain to her daughter that vegetables are healthy. But, whereas these intuitive motivational tools are sometimes useful, they are also likely to backfire in predictable ways.

3.1. Immediate versus delayed incentives

Immediate rewards are more compelling than delayed rewards, and therefore should be used to motivate. For example, most employees would rather get compensated sooner than later. However, at times, immediate rewards pose a temptation that interferes with the focal goal. Skipping work, for example, is a temptation that offers the immediate benefits of a sleeping late at the long-term cost of not getting promoted or losing one's job. To resolve the self-control conflict, the individual must choose between indulging in the temptation and pursuing higher-order goals for delayed incentives. Here, we explore immediate incentives in general and temptations in particular, as well as interventions that keep people focused on their long-term goals in the face of temptation.

Research on temporal discounting explores the preference for immediacy in receiving rewards, showing that smaller immediate rewards are often more attractive than larger delayed rewards (see Frederick, Loewenstein, &

O' Donoghue, 2002 for review). According to the standard discounted utility model, the utility of future events is discounted by a constant rate, motivating people to prefer immediate over delayed rewards (Herrnstein, 1990; Herrnstein, Loewenstein, Prelec, & Vaughan, 1993; Herrnstein & Prelec, 1991). Temporal discounting is the systematic discounting of the subjective value of a reward, outcome, or goal as the anticipated time delay before its expected occurrence increases (Ainslie, 2001; Loewenstein, Read, & Baumeister, 2003; Rachlin, 2000).

To explore the appeal of immediate (vs. delayed) incentives, classic psychological research utilized a delay paradigm with preschool children (Mischel, 1974; Mischel & Baker, 1975; Mischel & Ebbesen, 1970; Mischel & Moore, 1973). In this procedure, preschoolers are faced with a choice: they can ring a bell to get a small treat (e.g., one cookie) or they can wait until an adult returns to receive a larger treat (e.g., two cookies). If they ring the bell and eat the one cookie, they forfeit the other cookie. This paradigm exploits the lure of immediate rewards to explore self-control. Whereas children generally prefer to receive their rewards immediately, their ability to postpone for the sake of a larger reward is diagnostic of consequential outcomes later in life: the amount of a time a child waits at age 4 years can predict their Scholastic Aptitude Test (SAT) scores and their social cognitive, personal, and interpersonal competencies (Mischel, Shoda, & Peake, 1988; Shoda, Mischel, & Peake, 1990).

Mischel and colleagues explain the preference for immediate rewards in terms of the cognitive affective processing model of self-regulation ("CAPS", Mischel & Ayduk, 2004). This model proposes a cognitive "cool" system and an emotional "hot" system, consistent with other models of dual processing (e.g., Chaiken & Trope, 1999; Kahneman & Frederick, 2002; Slovic, 1996). Interactions between these two systems underlie the dynamics of self-regulation. The cognitive cool system is complex, slow, and contemplative whereas the hot system is "go-oriented", characterized by quick emotional processing. The dominant hot system activates the preference for immediate rewards; the secondary cool system must override this to wait for later incentives.

The CAPS model (and other dual processing models) suggests that the exact same reward will be more motivating if delivered immediately rather than after a delay. As such, to motivate people one should try to provide immediate incentives. For example, rewards such as cookies or money should be delivered promptly upon task completion to maximize effectiveness.

Several factors influence impatience, defined as a preference for immediate (vs. delayed) rewards. The first factor is age. For most young children there is a strong preference for an immediate (vs. delayed) reward. However with age and maturity, delay of gratification becomes increasingly likely. According to the CAPS model, the cool system becomes elaborated as the prefrontal cortex develops, resulting in a higher ratio of cool nodes to hot spots and allowing older individuals to, with practice, bypass the affective hot system. For example, in the Mischel (1974) delay paradigm, most children at the age of four years are unable to delay gratification for any length of

time. But by age 12 years, almost 60% of children could wait to criterion (25 min, Ayduk et al., 2000). This suggests both that young children will be more motivated by immediate rewards than older people, and also that children will have more difficulty with self-control.

A second factor is cognitive load (e.g., stress). Delay of gratification becomes increasingly difficult at higher stress levels. At low to moderate stress the cool system is active, but at higher levels it becomes attenuated and shuts off. The hot system becomes active in a linear function as stress increases (Metcalf & Jacobs, 1996; Metcalf & Mischel, 1999). Therefore, workers under stress will have even stronger preference for immediate rewards and have difficulty with self-control. Finally, a third factor is mental representation: the more individuals represent rewards affectively (vs. cognitively) the greater will be their preference for immediate over long-term rewards. This final factor also highlights a useful self-control strategy – actively representing a temptation cognitively – that we consider in the next section.

