How Goal Progress Influences Regulatory Focus in Goal Pursuit

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Abstract

This research examines the influence of goal progress on the regulatory focus of goals. The results of five experiments demonstrate that in earlier stages of goal pursuit, individuals represent goals as promotion-focused, while in later stages of goal pursuit, individuals represent goals as prevention-focused. This effect is driven by the differential reliance on the initial versus the desired state as a reference point throughout goal pursuit. In earlier stages of goal pursuit, reliance on the initial state as a reference point produces a gain-framed assessment of goal progress and leads to a promotion-focused view of goals. In later stages of goal pursuit, reliance on the desired state as a reference point produces a loss-framed assessment of goal progress and leads to a prevention-focused view of goals. Theoretical and practical implications are discussed.

Keywords: regulatory focus, goal progress, motivation

Regulatory focus theory (Higgins, 1997) offers a framework in which goals can be viewed as hopes, aspirations, and ideals (promotion-focused goals) or as responsibilities, duties, and obligations (prevention-focused goals) (e.g., Crowe & Higgins, 1997; Higgins, 1997; Higgins, Shah, & Friedman, 1997). Using this framework, researchers have examined how individual (e.g., Aaker & Lee, 2001; Cesario, Grant, & Higgins, 2004; Higgins, 1997), goal-specific (e.g., Chitturi, Raghunathan, & Mahajan, 2008; Lee & Aaker, 2004), or situational characteristics (e.g., Mogilner, Aaker, & Pennington, 2008; Pennington & Roese, 2003) can influence the regulatory focus of a goal. However, it is presently unclear whether the regulatory focus of a goal can change as progress toward the goal is made. In this research, we address this gap in the literature by examining the possibility that making progress toward a goal produces a change in regulatory focus. We demonstrate that goals are likely to be represented as promotion-focused in earlier stages and as prevention-focused in later stages of goal pursuit.

Monitoring goal progress has become a common practice in several domains. For example, in educational psychology, progress monitoring is key to achieving academic success (e.g., Fuchs & Fuchs, 2004; Shapiro, 2008). Project management software has incorporated progress-monitoring features for many years. More recently, progress monitoring in personal goal setting has become a widespread consumer trend. Companies such as Nike and Verizon, for instance, have introduced devices that track individuals' physical activity across various parameters and facilitate the visualization of goal progress; and mobile apps allow smartphone users to keep track of calories burnt during exercise and to receive audio feedback as part of a trend that *USA Today* refers to as the "Quantified Self craze" (*USA Today,* 2013). As individuals progress toward their goals, their preferences and psychological states can change (e.g., Etkin & Ratner, 2012; Huang & Zhang, 2011; Louro, Pieters, & Zeelenberg, 2007). Since monitoring

goal progress is usually intended to help individuals stay motivated, it is important to understand whether motivational differences exist based on the stages of goal pursuit. With ample evidence that regulatory focus and fit play an essential role in motivating people toward their goals (e.g., Freitas & Higgins, 2002; Higgins, 1997, 2000; Lee & Aaker, 2004), it would be prudent to investigate whether and how goal progress influences regulatory focus in goal pursuit.

Our research helps to advance theory in two distinct streams of literature. One, this research contributes to the literature on goal pursuit by identifying distinct types of motivation associated with earlier and later stages of goal pursuit. Whereas previous research focuses primarily on the relationship between goal progress and motivational strength, we demonstrate that the *type* of motivation is influenced by goal progress. Two, we contribute to regulatory focus theory by demonstrating that the regulatory focus of a goal is malleable during goal pursuit. Previous research identifies various antecedent factors—typically determined prior to initiating goal pursuit—that can influence regulatory focus of a goal (e.g., chronic regulatory focus, Higgins, 1997; hedonic/utilitarian characteristics, Chitturi et al., 2008; and temporal distance, Pennington & Roese, 2003) and does not consider the possibility that regulatory focus can change as goal progress is being made. Here we offer a novel perspective suggesting that regulatory focus is a malleable characteristic influenced by the dynamics of goal pursuit.

Conceptual Framework

Regulatory Focus

Regulatory focus theory (Higgins, 1997) distinguishes between two self-regulatory systems that govern individuals in their drive toward their goals. A promotion focus is a system that guides individuals to seek matches to their desired end states, which are viewed as ideals and aspirations. Individuals who are governed by promotion focus aspire to the ideal and are

concerned with attainment, advancement, and accomplishment. They employ approach strategies and rely on "eagerness means" in goal pursuit, seek to maximize gains, and they are sensitive to the presence or absence of positive outcomes (Higgins, 1997; Shah, Higgins, & Friedman, 1998). A prevention focus is a system that guides individuals to avoid mismatches to their desired end states, which are viewed as responsibilities and oughts. Individuals who are governed by prevention focus are concerned with security, responsibility, and protection. They employ avoidance strategies and rely on "vigilance means" in goal pursuit, seek to minimize losses and prevent making mistakes, and they are sensitive to the presence or absence of negative outcomes (Higgins, 1997; Shah et al., 1998). Promotion focus is associated with abstraction (Lee, Keller, & Sternthal, 2010) and global processing (Förster & Higgins, 2005), while prevention focus is associated with concreteness (Lee et al., 2010) and local processing (Förster & Higgins, 2005).

Through the lens of regulatory focus theory, goals can be represented as promotion-focused or prevention-focused. Promotion-focused goals are maximal—they are associated with exceeding and excelling, and they represent gains and attainment of positive outcomes. Prevention-focused goals are minimal—they are associated with "meeting the bar" or attaining a set cut-off, and they represent avoidance of losses and negative outcomes (Crowe & Higgins, 1997; Higgins, 1997; Idson, Liberman, & Higgins, 2000; Shah et al., 1998). Individuals' chronically dominant regulatory focus (promotion vs. prevention) tends to influence them to represent goals as promotion- (vs. prevention-) focused (Crowe & Higgins, 1997; Higgins, 1997). Goals that possess hedonic characteristics tend to be viewed as promotion-focused since they represent "wants," while goals with utilitarian characteristics tend to be viewed as prevention-focused because they represent "needs" (Chitturi et al., 2008; Higgins, 1997). In addition, temporal distance (actual or perceived) prior to commencement of goal pursuit tends to

influence regulatory focus. When individuals set goals to be pursued in the far future (e.g., planning to train for a marathon next year), they tend to assume an optimistic mindset about their prospective performance, and this facilitates the view of temporally distant goals as promotion-focused. When individuals set goals to be pursued in the more imminent future (e.g., planning to train for a marathon next month), a less optimistic mindset prevails, and this encourages a prevention-focused view of temporally proximal goals (Pennington & Roese, 2003).

Goal Progress

Goal-pursuit research has long been interested in the influence of goal progress on motivational strength. The goal gradient hypothesis (Hull, 1932; Kivetz, Urminsky, & Zheng, 2006) posits that as the goal nears, motivational strength increases because larger portions of goal distance are covered by a fixed increment of progress (Förster, Higgins, & Idson, 1998). Recent research, however, illuminates some of the complexities of the goal gradient effect. Bonezzi, Brendl, and DeAngelis (2011) maintain that throughout the course of goal pursuit, individuals tend to be the least motivated in the middle. This happens because in the beginning of goal pursuit, individuals tend to rely on the initial state as a reference point; however, as the goal nears, individuals tend to rely on the desired end state as a reference point. Fishbach and Dhar (2005) find that goal progress can increase or decrease goal-consistent behavior, depending on whether movement toward a goal is represented by individuals as "commitment" or "progress." One factor that may influence such representation is the level of information construal (abstract vs. concrete). Dhar and Kim (2007) argue that abstract construal leads to a "commitment" representation, while concrete construal leads to a "progress" representation of movement toward the goal.

Goal progress also influences preferences and psychological states in goal pursuit. Etkin and Ratner (2012) find that as individuals make progress toward their goal, they exhibit a preference for less variety among goal-pursuit means because the type of uncertainty they experience changes from "what is the best way to reach this goal?" to "can I stay focused on goal attainment?" Huang and Zhang (2011) demonstrate that early goal progress leads to concerns about the ability to reach a goal, while late goal progress leads to concerns about the timing of goal attainment. Positive feedback benefits individuals in earlier stages of goal pursuit, while negative feedback benefits those who make substantial goal progress (Louro et al., 2007).

Goal Progress Influences Regulatory Focus in Goal Pursuit

Regulatory focus theory and goal-pursuit research both provide valuable insights into goal-pursuit behavior. Here, we bridge these two streams of research and suggest that in earlier stages of goal pursuit, goals are more likely to be viewed as promotion-focused, while in later stages, goals are more likely to be viewed as prevention-focused. This is because in earlier stages of goal pursuit, individuals tend to rely on their initial state as a reference point (Bonezzi et al., 2011) and to assess goal progress in "to date" terms (Bonezzi et al., 2011; Koo & Fishbach, 2008), which represents a positive deviation from a reference point (i.e., a "gain"). Hence, the assessment of goal progress will be "gain-framed" in earlier stages of the goal gradient and, since promotion-focused goals represent gains (Higgins, 1997), this framing will lead to a promotion-focused view of the goal. In later stages of goal pursuit, however, individuals tend to rely on their desired end state as a reference point (Bonezzi et al., 2011) and to assess goal progress in "to go" terms (Bonezzi et al., 2011; Koo & Fishbach, 2008), which represents a negative deviation from a reference point (i.e., a "loss"). Hence, the assessment of goal progress will be "loss-framed" in later stages of the goal gradient, and since prevention-focused goals represent

avoidance of losses (Higgins, 1997), this framing of goal progress will lead to a prevention-focused view of the goal.

In this research, we conceptualize "goal progress" as the extent of movement toward a goal relative to the remaining goal distance. We define "early" (vs. "late") goal progress as movement toward a goal prior to (vs. after) reaching the middle point in the goal gradient. We formulate our hypotheses as follows:

H1: Early (vs. late) goal progress leads to the representation of a goal as promotion-focused (vs. prevention-focused).

H2: The effect of goal progress on regulatory focus occurs due to a reliance on the initial (vs. desired) state as a reference point in earlier (vs. later) stages of goal pursuit.

The Scope of the Current Research

The current research seeks to test hypotheses 1 and 2, and to rule out two main competing alternative explanations. Pennington and Roese (2003) established that temporal distance (far vs. close) prior to goal commencement influences regulatory focus (promotion vs. prevention) through optimism (high vs. low). While Pennington and Roese (2003) examined how regulatory focus changes as *goal commencement* draws nearer (due to reduction in time), we examine how regulatory focus is influenced as *goal attainment* draws nearer (due to making goal progress). Although the two effects are fundamentally different, making goal progress does suggest that goal attainment draws nearer temporally, and, hence, it is important to distinguish our research from Pennington and Roese's (2003). Our research posits that as goal attainment draws near, the consequent effect on regulatory focus is driven by a change in reference points and not by the effect of temporal proximity indicated by a reduction in optimism. Thus, a reduction in optimism is the first possible alternative mechanism of the goal progress – regulatory focus effect that this

research aims to rule out. The second alternate account that we aim to rule-out holds that the switch from abstract to concrete construal may explain the effect of goal progress on regulatory focus. This is plausible because goal progress is associated with temporal proximity of goal attainment, and temporal proximity has been linked to concrete (vs. abstract) construal (Trope & Liberman, 2003), which, in turn, can prompt prevention (vs. promotion) focus (Lee et al., 2010).

Study 1

In this first study, we begin to test hypotheses 1 and 2—the effect of goal progress on regulatory focus through reference points. In addition, we manipulate temporal distance and point in goal progress within the same design to clearly demonstrate the distinction between the two effects: temporal distance prior to goal commencement on regulatory focus through optimism (Pennington and Roese, 2003) and goal progress on regulatory focus through reference points (hypotheses 1 and 2). In addition to measuring regulatory focus, reference points, and optimism, we employ several measures of construal level (abstract vs. concrete) to offer evidence against construal as a competing alternative explanation. We employ several direct measures and an indirect measure of construal level—the representation of goal progress as "commitment" versus "progress" (Dhar & Kim, 2007). The inclusion of this indirect measure is guided by the fact that direct measures of construal sometimes fail to detect the effects of psychological distance (e.g., Williams, Stein, & Galguera, 2014).

Two hundred eighty participants (54% male, mean age 36 years) were recruited through Amazon's Mechanical Turk in exchange for monetary compensation. They were randomly assigned to one of the six conditions in a 2 (temporal distance: far vs. close) x 3 (goal progress: none vs. early vs. late) between-subjects design. All participants imagined a scenario where they have set a goal of losing 15 pounds. Half of the participants imagined this scenario occurring a

year away (far temporal distance) while the other half imagined it occurring a few months away (close temporal distance). In the "no goal progress" condition, participants imagined that they plan to work on this goal in either the near or distant future, but they did not imagine having made any progress toward goal attainment. In this condition, we anticipated a replication of Pennington and Roese's (2003) effect of temporal distance (far vs. close) on regulatory focus (promotion vs. prevention) through optimism (high vs. low). In the early (vs. late) goal-progress condition, participants imagined a point in their progress where they would have lost 5 (vs. 10) pounds. We expected goal progress (early vs. late) to influence regulatory focus (promotion vs. prevention) through a reliance on the initial (vs. desired) state as a reference point. We made no specific predictions about optimism among participants who imagined making goal progress.

