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The authors explore the interplay between consumers' progress levels toward attaining a goal and the perceived velocity in progressing toward the goal to determine consumers' motivation for further goal pursuit. The authors propose that when progress toward attaining a goal is low, consumers are primarily concerned about the question "Can I get there?" Thus, a high (vs. low) perceived velocity in progressing suggests greater expectations of goal attainment, resulting in greater motivation for pursuing the goal. However, when consumers have achieved sufficient progress and are approaching the end point, their attainment of the goal is relatively secured, so they become more concerned about the question "When will I get there?" and focus more on whether they are effectively reducing the remaining discrepancy so that they can attain the goal quickly. In this case, a low (vs. high) perceived velocity in progressing elicits greater motivation because it suggests that continued effort is needed to ensure a speedy attainment. Empirical evidence from lab and field experiments supports this hypothesis.

Keywords: loyalty program, consumer behavior, goal pursuit, velocity, nonprofit

Motivational Consequences of Perceived Velocity in Consumer Goal Pursuit

Consumers often actively monitor their progress in goal pursuit, and these processes generate two pieces of distinctive information: On the one hand, they signal consumers' relative position in the pursuit—that is, their level of progress toward goal attainment. On the other hand, they provide information on the rate of progress, telling consumers how fast they are moving toward the end point. Although abundant literature has investigated how the level of progress may affect people's motivation in goal pursuit (e.g., Hull 1932; Liberman and Förster 2008), relatively less research has explored how the *rate* of progress may influence motivation. For example, how does information about their rate of stamp collection influence the purchase decisions of consumers who are trying to accumulate enough stamps for a free coffee in a loyalty program? Similarly, should companies that try to encourage repeated use of products allow consumers to experience a fast or a slow rate of progress toward desirable end states, such as

beauty and health? Furthermore, does the impact of perceived velocity in progressing remain the same throughout the entire course of goal pursuit, or does it change as people move from one stage to another?

To address these questions, we build on research in the dynamics of self-regulation (Fishbach, Zhang, and Koo 2009; Koo and Fishbach 2008) and propose that knowledge of the velocity rate (high vs. low) in progressing toward a goal can either increase or decrease consumers' motivation in goal pursuit, depending on their achieved level of progress toward goal attainment. Specifically, when consumers have just begun pursuing a goal and their level of progress is low, they focus primarily on whether they can attain the goal and ask the question "*Can* I get there?" A high (vs. low) velocity in progressing suggests a greater chance of eventual goal attainment, which therefore leads to greater motivation in goal pursuit. However, when consumers have achieved sufficient progress toward the goal and are relatively certain about its attainability, they shift their focus to the temporal aspect of goal attainment and become more concerned about the question "*When* will I get there?" At this stage, a low (vs. high) velocity in progressing should elicit greater motivation because it suggests that the current effort in reducing the remaining discrepancy is relatively ineffective and that more effort is necessary to ensure a speedy goal attainment.

PROGRESS AND VELOCITY

A large body of research has documented how consumers' levels of progress influence their motivation in goal pursuit, and the overarching finding is that as people move closer to the attainment of the goal, their motivation increases (e.g., Kivetz, Urminsky, and Zheng 2006; Liberman and Förster 2008). However, because movement toward goal attainment is a dynamic process that involves both a temporal and a distance aspect, trying to understand the motivational consequences of progress by focusing on the level of progress alone neglects the temporal aspect of the movement and misses out on the influence of the rate of progress, a psychological equivalent of velocity (Carver, Lawrence, and Scheier 1996). In contrast with the level of progress—a relatively static concept that reflects one's past achievement—the velocity in progressing provides dynamic feedback on the effectiveness of one's efforts in goal pursuit. For example, consider a person who monitors his or her weight loss: While the total weight that has been lost indicates the level of progress, equally important is how fast this person has been able to make this progress.

Research in control theories has long suggested that self-regulation is governed by a negative feedback loop. In particular, Carver and Scheier (1998) propose that for each action system that provides feedback on the remaining discrepancy to goal attainment, there is also a rate system that deals with the rate of progress. According to this theory, monitoring the rate of progress operates by comparing the perceived velocity with a reference value and generates both affective and expectancy-related outcomes. On the affective side, the main findings suggest that moving slowly toward a goal induces negative affect, which leads to greater efforts to accelerate the pursuit (Cervone et al. 1994; Gollwitzer and Rohloff 1999). Conversely, moving quickly toward a goal induces positive affect and therefore decreases the effort (Carver and Scheier 1998). In addition, related research exploring specific types of affect has demonstrated that a high (vs. low) velocity can both increase or decrease effort, depending on the type of goals people are pursuing (Holman, Totterdell, and Rogelberg 2005). More recently, in multiple goal context, Louro, Pieters, and Zeelenberg (2007) find that both positive and negative affect can increase motivation, depending on the attribution of such affective experiences (see also Fishbach and Labroo 2007).