Proposition 7a. Immediate temptation can undermine longer-term goals. To successfully overcome temptation and pursue long-term goals, identification and resolution of self-control conflict is necessary.

Just as immediate incentives are preferred, so too are immediate temptations appealing. Short-term temptations such as going to a party with a co-worker can threaten larger long-term interests such as getting a raise. In fact, many of the significant choices that people make at work and beyond are between these "vices" (small immediate rewards) and "virtues" (large delayed rewards). Here we explore how to encourage people, including the self, to pursue longer-term goals by identifying and resolving self-control conflicts, thereby counteracting the allure of immediate temptation. In line with research on counteractive control, we suggest that successful long-term goal pursuit in the face of temptation depends first on identifying a conflict between indulging in immediate pleasure and pursuing higher-order goals, and second on resolving the conflict by increasing the tendency to act on the larger goal while decreasing the lure of short-term temptation (Fishbach & Converse, 2010; Sheldon & Fishbach, 2011, 2015).

Beginning with identification (Step 1), the probability of identifying self-control conflict decreases as the cost associated with a single indulgence in temptation decreases. In many self-control dilemmas, the cost of a single indulgence seems relatively small, but extended indulgence would be problematic. For example, eating one cookie may not be so harmful to one's health goal but continuously eating cookies would be extremely harmful. Myrseth and Fishbach (2009) refer to this ubiquitous feature of self-control conflict as an "epsilon cost temptation." When facing epsilon-cost temptation, conflict identification depends on whether individuals frame the temptation as a single opportunity to act in isolation or as one among many opportunities. For example, if eating one chocolate seems like an isolated (unique) act that the eater believes will not happen again in the future, the eater will be unlikely to identify the self-control conflict. That is, the

eater will not believe that eating one chocolate poses much threat to his or her long-term health goal. In contrast, if eating one chocolate is compared to multiple instances of eating chocolate or seems indicative of future behavior, then the eater is likely to identify a self-control conflict. Considering multiple opportunities together helps individuals identify the self-control conflict, because it makes the aggregate cost of multiple epsilon-cost temptations more apparent. Therefore, the frame necessary for conflict identification must meet the condition of “width”—the individual sees multiple opportunities together.

In one study that tested this proposition (Read, Loewenstein, & Kalyanaraman, 1999), participants made a series of choices once per week between two kinds of lottery tickets. One offered the prospect of larger, delayed rewards and the other offered the prospect of smaller, immediate rewards. The choices thus represented potential self-control dilemmas. When participants chose multiple tickets at once (i.e., the wide frame), they preferred the tickets with larger delayed rewards more than did those who chose each ticket individually (i.e., the narrow frame), thereby more effectively pursuing their long-term goal in the wider frame.

A wide frame is necessary for identifying self-control conflict, but it is still not sufficient. In addition, individuals must expect to make the same choices every time they face the conflict between the goals and the temptations. There are two possible “choice patterns” that individuals can expect to follow when they consider a sequence of actions involving goal pursuit and conflicting temptation: they can either (1) highlight the goal or (2) balance the goal and the temptation (Fishbach et al., 2006; Fishbach & Zhang, 2008). When highlighting the goal, individuals choose goal pursuit and employ self-control strategies to forego temptation. However, when balancing the goal and temptation, individuals follow a pattern of choosing “first temptation, then the goal,” thus postponing goal pursuit in favor of instant gratification. That is, when balancing, individuals do not see themselves as making the same choice in the future and therefore choose to indulge presently without giving up on the goal. As such, they do not identify self-control conflict.

Once a self-control conflict has been identified, an individual must be able to resolve the conflict (Step 2). Counteractive control theory suggests that to resolve a self-control conflict, individuals engage in self-control strategies that create asymmetric shifts in motivational strength: an increase in motivation to pursue the goal and also a reduction in motivation to pursue the temptation (Fishbach & Converse, 2010; Fishbach & Trope, 2005; Myrseth, Fishbach, & Trope, 2009). That is, the anticipation of temptation, or its actual presence (e.g., when a person expects not to want to get out of her warm bed when her alarm goes off) triggers individuals to employ self-control strategies that operate (in opposite directions) on the goal and the temptation. For example, the person may bolster the importance of her work commitment for the next day and undermine her liking of procrastination, such that she is no longer tempted to sleep late. Self-control, in this way, involves asymmetric shifts.