Measures[1]

Manipulation checks. Temporal-distance manipulation was checked by asking: "How far off in the future is the weight-loss goal you were asked to imagine?" (1 = *Not far at all,* 7 = *Very far*). Goal-progress manipulation was checked only among participants who imagined goal progress by asking: "How much progress did you imagine having made toward your weight-loss goal?" (1 = *No progress at all,* 7 = *A lot of progress*).

Dependent measure. To assess regulatory focus, participants read definitions of maximal and minimal goals and rated their weight-loss goal as "Definitely a maximal goal" (1) or "Definitely a minimal goal" (7), with the middle point anchored by "Neither." The use of this measure is consistent with prior literature demonstrating that promotion-focused (vs. prevention-focused) goals represent maximal (vs. minimal) goals (Crowe & Higgins, 1997; Higgins, 1997; Idson et al., 2000; Jain, Agrawal, & Maheswaran, 2006). Note that maximal/minimal

[1] Full descriptions of manipulations and measures can be found in the Methodological Details Appendix. Results for additional variables that were requested throughout the review process can be found in the results summary table.

representation of goals is independent of the magnitude of standard. Rather, it differs in the way a goal is represented by distinguishing between an ideal that someone "hopes" to achieve and a standard that someone "must" achieve (Fritsche et al., 2009; Idson et al., 2000).

Process Measures

Optimism. To assess optimism, we asked: "How optimistic are you about your ability to attain your weight-loss goal?" (1 = *Not optimistic at all,* 7 = *Very optimistic*).

Reference points. Reference points were assessed only among participants who imagined goal progress. Participants responded to a 7-point scale anchored by "to date" framing of their goal progress on the left-hand side and by "to go" framing of their goal progress on the right-hand side (the middle point was anchored by "Equal"). Reliance on the initial (vs. desired) state as a reference point should lead to ratings below (vs. above) the middle point of the scale.

Construal level. To directly assess abstract and concrete construal we asked participants to rate on a 7-point scale (1 = *Not at all*, 7 = *Very much so*) the extent to which they were thinking "abstractly" and "concretely" about their weight-loss goal; and the extent to which they were focusing "on the big picture" and "on details" (Williams et al., 2014). To assess construal level indirectly, we asked participants whether the goal progress they imagined represented commitment or progress on a 7-point scale (1 = *Commitment,* 7 = *Progress*). In line with Dhar and Kim (2007), we argue that thinking about goal progress abstractly (vs. concretely) should lead to a commitment (vs. progress) representation of goal progress. The indirect measure of construal was administered only to participants who imagined making goal progress.

Results and Discussion

Manipulation checks. "Far temporal distance" participants (M = 4.75) imagined their goal to be farther away in the future than "close temporal distance" participants (M = 2.58; F(1,

274) = 177.602, $p < .001$). "Early goal progress" participants ($M = 3.92$) imagined less goal progress than "late goal progress" participants ($M = 5.71$; $F(1, 175) = 146.489$, $p < .001$).

Dependent measure. Participants' rating of their goal as maximal versus minimal was subjected to a 2x3 ANOVA. There was a main effect of goal progress ($M_{no\_GP} = 3.63$, $M_{early\_GP} = 3.14$, $M_{late\_GP} = 4.21$; $F(2, 274) = 6.993$, $p = .001$) and an interaction between temporal distance and goal progress ($F(2, 274) = 2.939$, $p = .055$); see Figure 1. Planned comparisons revealed that in the "no goal progress" condition, far (vs. close) temporal-distance participants rated their goal as more maximal (vs. minimal) ($M_{far\_TD} = 3.15$, $M_{close\_TD} = 4.04$; $F(1, 99) = 4.777$, $p = .031$), replicating the effect of Pennington and Roese (2003).

Among participants who imagined a point in their goal progress, early (vs. late) goal-progress participants rated their goal as more maximal (vs. minimal) ($M_{early\_GP} = 3.14$, $M_{late\_GP} = 4.21$; $F(1, 175) = 13.779$, $p < .001$), providing support for hypothesis 1. It did not matter whether they imagined making this progress in the distant ($M = 3.76$) or near future ($M = 3.63$; $F(1, 175) = .639$, $p = .425$). The interaction between temporal distance and goal progress was not significant ($F(1, 175) = .884$, $p = .348$) among participants who imagined making goal progress.

Process Measures

Optimism. Participants' feeling of optimism was subjected to a 2x3 ANOVA. There was a marginal main effect of temporal distance ($M_{far\_TD} = 5.96$, $M_{close\_TD} = 5.72$; $F(1, 274) = 2.807$, $p = .095$), a main effect of goal progress ($M_{no\_GP} = 5.67$, $M_{early\_GP} = 5.54$, $M_{late\_GP} = 6.26$; $F(2, 274) = 6.788$, $p = .001$), and a marginal interaction between temporal distance and goal progress $F(2, 274) = 2.328$, $p = .099$). Planned comparisons revealed that in the "no goal progress" condition, far (vs. close) temporal-distance participants reported feeling more optimistic ($M_{far\_TD} = 6.09$, $M_{close\_TD} = 5.33$; $F(1, 99) = 7.165$, $p = .009$). Mediation analysis confirmed that in the "no goal

progress" condition, optimism mediated the effect of temporal distance on regulatory focus (β = .187, *SE* = .134; LLCI, ULCI: .0077, .5737).[2]

Among those participants who imagined making goal progress, temporal distance did not influence optimism ($M_{far\_temp\_dist}$ = 5.89, $M_{close\_temp\_dist}$ = 5.93, $F(1, 175) = .025$, $p = .873$), but goal progress did. Early (vs. late) goal-progress participants felt less optimistic (M_{early_GP} = 5.54, M_{late_GP} = 6.26, $F(1, 175) = 12.999$, $p < .001$). Optimism had no effect on regulatory focus (β = -.099, *SE* = .114; LLCI, ULCI: -.3247, .1266), and regulatory focus had no effect on optimism (β = -.004, *SE* = .051; LLCI, ULCI: -.1041, .0957) among participants who imagined goal progress.

Reference points. The measure assessing reference points was submitted to a 2x2 ANOVA. Only a main effect of goal progress was significant. Early (vs. late) goal-progress participants described their goal progress in "to date" (vs. "to go") terms, indicating reliance on the initial (vs. desired) state as a reference point (M_{early_GP} = 3.75, M_{late_GP} = 5.29, $F(1, 175) = 21.391$, $p < .001$). The main effect of temporal distance ($F(1, 175) = .127$, $p = .722$) and the interaction between goal progress and temporal distance ($F(1, 175) = .139$, $p = .710$) were not significant. Mediation analysis confirmed that goal progress influenced regulatory focus through reference points (β = .205, *SE* = .125; LLCI, ULCI: .0107, .5042), providing support for hypothesis 2; and this effect remained significant (β = .210, *SE* = .130; LLCI, ULCI: .0035, .5244) after optimism was added into the mediation model as a covariate.

[Insert Figure 1 here]

Construal level. Direct measures of construal level were subjected to 2x3 ANOVAs. Neither of the factors—temporal distance or goal progress—yielded significant main effects and did not significantly interact with one another (see summary table for statistical results). The

[2] All mediation analyses reported in this article were performed using Hayes' (2012) PROCESS macro Model 4. All upper and lower bounds are reported for 95% bootstrapped confidence intervals.

indirect measure of construal—commitment/progress measure—was subjected to a 2x2 ANOVA. Only a main effect of temporal distance was significant (M_{far_TD} = 4.82, M_{close_TD} = 5.43; $F(1, 175) = 6.645$, $p = .011$), indicating that imagining goal progress occurring in a distant (vs. close) future triggered a more abstract (vs. concrete) mindset, as it led to the interpretation of movement toward the goal as "commitment" (vs. "progress").

The results of this study tease apart the previously documented effect of temporal distance on regulatory focus through optimism (Pennington & Roese, 2003), and the effect of goal progress on regulatory focus through reference points (hypotheses 1 and 2). Prior to goal commencement, greater temporal distance affords more optimism and allows individuals to be attuned to their promotion-focused concerns. As time to initiate goal pursuit draws nearer, a more pessimistic mindset arises, and individuals' prevention-focused concerns begin to dominate (Pennington & Roese, 2003). Once goal pursuit has been initiated, regulatory focus is influenced by the dynamics of goal pursuit through its effect on reference points. In earlier (vs. later) stages of goal pursuit, individuals rely on the initial (vs. desired) state as a reference point (Bonezzi et al., 2011). This leads to a gain- (vs. loss-) framed assessment of goal progress in earlier (vs. later) stages of goal pursuit and triggers a promotion (vs. prevention) focus, respectively.

Two other observations deserve attention. One, we observed that goal progress *increased* optimism, which begins to alleviate the concern that goal progress might influence regulatory focus through the effect of temporal proximity (i.e., reduction in optimism). Although this increase in optimism with greater goal progress was not predicted, it is consistent with prior research findings. Goal progress has been shown to increase certainty of goal attainment (Huang, Broniarczyk, Zhang, & Beruchashvili, 2015; Huang & Zhang, 2011); in addition, greater goal progress makes individuals feel that they are successful on their path toward goal attainment

(Park & Hedgcock, 2016). Optimism, defined as "confidence in one's ability to achieve success at discrete tasks" (Pennington & Roese, 2003, p. 564), is likely to be closely related with these constructs of certainty and perception of success. Two, we observed that thinking about goal progress occurring in the distant (vs. near) future led to a commitment (vs. progress) representation of this movement toward the goal. This finding is consistent with the well-established temporal distance – construal level relationship (Trope & Liberman, 2003), and with the arguments outlined by Dhar and Kim (2007) that thinking about goal progress abstractly (e.g., occurring in the distant future) should lead to a "commitment" interpretation of goal progress, while thinking about goal progress concretely (e.g., occurring in the near future) should lead to a "progress" interpretation. Importantly, stage of goal pursuit did not influence the commitment/progress view of goal progress, indicating that early (vs. late) goal progress does not influence construal (abstract vs. concrete) the way that far (vs. close) temporal distance does.

Study 2

The purpose of this study was to test hypotheses 1 and 2—the effect of goal progress on regulatory focus through reference points—in a context of working on a real task. We measured optimism and construal level to continue to rule out these constructs as alternative-process mechanisms. Seventy-four participants (54% male, mean age 32 years) were recruited through Amazon's Mechanical Turk in exchange for monetary compensation. Participants were asked to play a game in which they would aim to earn 100 points for solving relatively simple mathematical equations. Participants were randomly assigned to "early" and "late" goal-progress conditions. In the "early goal progress" (vs. "late goal progress") condition, participants were given feedback after solving 5 (vs. 15) equations and were told that they had accumulated 25 (vs. 75) points in the game.

Measures

Manipulation check. Goal-progress manipulation was checked by asking: "How much progress have you made toward the 100-points goal?" (1 = *No progress at all*, 7 = *A lot of progress*).

Dependent measure. Regulatory focus was measured in this study the same way as in Study 1—by assessing the representation of the goal as maximal versus minimal. Rating of the goal as maximal (vs. minimal) corresponds to promotion (vs. prevention) focus.

Process Measures

Reference points. To assess reference points, participants responded to a 7-point scale anchored by "to date" framing of their goal progress on the left-hand side and "to go" framing of their goal progress on the right-hand side (the middle point was anchored by "Equal").

Optimism. To assess optimism, we asked, "How optimistic do you feel about your ability to earn the remaining points in the game?" (1 = *Not optimistic at all*, 7 = *Very optimistic*).

Construal. To assess abstract and concrete construals, we asked participants, "To what extent are you thinking about 'why' you want to earn the remaining points?" and "To what extent are you thinking about 'how' to earn the remaining points?" (1 = *Not at all*, 7 = *Very much so*) (Trope & Liberman, 2003).

Results and Discussion

Manipulation check. "Early goal progress" participants (M = 2.58) perceived less goal progress compared to "late goal progress" participants (M = 5.03; $F(1, 72) = 76.586$, $p < .001$).

Dependent measure. "Early goal progress" participants rated their goal as more maximal (M = 3.47), while "late goal progress" participants rated their goal as more minimal (M = 4.55; $F(1, 72) = 4.512$, $p = .037$), providing additional support for hypothesis 1 (Figure 2).

Process Measures

Reference points. Early (vs. late) goal-progress participants described their progress in "to date" (vs. "to go") terms, indicating reliance on the initial (vs. desired) state as a reference point (M_{early_GP} = 3.22, M_{late_GP} = 5.00; $F(1, 72) = 9.344$, $p = .003$); see Figure 2. Mediation analysis confirmed that goal progress influenced regulatory focus through reference points (β = .368, *SE* = .227; LLCI, ULCI: .0103, .9305), providing additional support for hypothesis 2.

[Insert Figure 2 here]

Optimism. Early (vs. late) goal-progress participants felt less optimistic about goal attainment (M_{early_GP} = 3.28, M_{late_GP} = 4.26; $F(1, 72) = 7.488$, $p = .008$), once again pointing away from the mechanism of temporal proximity as an alternate explanation of the goal progress – regulatory focus effect. Including optimism as a covariate in the mediation model did not yield a significant effect (β = -.212, *SE* = .163; LLCI, ULCI: -.5370, .1130), and the mediational effect of reference points remained significant (β = .356, *SE* = .224; LLCI, ULCI: .0312, .9459). Regulatory focus had no effect on optimism (β = -.111, *SE* = .086; LLCI, ULCI: -.2821, .0593).

Construal. Neither abstract (M_{early_GP} = 4.03, M_{late_GP} = 4.53; $F(1, 72) = 1.572$, $p = .214$) nor concrete (M_{early_GP} = 5.17, M_{late_GP} = 4.63; $F(1, 72) = 1.907$, $p = .172$) construal levels were significantly influenced by the goal-progress manipulation.

The results of this study provide evidence in support of hypotheses 1 and 2 in the context of working on a real task. Here we also demonstrated that goal progress increased (rather than reduced) optimism, once again confirming that a reduction in optimism—the underlying mechanism of the effect of temporal distance on regulatory focus—cannot explain the relationship between goal progress and regulatory focus. One caveat of this study is that late goal-progress participants may have been cognitively depleted or fatigued because they solved

three times more math equations than did early goal-progress participants. Depletion has been demonstrated to trigger concrete construal (Wan & Agrawal, 2011), which in turn may account for the switch to prevention focus in later stages of goal pursuit. Although the measures of abstract and concrete construal in this study were not significantly influenced by goal progress, it is important to rule out the possibility that depletion may confound the goal progress – regulatory focus effect. The next study addressed this important point.

Study 3

The purpose of this study was to continue to test hypotheses 1 and 2—the effect of goal progress on regulatory focus through reference points—in a context that does not involve depletion and to continue to rule out optimism and/or construal level as alternative explanations of the goal progress – regulatory focus effect. Fifty-three participants (43% male, mean age 37 years) were recruited through Amazon's Mechanical Turk in exchange for monetary compensation. Participants were told that they would be reviewing sentences for errors (i.e., misspelled words, punctuation, etc.). Early (vs. late) goal-progress participants were told that they would have to review 17 (vs. 7) sentences and were interrupted after reviewing 5 sentences—this was intended to control for depletion across the two levels of goal progress. Thus, in the "early" (vs. "late") goal-progress condition, goal progress represented approximately one third (vs. two thirds) of the goal gradient.

Measures

Manipulation and control checks. To check goal-progress manipulation we asked participants, "How much progress have you made toward your goal of reviewing all of the sentences?" (1 = *No progress at all*, 7 = *A lot of progress*). To check depletion control, we asked participants how fatigued or tired they felt (1 = *Not fatigued at all*, 7 = *Very fatigued*).

Dependent measure. To assess regulatory focus of the goal, we asked participants to rate their focus on positive versus negative outcomes (Pennington & Roese, 2003) using a 7-point scale anchored by 1 = *Positive* and 7 = *Negative*, with the middle point anchored by *Equal.* Focus on positive (vs. negative) outcomes corresponds to promotion (vs. prevention) focus.

Process Measures

Reference points. As in the previous studies, reference points were assessed by asking participants to indicate whether "to date" (1) or "to go" (7) framing of goal progress best described their progress in the task. The middle point was anchored by *Equal.*

Optimism. We measured optimism by asking, "How optimistic do you feel about your ability to finish the remaining sentences?" (1 = *Not optimistic at all,* 7 = *Very optimistic*).

Construal. To measure abstract and concrete construal levels, we asked, "To what extent does thinking about finishing the remaining sentences make you assume a 'why' mindset?" and "To what extent does thinking about finishing the remaining sentences make you assume a 'how' mindset?" (1 = *Not at all,* 7 = *Very much so*) (Trope & Liberman, 2003).

Results and Discussion

Manipulation and control checks. Goal-progress manipulation was successful: "Early goal progress" participants (M = 3.89) perceived less goal progress compared to "late goal progress" participants (M = 5.77; $F(1, 51) = 35.498$, $p < .001$). Depletion control was also successful: "Early" (M = 2.15) and "late" (M = 1.92; $F(1, 51) = .297$, $p = .588$) goal-progress participants did not differ in their self-reported level of fatigue.

Dependent measure. A one-way ANOVA revealed that early (vs. late) goal-progress participants were more likely to focus on positive outcomes ($M_{early\_GP} = 1.67$, $M_{late\_GP} = 2.58$; $F(1, 51) = 6.195$, $p = .016$), providing support for hypothesis 1.

Process Measures

Reference points. Early (vs. late) goal-progress participants described their progress in "to date" (vs. "to go") terms, indicating a reliance on the initial (vs. desired) state as a reference point (M_{early_GP} = 3.37, M_{late_GP} = 5.15; F(1, 51) = 7.967, p = .007). Mediation analysis confirmed that goal progress influenced regulatory focus through reference points (β = .232, SE = .161; LLCI, ULCI: .0290, .7321).

[Insert Figure 3 here]

Optimism. Optimism was not significantly influenced by goal progress (M_{early_GP} = 5.56, M_{late_GP} = 5.81; F(1, 51) = 2.571, p = .115).

Construal. Abstract construal was not significantly influenced by goal progress (M_{early_GP} = 3.52, M_{late_GP} = 4.12; F(1,51) = 1.357, p = .250). Concrete construal was influenced by goal progress in a manner opposite to what a reduction in temporal distance would predict. It was early (vs. late) goal-progress participants who assumed a (marginally) more concrete mindset (M_{early_GP} = 5.04, M_{late_GP} = 4.20; F(1, 51) = 3.472, p = .068).

This study found additional support for the effect of goal progress on regulatory focus as well as for the underlying mechanism of reference points (hypotheses 1 and 2) and ruled out cognitive depletion as a potential confound. We also observed that participants in earlier stages of goal pursuit assumed a more concrete mindset compared to participants in later stages of goal pursuit, supporting our account that a switch from abstract to concrete construal level is not the underlying mechanism of the goal progress – regulatory focus effect.

Study 4

The purpose of this study was to provide manipulation-based support for hypothesis 2—the explanatory role of reference points in the goal progress – regulatory focus effect. To

accomplish this, half the participants visualized the beginning of goal pursuit, while the other half visualized the outcome of goal pursuit. Visualizing the beginning (vs. outcome) of goal pursuit should lead individuals to rely on the initial (vs. desired) state as a reference point throughout the goal gradient and, thus, lead to a promotion- (vs. prevention-) focused representation of the goal throughout goal pursuit. One hundred and four undergraduate students (69% male, mean age 20 years) from the University of Manitoba participated in the study in exchange for course credit. They were asked to imagine a scenario in which they set a goal to lose 15 pounds. Two factors were manipulated simultaneously in this study: goal progress and visualization of either the beginning or the outcome of goal pursuit. In the early (vs. late) goal-progress condition, participants were told that they had lost 5 (vs. 10) pounds. To manipulate visualization of the beginning (vs. outcome) of goal pursuit, participants' attention was drawn to their pre (vs. post) weight-loss self, and goal progress assessment was encouraged by comparing one's current state to one's starting (vs. desired) weight.[3]

Measures

Manipulation checks. To check goal-progress manipulation, we asked, "How much progress have you made so far toward your weight-loss goal of 15 pounds?" (1 = *No progress at all*, 7 = *A lot of progress*). To ensure that the visualization exercise influenced reference points, participants indicated whether a "to date" (1) or "to go" (7) frame best described their goal progress, with the middle point anchored by *Equal*.

Dependent measure. To assess regulatory focus, participants read definitions of maximal and minimal goals and indicated how they would describe their goal (1 = *Definitely a*

[3] We conducted a posttest to ensure that the visualization manipulation did not influence the process versus outcome focus assumed by participants. Details of this posttest can be found in the appendix.

maximal goal and 7 = *Definitely a minimal goal* with the middle point anchored by *Neither*). Rating of the goal as maximal (vs. minimal) corresponds to promotion (vs. prevention) focus.

Results and Discussion

Manipulation checks. Goal-progress manipulation was successful, with only a main effect of goal progress (M_{early_GP} = 4.31 vs. M_{late_GP} = 5.17; $F(1, 100) = 10.993$, $p = .001$). Reference-points manipulation was also successful; only the main effect of visualization was significant. Participants who visualized the beginning (vs. outcome) of goal pursuit described their goal progress in "to date" (vs. "to go") terms, indicating reliance on the initial (vs. desired) state as a reference point ($M_{beginning}$ = 3.49, $M_{outcome}$ = 4.77; $F(1, 100) = 8.916$, $p = .004$).

Dependent measure. A two-way ANOVA revealed that only the visualization of the beginning (vs. outcome) of goal pursuit influenced regulatory focus of the goal. Participants who visualized the beginning (vs. outcome) of goal pursuit described their goal as maximal (vs. minimal) ($M_{beginning}$ = 3.71, $M_{outcome}$ = 4.51; $F(1, 100) = 4.215$, $p = .043$); see Figure 4.

[Insert Figure 4 here]

The results of this study provide manipulation-based support for hypothesis 2 and additional assurance that differential reliance on the beginning (vs. desired) state as a reference point in earlier (vs. later) stages of goal pursuit is the underlying mechanism of the goal progress – regulatory focus effect. In this study, we showed that promotion (vs. prevention) focus can be prompted in both earlier and later stages of goal pursuit if reliance on the initial (vs. desired) state as a reference point is encouraged. This suggests that any other factors that may be influenced by goal progress (e.g., temporal proximity of goal attainment, construal level, etc.) do not drive the effect of goal progress on regulatory focus examined in this research.

Study 5

The purpose of our final study was two-fold. One, we aimed to test hypothesis 1—the effect of goal progress on regulatory focus—by using a behavioral measure of regulatory focus. Promotion focus is associated with a tendency to "ensure hits" while prevention focus is characterized by a tendency to "ensure correct rejections" (Crowe & Higgins, 1997). Therefore, in this study, we operationalize regulatory focus as a choice of promotion-focused or prevention-focused goal-pursuit strategy. Two, we introduce (un)certainty about goal attainment as a potential boundary condition of our effect.

Certainty about goal attainment has been demonstrated to increase with goal progress (Huang et al., 2015; Huang & Zhang, 2011) and even to drive some of the previously demonstrated effects of goal progress (Huang et al., 2015). On one hand, it is possible that certainty plays a role in the goal progress – regulatory focus effect. Certainty may influence regulatory focus by facilitating the perception that goal attainment is in-hand, thus contributing to the representation of a goal as a "must-be-met" standard—a minimal goal. Therefore, it is possible that when participants feel uncertain about goal attainment it may attenuate the switch to a prevention focus in the later stages of goal gradient. On the other hand, we demonstrate that a change in reference points explains the goal progress – regulatory focus effect and, according to Bonezzi and colleagues (2011), it is driven by simple psychophysics of goal pursuit; that is, individuals rely on whichever state (the beginning vs. the desired) is perceived to be closer. To this end, making participants feel uncertain should not affect regulatory focus as it does not influence gain- or loss-framing of goal progress assessment. Finally, there is yet another possibility. Since goal progress and certainty tend to be correlated, it is conceivable that the two variables exhibit a reciprocal relationship. In this view, uncertainty about goal attainment may influence the perception of the remaining distance-to-end and affect regulatory focus (albeit

indirectly) by altering the perception of whether one is in an earlier or later stage of goal gradient.

H3: Uncertainty about goal attainment will attenuate the switch from promotion to prevention focus in later stages of goal pursuit.

Ninety-five participants (41% male, mean age 37 years) were recruited through Amazon's Mechanical Turk in exchange for monetary compensation. Participants completed an exercise that involved reviewing sentences for errors. Two factors were manipulated: first—goal progress; second—certainty about goal attainment. In the early (vs. late) goal-progress condition, participants were told that they would review 7 (vs. 17) sentences and were interrupted after reviewing 2 (vs. 12) sentences, which represented approximately one third (vs. two thirds) of the goal gradient. Note that in both conditions, participants were interrupted when they had 5 sentences left to review. This procedure manipulated stage of goal pursuit, while leaving the objective "distance-to-end" uninfluenced; this was intended to control for (un)certainty of goal attainment across the two levels of goal progress (early vs. late). Participants in the "certain" condition were told that they would successfully complete the task once they reviewed the remaining 5 sentences. Participants in the "uncertain" condition were told that after reviewing the remaining 5 sentences, they might find out that some of the sentences they had reviewed would not count toward the task, meaning the task would be considered incomplete. This resulted in a 2 (goal progress: early vs. late) x 2 (certainty: low vs. high) full factorial design.