Self-control involves conscious and deliberative processes. For instance, dieters may consciously fill up their refrigerator with healthy options and forgo purchase of unhealthy options. But self-control also involves nonconscious and implicit processes; for instance when dieters change the representation of the choice opportunities – how they think about these opportunities – without awareness of the motivational basis of their reasoning through these options that correspond to goal and temptation.

A person’s strategies to deliberately change his or her choice opportunity may specifically involve self-management (Luthans & Davis, 1979), implementation intentions (Gollwitzer, 1999), and self-reinforcement (Bandura, 1976). The strategies involved encompass self-imposed penalties for indulging in temptation, self-imposed rewards for resisting temptation, pre-commitment to forgo the temptation, or pre-commitment to pursue the long-term goal. Pre-commitment biases the choice set in favor of the goal (Ainslie, 1992; Green & Rachlin, 1996; Rachlin & Green, 1972; Schelling, 1984; Strotz, 1956; Thaler, 1991).

As an example of an effective pre-commitment strategy, Wertenbroch (1998) found that smokers prefer to buy their cigarettes by the pack, rather than in 10-pack saving cartons, to limit consumption. In another study (Ariely & Wertenbroch, 2002), students were given the opportunity to set their own deadlines for class assignments. Although students could have set all of their deadlines on the last possible day of class, thereby giving themselves the maximum amount of time to finish all assignments, instead students committed themselves to due dates that were earlier than the last day of class, despite great potential cost (a grade penalty for being late) and no obvious benefit (e.g., extra feedback from the instructor) other than the increased motivation to complete their studies. By adopting this strategy, the smokers and the students eliminated their future freedom of choice, which people ordinarily seek to maintain (Brehm, 1966), for the sake of decreasing their exposure to temptations and securing the attainment of their higher-order goals. The students’ behavior provides an example of a single act that simultaneously, and asymmetrically, affects goal and temptation pursuits. Their early deadlines both increased the probability, on any given day, of working on assignments and decreased the probability of pursuing tempting alternatives.

Individuals further promote goal pursuit by adopting a concrete representation of goals but an abstract representation of temptations, as concrete representations facilitate action tendencies more than do abstract or vague ones. For example, in one experiment, participants who considered a temptation in a third-person (abstract) perspective were less likely to succumb to it than participants who considered it in a first-person perspective (Ayduk & Kross, 2008). In another study on delay of gratification, children resisted the temptation to eat a marshmallow by thinking about it as an abstract cloud, thus cooling its appetitive influence (Mischel, Shoda, & Rodriguez, 1989).

Individuals’ nonconscious evaluations exhibit a similar pattern of asymmetric shifts: The motivational force of the

goal is boosted while that of the temptation is dampened when they conflict (Fishbach, Friedman, & Kruglanski, 2003). For example, using an implicit evaluation paradigm, research finds that subliminally presenting the temptation-related word “party” slowed down categorization of positive words relative to negative words (e.g., “flower” vs. “ugly”). This pattern indicates negative evaluation of temptation; the accessibility of negative concepts increased. Similarly, subliminally presenting the word “study” (goal-related) slowed down categorization of negative words relative to positive words, thus indicating positive evaluation of goals; the accessibility of positive words increased (Fishbach et al., 2009).

3.2. *Certain versus uncertain incentives*

Imagine an employer wants to motivate a company salesperson to close a sale. She can choose between two reward options: a sales bonus that could be any amount to be randomly selected between \$10,000 and \$20,000 or a set bonus of \$15,000. Which bonus do you think would make the salesperson more likely to close the sale? Many people would have a strong preference for \$15,000 bonus. Indeed, normative theories (e.g., Expected-Utility Theory; Bernoulli, 1738; Von Neumann & Morgenstern, 1972; Vroom, 1964) predict that people are risk averse and prefer a reward of a certain magnitude over a reward of an uncertain magnitude. But whereas the certain reward is typically most appealing, uncertainty can often be more motivating. In this section, we outline the circumstances under which uncertain versus certain reward are more motivating.

Proposition 8a. People prefer uncertain (vs. certain) losses.