Measures

Manipulation and control checks. To check the goal-progress manipulation, we asked, "How much progress have you made toward your goal of completing the task?" (1 = *No progress at all*, 7 = *A lot of progress*). To check the (un)certainty manipulation, we asked how "sure" and

how "certain" participants were that they would successfully complete the task (1 = *Not sure at all/Not certain at all,* 7 = *Very sure/Very certain*) (Pearson's r = .799).

Dependent measure. The assessment of regulatory focus entailed a choice of goal-pursuit strategy. Participants were told that for the remainder of the task they would see a sentence with errors and a suggestion for correcting that sentence. In some cases, the suggested correction would be "right" and in some cases, it would be "wrong." Participants could choose to detect whether the suggested correction was "right" or whether it was "wrong" which, respectively, represents a promotion-focused strategy of "ensuring hits" and a prevention-focused strategy of "avoiding errors" (Crowe & Higgins, 1997).

Results and Discussion

Manipulation and control checks. Early (vs. late) goal-progress participants reported having made less goal progress (M_{early_GP} = 2.76, M_{late_GP} = 5.72; F(1, 91) = 171.492, p < .001). "Uncertain" participants (M = 3.87) also perceived less goal progress compared to "certain" participants (M = 4.58; F(1, 91) = 6.431, p = .013). The interaction was not significant (F(1, 91) = .785, p = .378). While the manipulations of both factors—goal progress and (un)certainty—influenced the perception of goal progress, the effect size (Perdue & Summers, 1986) of the goal-progress manipulation ($\eta^2_{goal\_progress}$ = .10) was 26.7 times larger than the effect size of the certainty manipulation ($\eta^2_{certainty}$ = .003). In addition, both certain (M = 3.19) and uncertain (M = 2.43) "early goal progress" participants perceived themselves to be in the early stage of goal pursuit (i.e., ratings below the midpoint of the scale); and both certain (M = 5.91) and uncertain (M = 5.54) "late goal progress" participants perceived themselves to be in the late stage of goal pursuit (i.e., ratings above the midpoint of the scale). Thus, although the (un)certainty

manipulation influenced the perception of goal progress, it did not alter the perception of being in early (vs. late) stages of goal pursuit at each level of goal-progress manipulation. See Figure 5.

"Certain" (vs. "uncertain") participants felt more sure that they would be able to successfully complete the task ($M_{certain}$= 6.06, $M_{uncertain}$ = 5.24; $F(1, 91) = 14.749$, $p < .001$). Importantly, the main effect of goal progress was not significant ($F(1, 91) = .437$, $p = .510$); early and late goal-progress participants did not differ in their level of (un)certainty.[4] The interaction between the two factors was not significant ($F(1, 91) = .117$, $p = .733$). See Figure 5.

[Insert Figure 5 here]

Dependent measure. Goal progress, certainty, and the interaction between goal progress and certainty were submitted to a binary logistic regression. Only a main effect of goal progress was significant ($\beta = .681$, $SE = .220$; $W(1) = 9.607$, $p = .002$). The main effect of certainty ($\beta = .124$, $SE = .220$; $W(1) = .316$, $p = .574$) and the interaction between certainty and goal progress ($\beta = .039$, $SE = .220$; $W(1) = .032$, $p = .859$) were both not significant. Analyses of simple effects were then performed while controlling for the other factor as a covariate in a binary logistic regression model. While 71.43% of "early goal progress" participants in the "certain" condition selected a promotion-focused strategy, only 40.91% of "late goal progress" participants in the "certain" condition selected a promotion-focused strategy ($\beta = .642$, $SE = .325$; $W(1) = 3.913$, $p = .048$). Similarly, while 67.86% of "early goal progress" participants in the "uncertain" condition selected a promotion-focused strategy, only 33.33% of "late goal progress" participants in the "uncertain" condition selected a promotion-focused strategy ($\beta = .720$, $SE =$

[4] Keeping the objective distance-to-end constant across conditions was intended to control for certainty of goal attainment. While our manipulation checks confirm that this control was successful, Weber-Fechner's law, which contends that we process information in relative rather than absolute terms, would suggest that early (vs. late) goal-progress participants would have been more uncertain. Given the manipulation, however, early (vs. late) goal-progress participants could have been less fatigued, which likely had a counter-balancing effect on the perception of uncertainty, leading to a successful control in terms of the net effect. Future research could examine this effect in more depth.

.296; $W(1) = 5.907$, $p = .015$). Certainty did not influence choice of strategy either among early ($\beta = .085$, $SE = .315$; $W(1) = .072$, $p = .788$) or late ($\beta = .163$, $SE = .306$; $W(1) = .282$, $p = .595$) goal-progress participants (Figure 6), so hypothesis 3 was not supported.

[Insert Figure 6 here]

In this study, we tested (un)certainty as a potential boundary condition of the goal progress – regulatory focus effect by examining the effect of goal progress on choice of regulatory-focused goal-pursuit strategy across two levels of certainty. We documented that only goal progress, but not (un)certainty, had a significant effect on the choice of regulatory-focused strategy. Although our certainty manipulation did influence the perception of goal progress, the effect was not strong enough to alter the perception of being in earlier or later stages of goal pursuit. As such, our results are consistent with the idea that promotion (vs. prevention) focus characterizes goal pursuit in the early (vs. late) stages of goal gradient. We acknowledge that a stronger manipulation of uncertainty may have altered the perception of being in the early or late stages of goal pursuit and may have produced an effect on regulatory focus.

Another take-away from this study is that by keeping the objective distance-to-end constant across conditions, we were able to manipulate goal progress without affecting the perception of certainty of goal attainment across the two levels of goal progress; and this manipulation produced the predicted effect on regulatory focus. This demonstrates that despite the overlap between certainty and goal-progress constructs, the goal-progress construct is discriminantly valid and can manifest independently of certainty. Taken together, our results suggest that (un)certainty in and of itself—beyond its potential effect on the perception of goal progress—does not play a role in the effect of goal progress on regulatory focus.

General Discussion

Across five studies we found consistent evidence that goal progress influences regulatory focus in goal pursuit. In earlier stages of goal pursuit, reliance on the initial state as a reference point makes individuals assess goal progress in terms of a positive deviation from a reference point, leading to a promotion-focused representation of goals. In later stages of goal pursuit, reliance on the desired state as a reference point makes individuals assess goal progress in terms of a negative deviation from a reference point, leading to a prevention-focused representation of goals. Our findings are consistent with previous goal-pursuit research. For example, Etkin and Ratner (2012) find that individuals who perceive themselves to be far from (vs. close to) their goal prefer more (vs. less) variety among goal-attainment means. Promotion- (vs. prevention-) focused individuals have been shown to generate a greater variety of alternatives (vs. be more repetitive) when working on a task (Crowe & Higgins, 1997). Taken together, the promotion (vs. prevention) focus of goals in earlier (vs. later) stages of goal pursuit can serve as a parallel explanation of Etkin and Ratner's (2012) findings about goal progress and preference for variety. Louro and colleagues (2007) find that positive (vs. negative) feedback is motivating for individuals who perceive themselves to be far from (vs. close to) their goal. Individuals working on a promotion- (vs. prevention-) focused goal benefit from positive (vs. negative) feedback (Van-Dijk & Kluger, 2011). Our findings are consistent with the effect demonstrated by Louro and colleagues (2007) and perhaps can even help explain it.

Theoretical Contributions

Goal-pursuit literature. Previous goal-pursuit research has examined a variety of factors that influence motivational strength in goal pursuit (e.g., Bonezzi et al., 2011; Etkin & Ratner, 2012; Fishbach & Dhar, 2005; Huang & Zhang, 2011; Hull, 1932; Kivetz et al., 2006; Koo & Fishbach, 2008; Louro et al., 2007), yet our research is the first, to our knowledge, to consider

the possibility that goal progress influences the type of regulatory motivation that drives goal pursuit. Specifically, we identify that a promotion focus characterizes motivation in early stages of goal pursuit, while a prevention focus characterizes motivation as the goal nears.

Regulatory focus theory. Prior research examined a variety of antecedent factors that influence regulatory focus of goals (e.g., Aaker & Lee, 2001; Cesario, Grant, & Higgins, 2004; Chitturi, Raghunathan, & Mahajan, 2008; Higgins, 1997; Lee & Aaker, 2004; Mogilner, Aaker, & Pennington, 2008; Pennington & Roese, 2003). The factors considered by prior research (e.g., chronic regulatory focus, temporal distance, self-construal, hedonic/utilitarian characteristics) all represent antecedent states, meaning they are factors that influence how a goal is represented prior to commencing goal pursuit. Our research aims to understand how regulatory focus is influenced after goal pursuit has been initiated. Therefore, unlike prior research, we examined how the dynamics of goal pursuit influence regulatory focus and demonstrated that early and late stages of goal pursuit are associated with a promotion and prevention focus, respectively.

The underlying mechanism of the effect of goal progress on regulatory focus is the natural change in reference points that happens midway through the goal gradient (Bonezzi et al., 2011). Our research provides mediation- and manipulation-based evidence in support of this explanation. This mechanism also represents a contribution to regulatory focus theory, as reference points have not been previously shown to influence regulatory focus. Importantly, we ruled out a switch from abstract to concrete construal level and/or a reduction in optimism as two main competing alternative explanations of the goal progress – regulatory focus effect. These processes play no role in the relationship between stage of goal pursuit (early vs. late) and regulatory focus (promotion vs. prevention) reported in this research.

Goal progress, regulatory focus, and optimism. Previous research (e.g., Grant & Higgins, 2003; Hazlett et al., 2011; Pennington & Roese, 2003) linked optimistic mindsets to promotion (vs. prevention) focus, and in Studies 1 and 2 we found that an increase in optimism can co-exist with a prevention focus. Our statistical analyses suggest that optimism does not play a role in the relationship between goal progress and regulatory focus, that optimism and regulatory focus appear to be two independent outcomes of goal progress, and that the relationship between regulatory focus and optimism is not causal. Although optimism mediated the effect of temporal distance on regulatory focus in the "no goal progress" condition in Study 1, it cannot be ruled out that this relationship is spurious as both constructs—optimism and regulatory focus—were measured and not manipulated.

Previous research has found primarily correlational association between regulatory focus and optimism, and the effect size of this correlation is modest (Grant & Higgins, 2003; Hazlett et al., 2011). Hazlett et al. (2011) and Grant and Higgins (2003) both warned that the two constructs are not "entirely overlapping" and that they cannot be treated as proxies. Consistent with this assertion, Pennington and Roese (2003) report differential effects of the optimism – regulatory focus linkage. In one study, they find support for the idea that temporal distance to goal commencement influenced regulatory focus via optimism. However, in a subsequent study that used a different operationalization of temporal distance, they find no evidence that temporal distance influences regulatory focus via optimism. Taken together, while the association between optimism and promotion (vs. prevention) focus has been documented, evidence does exist that one construct can manifest independently from the other. Future research should continue to examine the regulatory focus – optimism association to better inform researchers about causality, directionality, and potential boundary conditions of this relationship.

Practical Implications

Goal setting is an important aspect of consumers' lives, and various products are marketed as means to help consumers with goal attainment (e.g., gym memberships, Fitbit activity-tracking devices, financial planning services, etc.). Consumers who are in earlier stages of goal pursuit are likely to view their goals as promotion-focused. Marketers can leverage this finding by using elements of promotion focus to motivate these consumers. For example, personal trainers can integrate promotion-focused strategies in their training plans (e.g., positive reinforcement-based reward system) for individuals who have not yet made substantial progress toward their goals. Financial planners can emphasize how reaching financial goals will allow consumers to fulfill the hopes and aspirations in life. In contrast, consumers who are in the later stages of goal pursuit are likely to view their goals as prevention-focused. Marketers can leverage this finding by using elements of prevention focus to motivate consumers. To use the same examples as above, personal trainers can integrate prevention-focused strategies in their training plans (e.g., negative reinforcement-based reward system) for individuals who have made substantial goal progress. Likewise, financial planners can emphasize to consumers how securing their financial goals can help them feel safe and secure and fulfill their responsibilities in life.

In conclusion, our research supports the view that goal progress influences regulatory focus in goal pursuit. This finding is relevant for practitioners who market products as means to goal attainment and to researchers who study goal progress and regulatory focus as constructs. In a culture where many people face challenges related to goal attainment and self-regulation (e.g., weight loss, consumer debt), understanding how goal progress influences regulatory motivation may provide a key to becoming a happier and healthier society.

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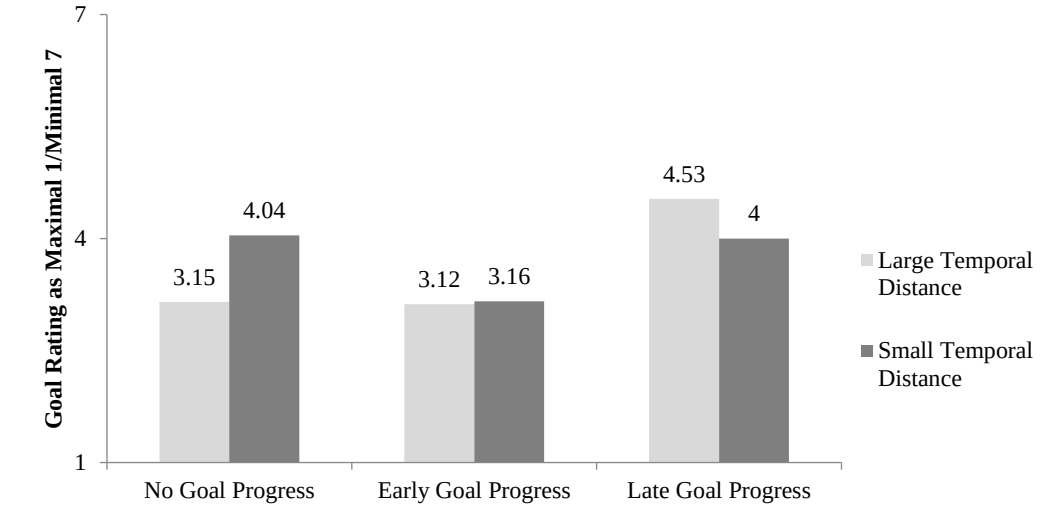
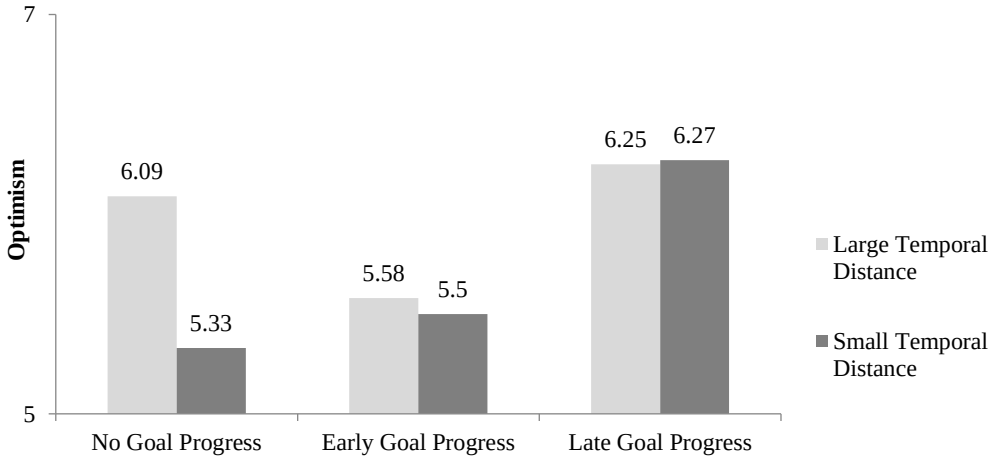
Figure 1. Study 1. The influence of goal progress and temporal distance on regulatory focus, optimism, and reference points.





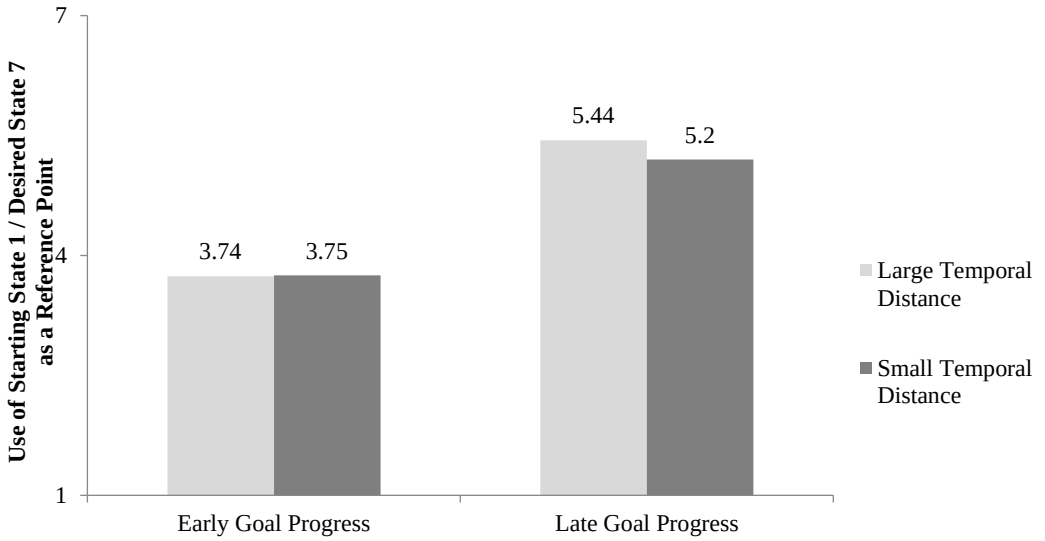


Figure 2. Study 2. The effect of goal progress on regulatory focus and reference points.

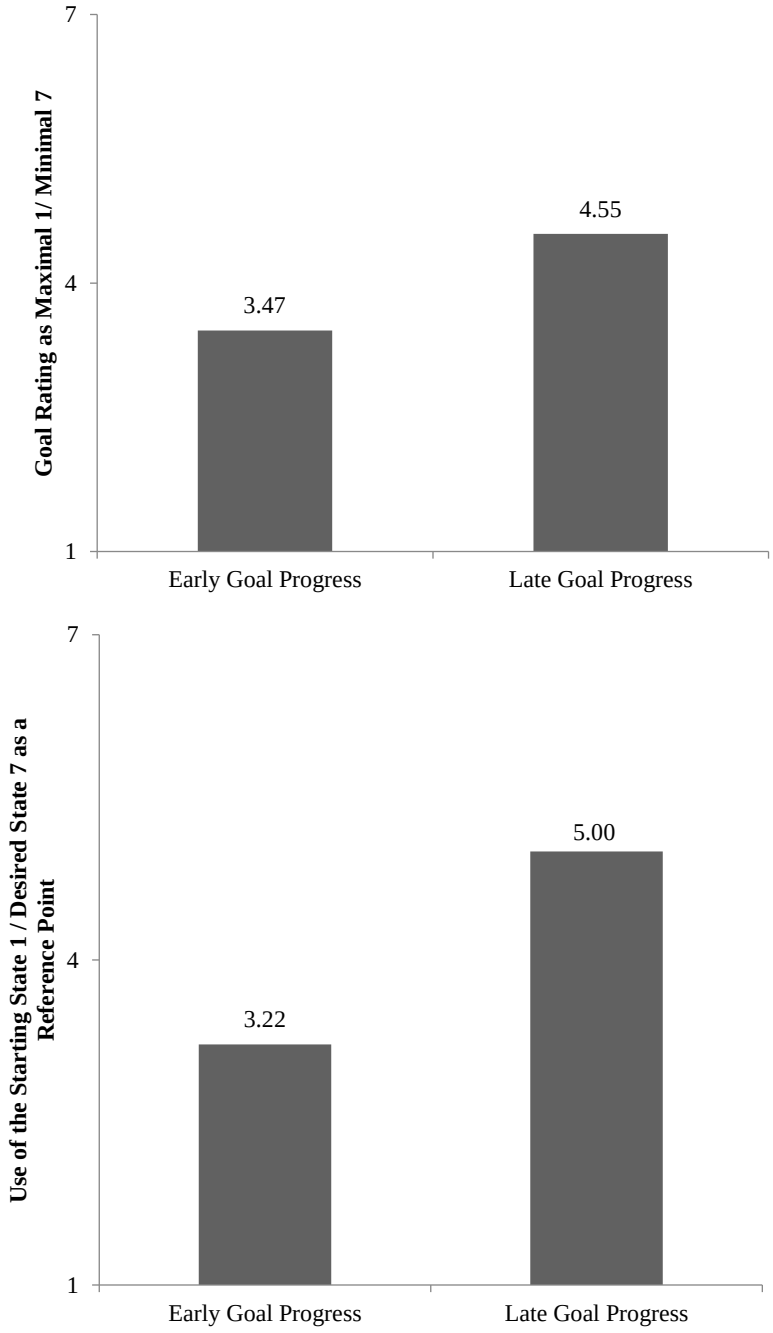


Figure 3. Study 3. The effect of goal progress on regulatory focus and reference points.

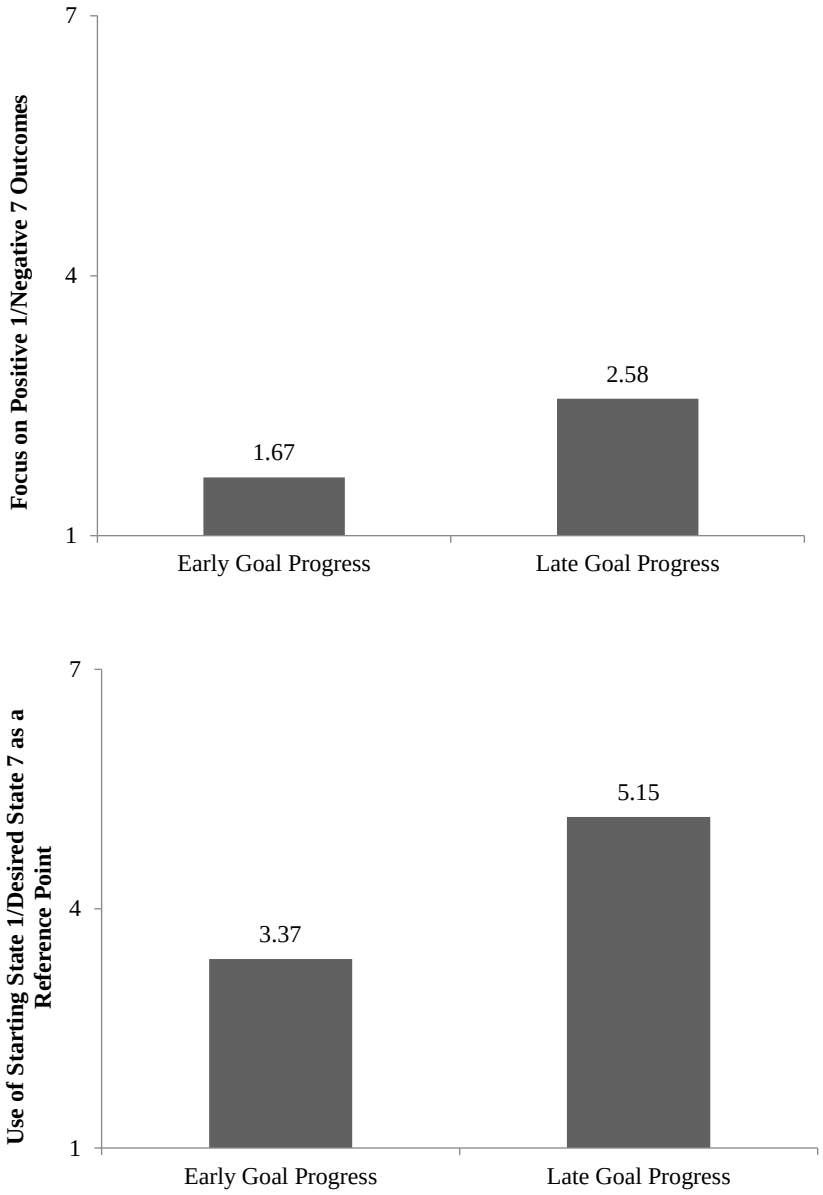
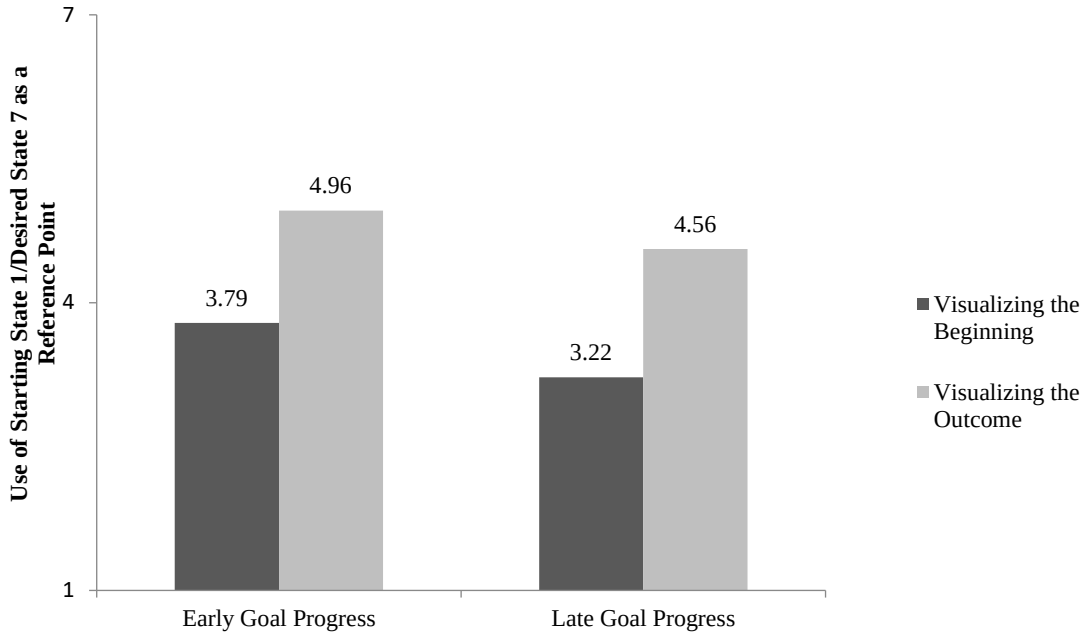


Figure 4. Study 4. The effects of goal progress and visualization of the beginning or the outcome of goal pursuit on reference points and regulatory focus.