People typically choose certainty in gains (Arrow, 1965; Bernoulli, 1738; Gneezy, List, & Wu, 2006; Holt & Laury, 2002; Hsee & Weber, 1997; Kivetz, 2003; Rabin, 2000; Rabin & Thaler, 2001; Simonsohn, 2009), although they choose *uncertainty* in losses. In a classic demonstration of this, Kahneman and Tversky (1979) manipulated loss (vs. gain) framing in a series of gambles. Participants in a gain condition were faced with the uncertain prospect of 50% chance to win \$1000 (50% chance to win nothing) or the certain prospect to win \$500. For this decision in the gain domain, most participants (84%) prefer the certain option. In the loss condition, participants were given the uncertain prospect of 50% chance of losing \$1000 (50% chance to lose nothing) or the certain prospect to lose \$500. Here, most participants (69%) prefer the uncertain option.

Extending from this, certain incentives should be preferred when the incentive seems positive (receiving a reward) but uncertain incentives preferred when the incentive seems negative (receiving a punishment). Indeed, the exact same incentive (e.g., a cookie) can be framed either as a gain or loss. For example, a person endowed with one cookie will prefer a certain reward of receiving a second cookie (vs. an uncertain reward of equal expected value; gain frame) but a person endowed with two cookies will prefer an uncertain punishment of losing a

cookie (vs. a certain loss of equal expected value; loss frame).

Proposition 8b. Uncertain (vs. certain) gains can confer at least three independent motivational advantages: (1) they may be preferred when they offer a higher possible reward, (2) they make people work harder when they provide excitement in the midst of goal pursuit, and (3) they result in longer extinction for learned behaviors.

Although certain gains are typically preferred, several circumstances exist under which uncertain gains are preferred and motivate action. Here, we use the term “uncertain” to refer to the uncertain likelihood of receiving the reward as well as the uncertain magnitude of the reward. First, a stronger motivation toward the uncertain reward may occur because of the desire for the best possible outcome. For example, consider a certain reward of \$10 (100% chance) versus an uncertain reward of \$15 (50% chance) or \$5 (50% chance). If people tend to be optimistic, they will prefer the uncertain reward because its maximum value (\$15) is greater than the maximum value of the certain reward (\$10) (Dhar, González-Vallejo, & Soman, 1995, 1999; Goldsmith & Amir, 2010).

Second, uncertain incentives can increase motivation during goal pursuit. Shen, Fishbach, and Hsee (2015) propose that uncertainty motivates when it is exciting. People naturally attend to the process during the reward pursuit (e.g., in goal striving), and during this phase, consummatory and affect-rich aspects like uncertainty will increase motivation (Andrade & Iyer, 2009; Choi & Fishbach, 2011; Deci & Ryan, 1985; Kivetz, 2003; Le Menestrel, 2001; Millar & Tesser, 1986; Sansone, Weir, Harpster, & Morgan, 1992). For example, in one experiment participants were asked to drink 1.4l of water in two minutes. Some were offered a \$2 (certain) reward if they are successful, while others were told success would bring either \$1 or \$2, depending on a coin flip (uncertain reward). The result was that 70% of the participants in the coin-flip contingent drank enough to get a reward, versus 43% in the certain-reward condition (Shen et al., 2015).

Finally, we propose that uncertain rewards, because they occur intermittently with uncertain frequency, can constitute an intermittent reinforcement. As such, using uncertain rewards should result in longer extension of learned behaviors. Behaviorists have studied different learning paradigms that operate on certain versus uncertain rewards—so-called reinforcement schedules (e.g., Ferster & Skinner, 1957). Although there are many possible reinforcement schedules, it is useful to distinguish between two general types: continuous and intermittent (e.g., Hilgard & Bower, 1975). In these learning paradigms, experimenters teach animals such as rats and pigeons to display a particular behavior either by pairing this behavior with a continuous behavior-contingent reward or an intermittent reward. Once the behavior is learned, the experimenter introduces the extinction phrase whereby no further rewards are given. If the behavior was learned using a continuous reward schedule, then the animal ceases the behavior almost immediately in the extinction phase; but if the behavior was learned using

intermittent reinforcement, it takes significantly longer to extinguish (Hilgard & Bower, 1975).

Furthermore, intermittent reinforcement can be fixed or variable in nature. Thus, rewards can be given on a regular basis (e.g., every 4th trial) or on a variable schedule, which involves rewards given on a varying or random basis. These intermittent reinforcement schedules, particularly varying (random) schedules that introduce even more uncertainty, can lead to the slowest extinction of a behavior because individuals are unaware that the reward has been removed (Hogarth & Villeval, 2010). This may be one reason why people engage in stock trading or gambling despite sustaining losses. Third, achievement motivation is higher for uncertain rewards. Tasks with a moderate level of uncertainty energize people and stimulate their motivation (Atkinson, 1957; Brehm & Self, 1989; Brehm, Wright, Solomon, Silka, & Greenberg, 1983; Locke & Latham, 2006). By varying the probability of successful goal attainment in experiments, research has demonstrated that people have strong motivation for moderately difficult tasks. A moderate probability of success increases motivation because the task poses a challenge, which increases physiological arousal (Brehm et al., 1983).