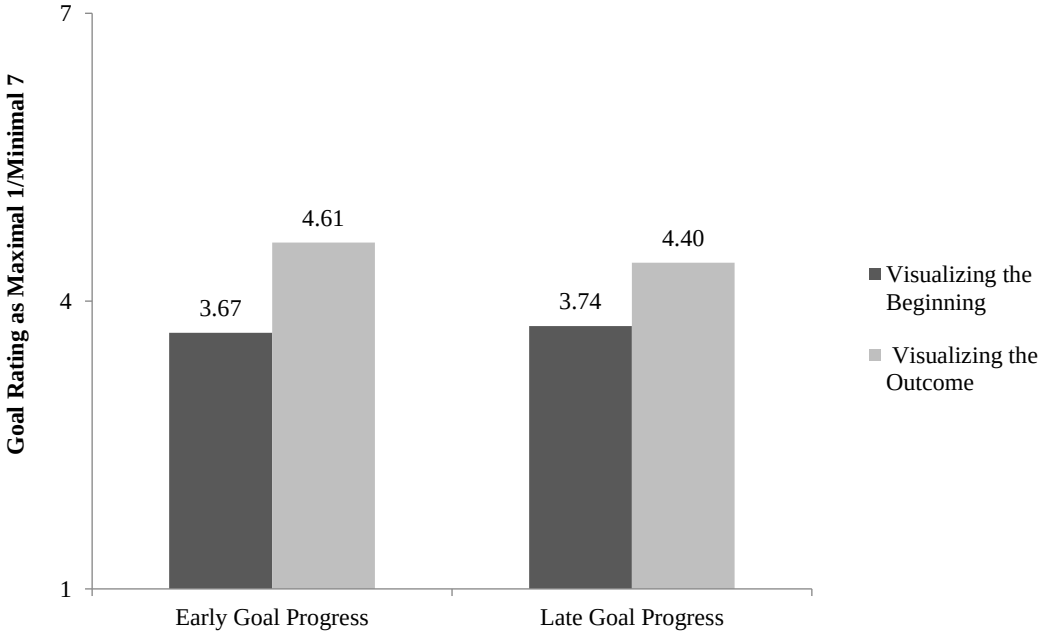


Figure 5. Study 5. The effects of goal progress and (un)certainty on the perception of progress and certainty of goal attainment.

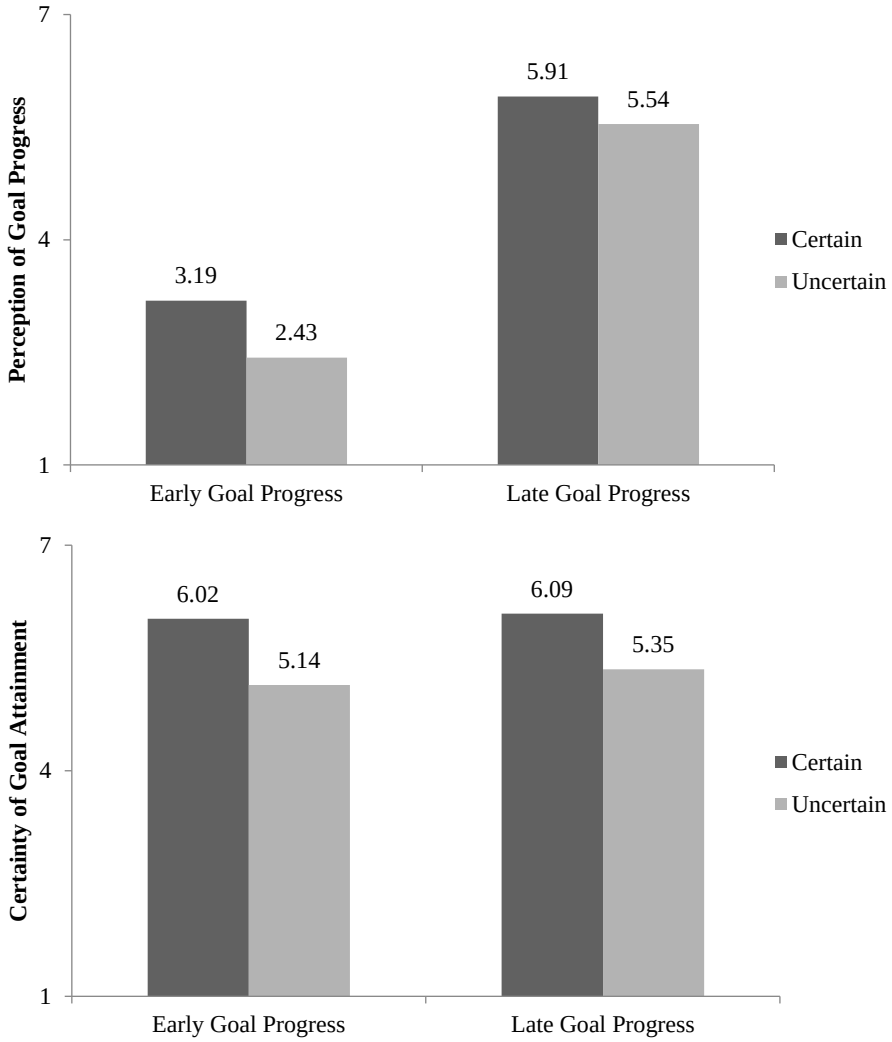
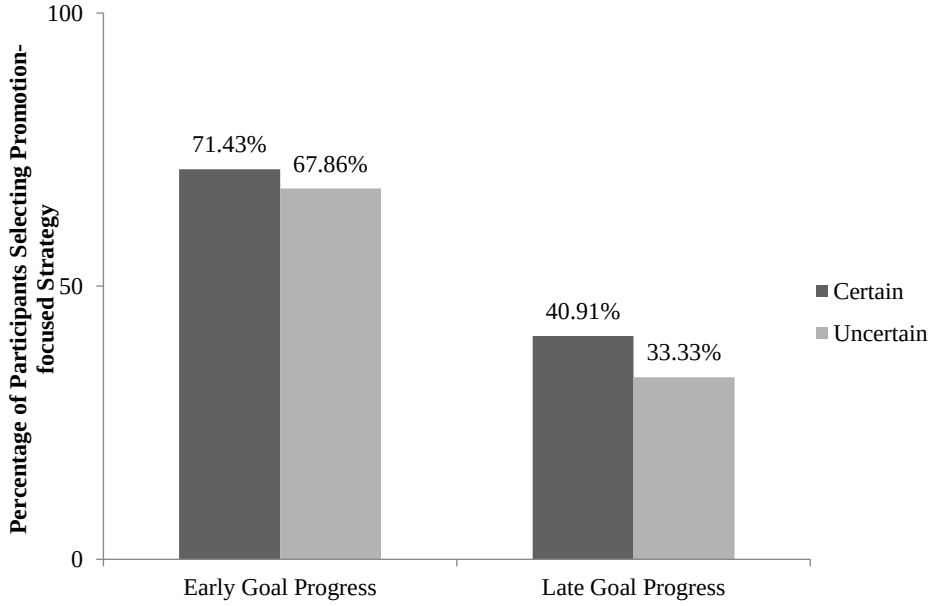


Figure 6. Study 5. The effects of goal progress and (un)certainty on regulatory focus.



Methodological Details Appendix A

Study 1 Manipulations and Measures

Manipulations of Goal Progress and Temporal Distance

	Far Temporal Distance	Close Temporal Distance
No Goal Progress	Please think about a point in time relatively far off in the future. Imagine the following situation happening a year from now: Please imagine that next year you will try to lose 15 pounds. This is a goal which you will work towards achieving relatively far off in the future, a year from now. Please take a few moments and imagine this situation.	Please think about a point in time relatively close to the present. Imagine the following situation happening a few months from now: Please imagine that in a few months you will try to lose 15 pounds. This is a goal which you will work towards achieving relatively soon, in the next few months. Please take a few moments and imagine this situation.
Early Goal Progress	Please think about a point in time relatively far off in the future. Imagine the following situation happening a year from now: Please imagine that next year you will try to lose 15 pounds. This is a goal which you will work towards achieving relatively far off in the future, a year from now. Now, imagine a point in your progress where you would have lost 5 out of the 15 pounds and would have 10 more pounds to lose. Please take a few moments and imagine this situation.	Please think about a point in time relatively close to the present. Imagine the following situation happening a few months from now: Please imagine that in a few months you will try to lose 15 pounds. This is a goal which you will work towards achieving relatively soon, in the next few months. Now, imagine a point in your progress where you would have lost 5 out of 15 pounds and would have 10 more pounds to lose. Please take a few moments and imagine this situation.
Late Goal Progress	Please think about a point in time relatively far off in the future. Imagine the following situation happening a year from now: Please imagine that next year you will try to lose 15 pounds. This is a goal which you will work towards achieving relatively far off in the future, a year from now. Now, imagine a point in your progress where you would have lost 10 out of the 15 pounds and would have 5 more pounds to lose. Please take a few moments and imagine this situation.	Please think about a point in time relatively close to the present. Imagine the following situation happening a few months from now: Please imagine that in a few months you will try to lose 15 pounds. This is a goal which you will work towards achieving relatively soon, in the next few months. Now, imagine a point in your progress where you would have lost 10 out of 15 pounds and would have 5 more pounds to lose. Please take a few moments and imagine this situation.

Dependent Measure

We would like to understand how you mentally represent your goal. Please read two definitions of goals provided below and tell us which one best represents your goal.

Maximal Goals:

Maximal goals emphasize an ideal upper reference point. Attainment of maximal goals builds on an ideal for which there may be no expectation of ever attaining. Attainment or non-attainment of a maximal goal is judged in gradual terms. For example, if a person sets a maximal goal when entering a competition (ideally s/he would like to win), finishing third will be evaluated better than finishing fourth, finishing second will be evaluated better than finishing third and finishing first will be evaluated better than finishing second.

Minimal goals:

Minimal goals emphasize an absolute standard that must be met. Attainment of minimal goals can be expressed as "meeting the bar" or realizing a set cut-off. Attainment or non-attainment of minimal goals is evaluated in absolute terms--all or none--and only satisfactory outcomes are acceptable. For example, if a person sets a minimal goal when entering a competition (s/he must win the competition), anything below finishing first is unacceptable--finishing second or third is equally disappointing because the absolute standard of winning the competition has not been met.

How would you describe your goal?

Definitely				Neither			Definitely
a Maximal Goal	1	2	3	4	5	6	7 a Minimal Goal

Reference Points Measure

How would you best describe the amount of goal progress that you were asked to imagine?

Lost			Equal			Have 10 more
5 pounds 1	2	3	4	5	6	7 pounds to lose

This scale appeared only to participants in the early goal-progress condition

How would you best describe the amount of goal progress that you were asked to imagine?

Lost			Equal			Have 5 more
10 pounds 1	2	3	4	5	6	7 pounds to lose

This scale appeared only to participants in the late goal-progress condition

We combined these scales into a one measure

			Equal			
"To Date"1	2	3	4	5	6	7 "To go"

Optimism Measure

How optimistic are you about your ability to attain your weight loss goal?

Not optimistic at all	1	2	3	4	5	6	7 Very optimistic

Interpretation of Goal Progress as "Commitment" versus "Progress"

The progress that you have made toward your goal thus far represents:

Commitment	1	2	3	4	5	6	7 Progress

Construal Level

To what extent are you thinking abstractly about your weight loss goal?

Not at all	1	2	3	4	5	6	7 Very much so

To what extent are you thinking concretely about your weight loss goal?

Not at all	1	2	3	4	5	6	7 Very much so

To what extent are you focusing on the "big picture" when thinking about your weight loss goal?

Not at all	1	2	3	4	5	6	7 Very much so

To what extent are you focusing on details when thinking about your weight loss goal?

Not at all 1 2 3 4 5 6 7 Very much so

Manipulation Checks

Temporal distance

How far off in the future is the weight loss goal that you were just asked to imagine?