3.3. Extrinsic versus intrinsic incentives

When pursuing an activity mainly as a means to an end, the activity is instrumental for achieving the end and is considered extrinsically motivated (Shah & Kruglanski, 2002; Woolley & Fishbach, 2015). For example, eating vegetables is instrumental to helping people stay in good shape and lose weight. However, incentives can also be “intrinsic.” Intrinsic incentives are internal to the activity; they cannot be separated from it (e.g., the positive experience delivered as part of pursuing an activity; Fishbach & Choi, 2012; Heath, 1999; Higgins & Trope, 1990; Ryan & Deci, 2000; Sansone & Harackiewicz, 1996). Therefore intrinsic incentives are experiential such that they involve pursuing an activity for the sake of the *pursuit*, not the outcome. Critically, the same activity can have both intrinsic and extrinsic incentives depending on the context. For example, exercise not only improves people’s health (extrinsic incentive), but also can be fun and enjoyable (intrinsic incentives). People’s jobs not only offer a salary (extrinsic incentive), but also can be challenging or interesting (intrinsic incentives). And eating vegetables not only helps people get nutrients (extrinsic incentive), but also provides a good experience for those who enjoy the taste of the vegetables (intrinsic incentive).

On the one hand, extrinsic incentives can motivate action (Eisenberger & Cameron, 1996; Eisenberger et al., 1999). For instance, we can improve employee’s motivation using an incentive schemes (Gerhart, Rynes, & Fulmer, 2009), and incentives increase gym attendance (Acland & Levy, 2015; Charness & Gneezy, 2009; Royer, Stehr, & Sydnor, 2012), reduce college dropout rates (Jackson, 2010), increase smoking cessation (Volpp et al., 2009), increase blood donations (Lacetera, Macis, & Slonim, 2013), and make weight-loss programs more effective (John et al., 2011; Volpp et al., 2008). On the other hand, they can also undermine intrinsic motivation. That is, the mere addition

of an extrinsic reward can reduce intrinsic motivation, at times resulting in an aggregate negative effect (e.g., Higgins & Trope, 1990; Lepper, Greene, & Nisbett, 1973; Maimaran & Fishbach, 2014; Shah & Kruglanski, 2002). For example, offering monetary compensation for community members to accept a nuclear waste site’s presence made members less willing to accept the plant (Frey & Oberholzer-Gee, 1997), and anonymous matching in charitable donations can actually reduce donations in the long term (Meier, 2007).

Extrinsic incentives undermine intrinsic motivation for two primary reasons: First, based on goal systems theory, they cause a dilution of association (Kruglanski et al., 2002); when an activity is associated with an extrinsic incentive, the association between the activity and its intrinsic value weakens. For instance, the principle of means-goals dilution suggests that adding goals casts doubts on the effectiveness of the common cause for each specific goal. Thus people perceive a means that serves more than one goal as less effective in achieving each goal (Zhang et al., 2007). Likewise, they may perceive an activity (i.e., means) that offers both experiential and instrumental benefits (i.e., goals) as offering less of each type of benefit.

Second, individuals may *infer* that an activity that offers instrumental benefits is less enjoyable. This type of inference involves a process similar to causal discounting, whereby the presence of one casual factor casts doubt on another causal factor (Einhorn & Hogarth, 1985; Kelley, 1972). It implies that individuals infer that if an action is instrumental in achieving goal 1 (e.g., instrumental benefits), it cannot be as effective in achieving goal 2 (e.g., positive experience).

Whereas classic research on intrinsic motivation typically measures motivation after an external reward is introduced and then removed (Deci, 1971; Kruglanski, Friedman, & Zeevi, 1971; Lepper et al., 1973), these two accounts suggest that the mere introduction of a reward – even when the reward is never removed – may be sufficient to reduce motivation. For example, Maimaran and Fishbach (2014) demonstrated that preschoolers are less willing to consume healthy food when it is framed as instrumental for their goals (extrinsic benefit), because they then perceive the food as less tasty (intrinsic benefit). In one of their experiments, children age 3–4 consumed fewer crackers when the experimenters presented the crackers as instrumental to being healthy (i.e., “makes you strong”), as compared to when no information is presented or the crackers were presented as tasty. Furthermore, this effect also generalized to non-health goals such as knowing how to read or learning how to count. Specifically, when food was presented as instrumental for academic goals, children inferred it was less tasty and ate less of it. This inference process involved in discounting of causes or effects (i.e., dilution) has been widely documented across various domains (Oppenheimer, 2004), using adult participants (e.g., Hewstone, 1994; Morris & Larrick, 1995), school-age children (Karniol & Ross, 1976) and even preschoolers (Kasin, Lowe, & Gibbons, 1980).

In sum, intrinsic incentives may become undervalued when an extrinsic reward is introduced—even if it is never removed. Recent experiments point to at least two other

occasions when intrinsic rewards will be undervalued: when people are not currently engaged in goal pursuit and when people are making incentive decisions for others.

Proposition 9a. Intrinsic incentives are effective during pursuit more than outside of pursuit.

People seem to value intrinsic incentives differently depending on *when* they are considering them. Specifically, people value intrinsic incentives inside an activity than outside of (i.e., before and after) the activity (Woolley & Fishbach, 2015). For example, when selecting a job, people may put relatively less emphasis on intrinsic benefits such as interest in the task and employees' morale. But when going to the job each day, people will care relatively more about these incentives in the work they do. Thus, people value intrinsic incentives such as being treated well, having good relationships with co-workers, and finding work within their skill sets for their present job, but report that these same incentives were less important for them in their last job and will be less important in their next job.

This shift is unique to intrinsic incentives. Extrinsic incentives, in contrast, are valued similarly before and during pursuit. But as intrinsic incentives become more valuable while extrinsic incentives are valued the same, the decision weight given to intrinsic relative to extrinsic incentives increases. One consequence of this shift in the value of intrinsic incentives is that people mis-predict how much they will persist on tasks and potentially choose tasks they will persist on less, based on their predictions. In one experiment, Woolley and Fishbach (2015) found people were more likely to choose a boring but higher-paid task (listening to an alarm clock going off for \$2.25/min) than a fun but lower-paid task (listening to "Hey Jude" by the Beatles for \$2.00/min), after having a brief experience with both. However, the people who were led to choose the boring task regretted it more and performed more poorly (persisted less) than the people who were led to choose the fun task. These findings suggest that people who decide to forgo intrinsic incentives in exchange for extrinsic incentives may be choosing something they will later regret and will be less able to persist on.

Consistent with the findings on intrinsic incentives, self-control research has documented that the lure of low-level temptations such as tempting snacks temporarily increases as the opportunity to act on these temptations approaches (Ainslie, 2001; Rachlin, 2000). People may prefer a larger-later reward (e.g., getting in shape) when making a decision several weeks in advance, but when faced with the decision immediately they may instead prefer a smaller-sooner reward (e.g., having an enjoyable workout). A similar analysis was applied to goal conflicts (e.g., between studying and partying; Fishbach & Converse, 2010). For example, the option of studying can overall dominate this activity choice, but on the night of the party, for a short and critical period, the option to party is significantly more attractive, potentially even more so than the option to study, because unlike studying, the reward is immediately available. If present actions are largely influenced by intrinsic incentives, it follows that even when engaging in activities that are mainly motivated by delayed rewards (e.g., exercising, attending

to the immediate rewards that these activities provide (e.g., relaxing, energizing) increases persistence. Indeed, Woolley and Fishbach (working paper) find that immediate rewards (e.g., enjoyment) are stronger predictors of persistence on studying and exercising than delayed rewards (e.g., getting good grades and staying in shape), and focusing on immediate rewards in choice increases people's health food consumption compared with a delayed-rewards focus or a neutral focus. This research suggests that one way to facilitate persistence on long-term goals is to focus and select means based on immediate rewards.

Proposition 9b. People tend to believe they are more motivated by intrinsic incentives than are others.

Not only does the value of intrinsic incentives diminish over temporal distance (as discussed above) but it similarly diminishes over social distance. Specifically, people value intrinsic incentives more for themselves compared to others (Heath, 1999). For example, people believe that friendly colleagues and interesting work tasks are more important to them than they are to others. Aligned with this finding, other research demonstrates that individuals underestimate others' motivation when others are not financially incentivized—but correctly anticipate their own motivation. In one experiment, about 70% of people were personally willing to donate blood regardless of payment (73% with payment; 63% without payment), but these people believed their peers would be much less likely to donate without payment (33%) than with payment (63%) (Study 1, Miller & Ratner, 1998). This result suggests that people fail to recognize that their peers may be motivated to donate blood for reasons other than getting paid, such as wanting to do good.