Not far at all 1 2 3 4 5 6 7 Very far

Goal progress

How much progress did you imagine to have made toward your weight loss goal?

No progress at all 1 2 3 4 5 6 7 A lot of progress

This question was displayed only to participants who imagined goal progress

Methodological Details Appendix B

Study 2 Manipulation and Measures

Goal Progress Manipulation

In this study, you will play a game.

Your goal is to earn 100 points in the game. To earn these points, you will solve mathematical equations.

Please click "Next" to proceed

Low Goal Progress	High Goal Progress
(A + 2) x 2 = 10 What is A?	(A + 2) x 2 = 10 What is A?
3 + X = 5 What is X?	3 + X = 5 What is X?
8 x 4 + 5 x 6 + 25/5 equals to	8 x 4 + 5 x 6 + 25/5 equals to
(23 - B) x 2 = 40 What is B?	(23 - B) x 2 = 40 What is B?
64/(10 - Z) = 8 What is Z?	64/(10 - Z) = 8 What is Z?
	6 x 7 - 3 x 5 + 24/6 equals to
	8 - A + 2 = 2 What is A?
	7 + B - 1 = 9 What is B?
	(6 + 3 x C)/2 = 6 What is C?
	100 - 56/2 + 28 - 73 equals to
	10 x 4 - 13 + 2 x 7 equals to
	(23 + X)/5 = 5 What is X?
	F/3 + 12 - 10 = 10 What is F?
	G + 15/3 - 2 = 8 What is G?
	2+ Y - 3 = 2 What is Y?
Let us give you some feedback on how you are doing. According to how you solved the problems, you are now at 25 points.	Let us give you some feedback on how you are doing. According to how you solved the problems, you are now at 75 points.

Dependent Measure

We would like to understand how you mentally represent your goal of earning 100 points in the game. Please read two definitions of goals provided below and tell us which one best represents your goal.

Maximal Goals:

Maximal goals emphasize an ideal upper reference point. Attainment of maximal goals builds on an ideal for which there may be no expectation of ever attaining. Attainment or non-attainment of a maximal goal is judged in gradual terms. For example, if a person sets a maximal goal when entering a competition (ideally s/he would like to win), finishing third will be evaluated better than finishing fourth, finishing second will be evaluated better than finishing third and finishing first will be evaluated better than finishing second.

Minimal goals:

Minimal goals emphasize an absolute standard that must be met. Attainment of minimal goals can be expressed as "meeting the bar" or realizing a set cut-off. Attainment or non-attainment of minimal goals is evaluated in absolute terms--all or none--and only satisfactory outcomes are acceptable. For example, if a person sets a minimal goal when entering a competition (s/he must win the competition), anything below finishing first is unacceptable--finishing second or third is equally disappointing because the absolute standard of winning the competition has not been met.

How would you describe your goal?

Definitely						Definitely
a Maximal Goal 1	2	3	Neither 4	5	6	7 a Minimal Goal

Reference Points

How would you best describe your progress thus far?

I have earned				Equal			I have 75 points
25 points	1	2	3	4	5	6	7 left to earn

This scale appeared only to participants in the early goal-progress condition

How would you best describe the amount of goal progress that you were asked to imagine?

I have earned				Equal			I Have 25 points
75 points	1	2	3	4	5	6	7 left to earn

This scale appeared only to participants in the late goal-progress condition

We combined these scales into a one measure

			Equal			
"To Date"1	2	3	4	5	6	7 "To go"

Perception of Time to Goal Attainment

How much time do you have to earn the remaining points in the game?

No time at all	1	2	3	4	5	6	7 A lot of time

Optimism Measure

How optimistic do you feel about your ability to earn the remaining points in the game?

Not optimistic at all	1	2	3	4	5	6	7 Very optimistic

Interpretation of Goal Progress as "Commitment" or "Progress"

To what extent would you say you interpret your progress in the game thus far as "commitment" to your goal of earning 100 point?

Not at all	1	2	3	4	5	6	7 Very much so

To what extent would you say you interpret your progress in the game thus far as "progress" toward your goal of earning 100 point?

Not at all	1	2	3	4	5	6	7 Very much so

Construal Level

To what extent are you thinking about "why" you want to earn the remaining points?

Not at all 1 2 3 4 5 6 7 Very much so

To what extent are you thinking about "how" to earn the remaining points?

Not at all 1 2 3 4 5 6 7 Very much so

Manipulation Check

How much progress have you made toward the 100-points goal?

Not progress at all 1 2 3 4 5 6 7 A lot of progress

Methodological Details Appendix C

Study 3 Manipulation and Measures

Goal Progress Manipulation

Low Goal Progress	High Goal Progress
In this study, you will be asked to work on a task which involves reviewing sentences for errors. There will be a total of 17 sentences to review. Please proceed to the next page when you are ready.	In this study, you will be asked to work on a task which involves reviewing sentences for errors. There will be a total of 7 sentences to review. Please proceed to the next page when you are ready.
When a little giral sat down on her bicycle, she realised that the handle was broken. Please provide a description of errors you found in this sentence.	*When a little giral sat down on her bicycle, she realised that the handle was broken.* Please provide a description of errors you found in this sentence.
A big dark clowd was covering the sky when an airplane was getting ready to land. Please provide a description of errors you found in this sentence.	*A big dark clowd was covering the sky when an airplane was getting ready to land.* Please provide a description of errors you found in this sentence.
Billy was a good student, he enjyoed learning new things ewery day. Please provide a description of errors you found in this sentence.	*Billy was a good student, he enjyoed learning new things ewery day.* Please provide a description of errors you found in this sentence.
Martha enjoyed spring more then any other time of yaer. Please provide a description of errors you found in this sentence.	*Martha enjoyed spring more then any other time of yaer.* Please provide a description of errors you found in this sentence.
When Leah was getting ready to go outside, she realised that it was going to be a hot suny day. Please provide a description of errors you found in this sentence.	*When Leah was getting ready to go outside, she realised that it was going to be a hot suny day.* Please provide a description of errors you found in this sentence.
Let's pause for a bit, you just finished sentence 5 out of 17. You have 12 sentences left to review. Before you proceed with the task, will ask you some questions about the exercise.	Let's pause for a bit, you just finished sentence 5 out of 7. You have 2 sentences left to review. Before you proceed with the task, will ask you some questions about the exercise.

Dependent Measures

Regulatory-focused goal construal

Please tell us what better describes your goal of finishing reviewing the remaining sentences:

I am focused on attaining something positive when thinking about finishing the task of reviewing the sentences	1	2	3	Equal 4	5	6	I am focused on avoiding something negative when thinking about finishing the task 7 of reviewing the sentences

Choice of regulatory-focused goal pursuit strategy

For the rest of the exercise you will be presented with the original sentence with errors and the proposed corrections to the misspelled words in the sentence. Some of them will be right and some of them will be wrong.

You can choose whether you would like to detect the proposed corrections that are right or whether you would like to detect the proposed suggestions that are wrong. Which one would you prefer?

I would like to detect the suggestions that are "right"	I would like to detect the suggestions that are "wrong"
○	○

Reference Points

How would you best describe your progress thus far?

I have completed 5 sentences	1	2	3	Equal 4	5	6	I have 12 sentences 7 left to complete

This scale appeared only to participants in the early goal-progress condition

How would you best describe the amount of goal progress that you were asked to imagine?

I have completed 5 sentences	1	2	3	Equal 4	5	6	I have 2 sentences 7 left to complete

This scale appeared only to participants in the late goal-progress condition

We combined these scales into a one measure

"To Date"	1	2	3	Equal 4	5	6	7 "To go"

Perception of Time to Task Completion

How much time do you have to finish the remaining sentences?

No time at all 1 2 3 4 5 6 7 A lot of time

Optimism Measure

How optimistic do you feel about your ability to finish the remaining sentences?

Not optimistic at all 1 2 3 4 5 6 7 Very optimistic

Interpretation of Goal Progress as "Commitment" or "Progress"

To what extent would you say you interpret your progress thus far as "commitment" to finishing the remaining sentences?

Not at all 1 2 3 4 5 6 7 Very much so

To what extent would you say you interpret your progress thus far as "progress" toward finishing the remaining sentences?

Not at all 1 2 3 4 5 6 7 Very much so

Construal Level

To what extent does thinking about finishing the remaining sentences make you assume a "why" mindset?

Not at all 1 2 3 4 5 6 7 Very much so

To what extent does thinking about finishing the remaining sentences make you assume a "how" mindset?

Not at all 1 2 3 4 5 6 7 Very much so

Manipulation and Control Checks

Goal progress

How much progress have you made toward your goal of reviewing all the sentences?

Not progress at all 1 2 3 4 5 6 7 A lot of progress

Depletion

We would like to know how you fatigued (tired) you felt as a result of reviewing the sentences

Not fatigued at all 1 2 3 4 5 6 7 Very fatigued

Methodological Details Appendix D

Study 4 Manipulations and Measures

Goal Progress and Visualization Manipulations

Low Goal Progress and Visualizing the Beginning of Goal Pursuit Please imagine that you have decided to lose some weight. You have set a goal to lose 15 pounds. Before you started losing weight, you took a "selfie" as a reminder of what you used to look like and to compare it to the image in the mirror. You have now started losing weight and noticing results. You have lost 5 pounds and you have 10 pounds left to lose. Your old clothes fit looser, you could even say baggy. You frequently try on your old clothes and enjoy the fact that they fit looser and looser every time you try them on. You also frequently look at that "selfie" you took before starting weight loss and compare the image in the mirror to your pre-weight-loss self.	**High Goal Progress and Visualizing the Beginning of Goal Pursuit** Please imagine that you have decided to lose some weight. You have set a goal to lose 15 pounds. Before you started losing weight, you took a "selfie" as a reminder of what you used to look like and to compare it to the image in the mirror. You have now started losing weight and noticing results. You have lost 10 pounds and you have 5 pounds left to lose. Your old clothes fit looser, you could even say baggy. You frequently try on your old clothes and enjoy the fact that they fit looser and looser every time you try them on. You also frequently look at that "selfie" you took before starting weight loss and compare the image in the mirror to your pre-weight-loss self.
Low Goal Progress and Visualizing the Outcome of Goal Pursuit Please imagine that you have decided to lose some weight. You have set a goal to lose 15 pounds. Before you started losing weight, you took a "selfie" and photo-shopped it to how you think you would look after the desired weight loss to compare the image in the mirror to what you would like to look like. You have now started losing weight and noticing results. You have lost 5 pounds and you have 10 pounds left to lose. You even bought a smaller sized outfit you want to fit into after weight loss. When you bought it you could not even put it on. You frequently try on that outfit and enjoy the fact that it is getting easier and easier to put on. You also frequently look at that photo-shopped after-weight-loss "selfie" and compare the image in the mirror to your post-weight-loss self.	**High Goal Progress and Visualizing the Outcome of Goal Pursuit** Please imagine that you have decided to lose some weight. You have set a goal to lose 15 pounds. Before you started losing weight, you took a "selfie" and photo-shopped it to how you think you would look after the desired weight loss to compare the image in the mirror to what you would like to look like. You have now started losing weight and noticing results. You have lost 10 pounds and you have 5 pounds left to lose. You even bought a smaller sized outfit you want to fit into after weight loss. When you bought it you could not even put it on. You frequently try on that outfit and enjoy the fact that it is getting easier and easier to put on. You also frequently look at that photo-shopped after-weight-loss "selfie" and compare the image in the mirror to your post-weight-loss self.

Dependent Measure

We would like to understand how you mentally represent your goal. Please read two definitions of goals provided below and tell us which one best represents your goal.

Maximal Goals:

Maximal goals emphasize an ideal upper reference point. Attainment of maximal goals builds on an ideal for which there may be no expectation of ever attaining. Attainment or non-attainment of a maximal goal is judged in gradual terms. For example, if a person sets a maximal goal when entering a competition (ideally s/he would like to win), finishing third will be evaluated better than finishing fourth, finishing second will be evaluated better than finishing third and finishing first will be evaluated better than finishing second.

Minimal goals:

Minimal goals emphasize an absolute standard that must be met. Attainment of minimal goals can be expressed as "meeting the bar" or realizing a set cut-off. Attainment or non-attainment of minimal goals is evaluated in absolute terms--all or none--and only satisfactory outcomes are acceptable. For example, if a person sets a minimal goal when entering a competition (s/he must win the competition), anything below finishing first is unacceptable--finishing second or third is equally disappointing because the absolute standard of winning the competition has not been met.

How would you describe your goal?

Definitely						Definitely
a Maximal Goal 1	2	3	Neither 4	5	6	7 a Minimal Goal

Manipulation Checks

Goal progress

How much progress have you made so far toward your weight-loss goal of 15 pounds?

Not progress at all 1 2 3 4 5 6 7 A lot of progress

Reference points

How would you best describe the amount of goal progress that you were asked to imagine?