Schroeder and Epley (2015) propose an underlying reason for this perceived self-other difference in valuation of intrinsic incentives: people believe they have more important high-level needs than do others, such as the need for meaning, autonomy, and self-esteem. For example, MBA students believe their need for meaning and purpose in life is more important to them than is the same need for their class peers. As a result, when motivating others, people may choose to use fewer intrinsic incentives than they would select for themselves. To effectively motivate others, it may be important to recognize that others have the same high-level needs as oneself, and as such will equally value intrinsic incentives.

3.4. Summary: How to apply incentives effectively

Overall, the timing of an incentive is important and incentives should be paired as closely as possible to the task onset and conclusion. For instance, the effectiveness of bonuses should be negatively related to the delay in which they are delivered. The same reward (or bonus) will be valued less when it is given later rather than sooner after task completion, although the exact magnitude of the reward difference necessary to equate the time delay will depend on individuals' discounting rate. This preference for immediacy often results in self-control dilemmas. To exert self-control and thereby successfully pursue the

long-term goal, the person must first identify the short-term motive as undermining long-term interests – for example, by considering multiple opportunities to indulge – and then counteract this temptation by increasing the motivational strength of the goal while reducing the pull of temptation. In academia, for example, some schools offer extra payment for teaching an overload. These short-term teaching incentives may conflict with the academic's long-term research goals. If professors identify this conflict – perhaps noticing the repeated, annual toll of teaching on their research productivity – they might then be able to counteract it by pre-committing not to teach an overload.

Moving to uncertain incentives, we identified that uncertainty about rewards magnitude can confer motivational benefits in the course of goal pursuit. In particular, uncertain incentives may be more motivating than certain incentives when: the best possible outcome is higher in the uncertain reward set, the person is in the midst of goal pursuit, one wants to motivate achievement, and one wants to extend extinction. Furthermore, uncertain rewards may confer benefits beyond motivation. From an economic perspective, uncertain rewards are less expensive than a certain reward of a higher expected value. For instance, a sale bonus in the range of 10,000–\$15,000 is cheaper for the employer than a \$15,000 bonus. From a hedonic perspective, uncertainty can be a source of positive experience and hence can increase worker enjoyment and satisfaction (Shen et al., 2015).

Finally, we considered the use of extrinsic and intrinsic incentives. Extrinsic incentives, such as pay for performance, are often necessary to motivate people. It is rare that a task would be entirely intrinsically enjoyable or a person entirely intrinsically motivated, such that no extrinsic incentives are necessary (e.g., a salary). However, extrinsic incentives can be misapplied, and can result in reduced aggregate motivation. Extrinsic incentives should be limited under the following circumstances. First, when the person is already intrinsically motivated, extrinsic incentives can “crowd out” the intrinsic motivation and, when removed, result in even lower motivation than at baseline. Second, when extrinsic rewards signal that a task is unpleasant they can decrease motivation even without removal. Last, when a person is in the midst of goal pursuit, having high extrinsic incentive but lower intrinsic incentive can feel demotivating, especially compared to being outside goal pursuit. In general, motivators should recognize that others also value intrinsic incentives and provide them with more intrinsic incentives. Humans do not strive only for money in life, but also for social connection and engaging in meaningful tasks. By incorporating intrinsic value into an employee's job, such as making the job more meaningful or emphasizing social relations, one may increase the employee's well-being and motivation for little cost.

4. Conclusions

Selecting the right strategy to increase motivation for oneself and others is critical to achieving goals. Normative motivational tools such as providing extrinsic incentives and setting challenging goals can be effective for motivating

action. However, these tools may also have unintended consequences, whereby they either have no impact on motivation or even dampen it. Here we reviewed the theories and findings surrounding three common types of tools that people use to increase motivation: A. giving feedback, B. setting goal targets, and C. providing incentives. For each type of tool, we evaluated the intended as well as unintended consequences to derive a set of implemental guidelines to increase motivation (see Table 1).