Lost			Equal			Have 10 more
5 pounds 1	2	3	4	5	6	7 pounds to lose

This scale appeared only to participants in the early goal-progress condition

How would you best describe the amount of goal progress that you were asked to imagine?

Lost			Equal			Have 5 more
10 pounds 1	2	3	4	5	6	7 pounds to lose

This scale appeared only to participants in the late goal-progress condition

We combined these scales into a one measure

			Equal			
"To Date"1	2	3	4	5	6	7 "To go"

Methodological Details Appendix E

Study 5 Manipulations and Measures

Goal Progress Manipulation

Low Goal Progress	High Goal Progress
In this study, you will be asked to work on a task which involves reviewing sentences for errors. There will be a total of 7 sentences to review. Please proceed to the next page when you are ready.	In this study, you will be asked to work on a task which involves reviewing sentences for errors. There will be a total of 17 sentences to review. Please proceed to the next page when you are ready.
When a little giral sat down on her bicycle, she realised that the handle was broken. Please provide a description of errors you found in this sentence.	*When a little giral sat down on her bicycle, she realised that the handle was broken.* Please provide a description of errors you found in this sentence.
A big dark clowd was covering the sky when an airplane was getting ready to land. Please provide a description of errors you found in this sentence.	*A big dark clowd was covering the sky when an airplane was getting ready to land.* Please provide a description of errors you found in this sentence.
	Billy was a good student, he enjyoed learning new things ewery day. Please provide a description of errors you found in this sentence.
	Martha enjoyed spring more then any other time of yaer. Please provide a description of errors you found in this sentence.
	When Leah was getting ready to go outside, she realised that it was going to be a hot suny day. Please provide a description of errors you found in this sentence.
	When the airoplain took off, passangers were looking outside Please provide a description of errors you found in this sentence.

	A little boy droped his icecream on the ground, he was very upsat Please provide a description of errors you found in this sentence.
	The story was long and boering: student had a hard time to pay attention Please provide a description of errors you found in this sentence.
	Clowds gathered over the sky, it was starting to rain Please provide a description of errors you found in this sentence.
	Purchases that are returned to the store cause losses to companys that manufactire them Please provide a description of errors you found in this sentence.
	Sunny days are more likely to be cold in the winter monthes then cloudy days Please provide a description of errors you found in this sentence.
	When a volcano eruptes, ashes cover teh sky making the air polluted Please provide a description of errors you found in this sentence.
Let's pause for a bit, you just finished sentence 2 out of 7. You have 5 sentences left to review. Before you proceed with the task, will ask you some questions about the exercise.	Let's pause for a bit, you just finished sentence 12 out of 17. You have 5 sentences left to review. Before you proceed with the task, will ask you some questions about the exercise.

(Un)certainty Manipulation

Certain	Uncertain
For the rest of the exercise, you will have to finish reviewing the remaining five sentences. Once you have reviewed the remaining sentences, you will have successfully completed the task.	For the rest of the exercise you will have to finish reviewing the remaining five sentences. But there is a twist, some of the sentences that you will be presented with may not count toward the exercise. In other words, there is a good chance that after reviewing all of the remaining five sentences, you will find out that the task has not been successfully completed.

Dependent Measure

For the rest of the exercise you will be presented with the original sentence with errors and the proposed corrections to the misspelled words in the sentence. Some of them will be right and some of them will be wrong.

You can choose whether you would like to detect the proposed corrections that are right or whether you would like to detect the proposed suggestions that are wrong. Which one would you prefer?

I would like to detect the suggestions that are "right" ○

I would like to detect the suggestions that are "wrong" ○

Construal Level

To what extent does thinking about finishing the remaining sentences make you assume a "why" mindset?

Not at all 1 2 3 4 5 6 7 Very much so

To what extent does thinking about finishing the remaining sentences make you assume a "how" mindset?

Not at all 1 2 3 4 5 6 7 Very much so

Difficulty

How difficult do you think it will be to complete the task?

Not difficult at all 1 2 3 4 5 6 7 Very difficult

How easy do you think it will be to complete the task?

Not easy at all 1 2 3 4 5 6 7 Very easy

Manipulation Checks

Goal progress

How much progress have you made toward your goal of reviewing all the sentences?

Not progress at all 1 2 3 4 5 6 7 A lot of progress

Certainty

How sure are you that you will successfully complete the task?

Not sure at all 1 2 3 4 5 6 7 Very sure

How certain are you that you will successfully complete the task?

Not certain at all 1 2 3 4 5 6 7 Very certain

Results Summary Table. Studies 1 – 5.

Study 1									
Measure	**Far Temporal Distance**			**Close Temporal distance**			***p* - values**		
	No Goal Progress	**Early Goal Progress**	**Late Goal Progress**	**No Goal Progress**	**Early Goal Progress**	**Late Goal Progress**	**Main Effect of Temporal Distance**	**Main Effect of Goal Progress**	**Interaction**
How would you describe your goal? (Maximal 1/Minimal 7)	3.15	3.12	4.53	4.04	3.16	4.00	.585	.001	.055
How optimistic are you about your ability to attain your weight-loss goal? (Not optimistic at all 1/ Very optimistic 7)	6.09	5.58	6.25	5.33	5.50	6.27	.095	.001	.099
How would you best describe the amount of goal progress that you were asked to imagine? ("To date" frame 1/"To go" frame 7)	n/a	3.74	5.44	n/a	3.75	5.20	.722	.000	.710
The progress that you have made toward my goal thus far represents (Commitment 1/Progress 7)	n/a	5.09	4.50	n/a	5.32	5.52	.011	.416	.102
To what extent are you thinking abstractly about your weight loss goal (Not at all 1/ Very much so 7)	4.11	4.35	4.19	4.00	4.14	4.00	.386	.713	.974
To what extent are you thinking concretely about your weight loss goal (Not at all 1/ Very much so 7)	5.57	5.44	5.47	5.58	5.43	5.89	.631	.356	.226
To what extent are you focusing on the "big picture" when thinking about your weight-loss goal (Not at all 1/ Very much so 7)	5.50	5.57	5.50	5.31	5.75	5.68	.885	.210	.549
To what extent are you focusing on details when thinking about your weight-loss goal (Not at all 1/ Very much so 7)	5.09	4.91	4.64	5.22	4.70	5.05	.506	.185	.358
Study 2									
Measure	**Early Goal Progress**			**Late Goal Progress**			***p* - value**		
How would you describe your goal? (Maximal 1/Minimal 7)	3.47			4.55			.037		
How would you best describe your progress thus far? ("To date" frame 1/"To go" frame 7)	3.22			5.00			.003		

How much time do you have to earn the remaining points in the game? (No time at all 1/ A lot of time 7)	4.06	3.34	.037
How optimistic do you feel about your ability to earn the remaining points in the game? (Not optimistic at all 1/ Very optimistic 7)	3.28	4.26	.008
To what extent are you thinking about "why" you want to earn the remaining points? (Not at all 1/ Very much so 7)	4.03	4.53	.214
To what extent are you thinking about "how" to earn the remaining points? (Not at all 1/ Very much so 7)	5.17	4.63	.172
To what extent would you say you interpret your progress in the game thus far as "commitment" to your goal of earning 100 point? (Not at all 1/ Very much so 7)	4.78	5.13	.323
To what extent would you say you interpret your progress in the game thus far as "progress" toward your goal of earning 100 point? (Not at all 1/ Very much so 7)	4.81	5.00	.576
Study 3			
Measure	**Early Goal Progress**	**Late Goal Progress**	***p* - value**
"I am focused on attaining something positive when thinking about finishing the task of reviewing the sentences" 1/ "I am focused on avoiding something negative when thinking about finishing the task of reviewing the sentences" 7	1.67	2.58	.016
For the rest of the exercise you will be presented with the original sentence with errors and the proposed corrections to the errors in the sentence. Some of them will be right and some of them will be wrong. "I would like to detect suggestions that are 'right'" 1/ "I would like to detect suggestions that are wrong" 0.	70.37% (selecting 1)	42.31% (selecting 1)	.039
How would you best describe your progress thus far? ("To date" frame 1/"To go" frame 7)	3.37	5.15	.007
How much time do you have to finish the remaining sentences? (No time at all 1/ A lot of time 7)	4.52	4.54	.960

How optimistic do you feel about your ability to finish the remaining sentences? (Not optimistic at all 1/ Very optimistic 7)	5.56	5.81	.115
To what extent does thinking about finishing the remaining sentences make you assume a "why" mindset? (Not at all 1/ Very much so 7)	3.52	4.12	.250
To what extent does thinking about finishing the remaining sentences make you assume a "how" mindset? (Not at all 1/ Very much so 7)	5.04	4.20	.068
To what extent would you say you interpret your progress thus far as "commitment" to finishing the remaining sentences? (Not at all 1/ Very much so 7)	5.15	5.77	.179
To what extent would you say you interpret your progress thus far as "progress" toward finishing the remaining sentences? (Not at all 1/ Very much so 7)	5.33	5.65	.450

Study 4

Measure	**Visualizing the Beginning of Goal Pursuit**		**Visualizing the Outcome of Goal Pursuit**		***p* - values**		
	Early Goal Progress	**Late Goal Progress**	**Early Goal Progress**	**Late Goal Progress**	**Main Effect of Visualization**	**Main Effect of Goal Progress**	**Interaction**
How would you describe your goal? (Maximal 1/Minimal 7)	3.67	3.74	4.61	4.40	.043	.865	.719
How would you best describe your progress? ("To date" frame 1/"To go" frame 7)	3.79	3.22	4.96	4.56	.004	.250	.845

Study 5

Measure	**Certain**		**Uncertain**		***p* - values**		
	Early Goal Progress	**Late Goal Progress**	**Early Goal Progress**	**Late Goal Progress**	**Main Effect of Certainty**	**Main Effect of Goal Progress**	**Interaction**
For the rest of the exercise you will be presented with the original sentence with errors and the proposed corrections to the errors in the sentence. Some of them will be right and some of them will be wrong. "I would like to detect suggestions that are 'right'" 1/ "I would like to detect suggestions that are wrong" 0.	71.43% (selecting 1)	40.91% (selecting 1)	67.86% (selecting 1)	33.33% (selecting 1)	.574	.002	.859

How difficult, easy (reverse-scored) do you think it will be to complete the task? (r = .759) (Not difficult at all 1/ Very Difficult 7; Not easy at all 1/ Very easy 7)	1.98	2.02	2.98	3.29	.000	.499	.617
To what extent does thinking about finishing the remaining sentences make you assume a "why" mindset? (Not at all 1/ Very much so 7)	3.48	3.73	3.54	3.50	.798	.743	.662
To what extent does thinking about finishing the remaining sentences make you assume a "how" mindset? (Not at all 1/ Very much so 7)	4.81	4.73	4.89	5.04	.519	.914	.708

Appendix

The purpose of this post-test (N=59) was to address the possibility that the visualization manipulation used in Study 4 may have influenced a focus on process versus outcome. Participants were randomly assigned to read one of the four scenarios used in Study 4. Participants imagined a weight loss goal (to lose 15 pounds) and having lost either 5 or 10 out of the 15 pounds. Half of the participants visualized the beginning of goal pursuit (looking at pre-weight loss selfie and trying on their large clothes) while the other half visualized the outcome of goal pursuit (looking at a photo shopped after-weight loss selfie and trying on smaller sized clothes). We assessed reference points using the same procedure as described in the manuscript (to date vs. to go framing of one's goal progress). We also assessed focus on process/outcome and process/starting state using a series of measures. The table below provides a summary of our results which suggest that the visualization manipulation does not influence process/outcome focus.

Measure	**Means for visualization of the beginning condition**			**Means for visualization of the outcome condition**			***p*-value for the main effect of visualization**
	Early GP	Late GP	**Total**	Early GP	Late GP	**Total**	
Reference points ("to date" 1 vs. "to go" 7 framing)	3.93	3.15	**3.55**	4.21	5.00	**4.44**	.05
To what extent are you focused on the process by which you lost weight (Not at all 1/ Very much so 7)	5.15	5.33	**5.24**	4.52	5.44	**4.78**	.53
To what extent are you focused on the process by which you will lose the remaining weight (Not at all 1/ Very much so 7)	4.77	5.08	**4.92**	4.78	5.67	**5.03**	.53
To what extent are you focused on the process by which you lost the weight versus the outcome of the weight loss process (process 1/outcome 7)	5.23	4.58	**4.92**	4.57	4.89	**4.66**	.73
To what extent are you focused on the process by which you will lose the remaining weight versus the outcome of the weight loss process (process 1/outcome 7)	4.69	4.58	**4.64**	4.17	4.56	**4.28**	.62
To what extent are you focused on the process by which you lost the weight versus the starting point of your weight loss process (process 1/starting point 7)	2.85	3.33	**3.08**	3.35	3.56	**3.41**	.48
To what extent are you focused on the process by which you will lose the remaining weight versus the starting point of your weight loss process (process 1/starting point 7)	2.54	3.08	**2.80**	3.30	3.11	**3.25**	.42