We began by discussing the critical role of feedback in goal pursuit. Indeed, both positive and negative feedback is necessary to motivate and calibrate goal pursuit. However, we documented circumstances under which it may be better to use positive (or negative) feedback, and under which each type of feedback might even reduce motivation. Positive feedback tends to be more effective when signaling a boost in commitment to a goal, whereas negative feedback is effective when it signals a lack of goal progress. As such, positive feedback is particularly motivating to novices and those in a new relationship (when people are less certain about their goal commitment). In contrast, negative feedback should be more motivating for experts or those in deep relationships, who ask about progress. In sum, we suggest people modulate their type of feedback depending on how experienced the person is pursuing the goal and the nature of their relationship with that person.

We next turned to the setting of goal targets, a common strategy to improve performance in the workplace. Although setting targets can motivate action, particularly when targets are “S.M.A.R.T.” (specific, measurable, assignable, realistic, and time-related), they can also backfire. In particular, goal targets can be miscalibrated, such as being overly ambitious or narrow, which can result in negative consequences such as people pursuing them unethically or feeling depressed when unable to achieve their goals. Therefore, when setting goals, people should beware of the potential discrepancies between the measurable goal and the behavior they would like to promote. We also considered how the course of goal pursuit affects motivation in pursuing a target. Humans (and other animals) will strive harder for a goal when they approach a target. In addition, according to the small area hypothesis, focusing on completed progress at the beginning of goal pursuit, as well as focusing on remaining progress at the end, maximizes motivation. Moving from goals to means, we next discussed how presenting means that satisfy multiple goals can increase motivation to adopt that means, but these multifinal means will be less valued the more goals with which they are associated. Finally, we noted that goal targets may increase the motivation to “do it” while decreasing the motivation to “do it right.” Certain actions toward a goal tend to be less diagnostic for the self-concept than others, which can lead people to slack on quality of goal completion, especially in the middle of goal pursuit.

We ended by considering incentives. Traditional incentive theory suggests that any incentive should increase motivation. We reviewed three features of incentives: (1) immediate and delayed incentives, (2)

certain and uncertain incentives and (3) extrinsic and intrinsic incentives. We conclude that immediate, certain, and extrinsic incentives may often effectively motivate action. However we caution against their use at times. First, extrinsic incentives can undermine intrinsic motivation during goal pursuit. Second, delayed incentives tend to be less effective than immediate ones (and immediate incentives sometimes pose temptation, undermining the focal goal). Third, although certain incentives are typically preferred, uncertain incentives can be more motivating under specific circumstances: when the best possible outcome is much higher, you want to motivate achievement, you want to extend extinction, or the person is in the midst of goal pursuit.

4.1. Social goals: An area for future research

Finally, we note that it is important to consider the social context in each of the aforementioned motivational tools. No goal is completed truly alone: as social animals, our goals are pursued in the context of others and with the help of others (Tu & Fishbach, 2015; Tu, Shaw, & Fishbach, *in press*). A person's goals are likely to be influenced by others' goals, because others may exert normative influence (Asch, 1956; Milgram, 1963) or informational influence (Surowiecki, 2004), or because people mentally share others' attitudes (Hardin & Higgins, 1996). Furthermore, the mere presence of others often motivates action, whether because people are aware of evaluation and therefore work harder (social monitoring; Larson & Callahan, 1990) or because they become physiologically aroused and work faster (social facilitation; Zajonc, 1965). However, the presence of others can also communicate mistrust and at times substitute for self-control. For example, whereas people will tend to exert self-control for goals they find particularly important or interesting, when an authority figure is present they may actually exert less self-control because the external figure seems to supplement control (Fishbach & Trope, 2005).

Moreover, people often pursue the same goals jointly with others (e.g., in groups instead of alone). Normatively, goals should be achieved more quickly in groups than alone and organizations are often forced to use team goals to facilitate attainment. But working in a group can reduce the motivation of each individual group member compared to working alone (social loafing and free-riding; Kerr & Bruun, 1983; Ringelmann, 1913) and thereby incite procrastination and diffusion of responsibility. Working in a group further evokes considerations of coordination between people's effort contributions and joint benefits maximization, such that group members choose the course of actions that will most benefit the group. These social aspects of goal pursuit are critical to understanding motivational tools.

4.2. Conclusion

Effectively motivating oneself and others to achieve important life goals is not always intuitive. Although common motivational strategies such as providing feedback, setting goals, and employing incentives can indeed

increase motivation, each strategy can have unintended consequences whereby motivation stagnates or declines. Experimental research can explicate the circumstances under which, and the people for which, a particular strategy will be most motivating. Based on our review of this research, we propose a set of implemental guidelines to maximize motivation. Consulting these guidelines may help people to better understand how to effectively motivate themselves and others.

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