In contrast with the extensive research on how affective consequences of velocity can influence motivation, little research has examined the informational value of velocity in influencing motivation. In particular, we are interested in how people may interpret their velocity in progressing differently to address their primary concerns—such as whether and when the goal can be attained—at different stages of goal pursuit. We suggest that because consumers focus on different questions at the initial versus the advanced stage of goal pursuit, they interpret the same information on velocity differently to address these concerns. As a result, the same velocity information may have opposite impacts on consumers' motivation.

"CAN I GET THERE?"—MOTIVATION FROM ATTAINABILITY

Research on the dynamics of self-regulation has proposed that when a person's commitment to a goal is uncertain or low, focusing on the progress achieved will signal his or her commitment to the goal and motivate further pursuit (Koo and Fishbach 2008). What, however, determines consumers' commitment to a goal, and what information is more motivating in establishing goal commitment? We propose that because goal commitment represents a person's definitive decision to pursue a goal with the expectation of eventually attaining it, the commitment to a goal should first be contingent on the perception that the goal is attainable. For example, the social-cognitive model (e.g., Bandura 1997) suggests that a person's willingness to pursue a goal increases as a function of the belief that the goal can be attained through effort. Similarly, both the value-expectancy model (e.g., Atkinson 1957; Tolman 1955; Vroom 1964) and goal-setting theory (Locke and Latham 1990) emphasize that the cognitive assessment of one's chances of attaining a goal is an important factor in people's decisions to adopt this goal. More recently, Zhang and Huang (2010) added to this literature by suggesting that in early stages of goal pursuit, people derive motivation primarily from the belief that the goal is attainable. Therefore, whenever consumers are uncertain about the attainability of a goal, such as when their progress level is still low, they focus on the question "Can I get there?" and seek information to confirm that they can indeed attain the goal. Their commitment and, in turn, motivation should then depend on their answer to this question.

Compared with a low velocity in progressing, a high velocity suggests that one is moving toward the ideal state relatively fast, which thus confirms that the attainment of the goal is likely, despite the relatively low levels of progress at the moment. For example, for customers who have just begun accumulating reward points in a loyalty program, knowing that they are accumulating points at a fast (vs. slow) rate confirms that they can eventually reach the redemption point for the prize. Therefore, these customers should be more likely to commit to this goal and show greater motivation for further pursuit, despite their current low progress. In contrast, those who experience a low velocity in progressing are likely to infer that the goal is beyond their reach and thus will disengage from this program.

"WHEN WILL I GET THERE?"—MOTIVATION FROM SLOW MOVEMENT

The question "Can I get there?" is unlikely to dominate for long however. When consumers accumulate sufficient progress toward the goal, they feel relatively more confident that they can attain it and are more committed to its pursuit (Wood and Bandura 1989). With this certainty in mind, consumers shift their focus to whether they can reduce the remaining discrepancy at an acceptable speed and ask the question "When will I get there?" For example, a customer who is approaching the redemption point for a loyalty program is unlikely to be concerned about whether the end point is reachable but instead will focus on how much longer it will take him or her to collect the additional points needed for the reward.

In models that emphasize the discrepancy reduction aspect in self-regulation (e.g., Carver and Scheier 1998; Locke and Latham 1990), the rate of progress signals the effectiveness of goal pursuit because it determines the

amount of time it takes to reach the end point. Ineffective goal pursuit, when experienced, motivates people to correct their behaviors to ensure that the goal can be successfully attained within the desired time frame (e.g., Brunstein and Gollwitzer 1996; Wicklund and Gollwitzer 1982). Therefore, when people focus on "When will I get there?" they interpret the velocity information as signaling how effective they have been in reducing the remaining discrepancy and adjust their behaviors accordingly.

Compared with a high velocity, which suggests that people are making steady progress and that goal attainment is timely, a low velocity signals that their efforts in reducing the remaining discrepancy are relatively ineffective and that reaching the end point (though certainly possible) might be delayed. At these times, consumers should be motivated to invest more effort to ensure that the goal can be attained within the desired time frame. For example, for a dieter who is approaching his or her ideal weight and thus is relatively certain about its attainability, knowing that weight is being lost slowly (vs. quickly) will suggest that he or she should try harder so that the ideal weight can be attained sooner, thus eliciting greater effort.

In summary, central to our hypothesis are the different inferences that people make based on the same velocity information, depending on their primary concerns. In the current model, consumers question whether they can attain the goal initially, but when they are relatively certain about its attainability, they begin to question how soon they can attain it. Therefore, the same information on velocity can have opposite motivational consequences, depending on which question is being asked: When the low levels of progress highlight the uncertainty in goal attainability, consumers interpret the velocity to answer the question "Can I get there?" and are motivated more by a high velocity because it suggests higher goal attainability. However, when sufficient progress on the goal ensures its attainability, consumers interpret the velocity to answer the question "When will I get there?" and thus are more motivated by low velocity because it suggests the need for extra effort to ensure a speedy goal attainment.

We tested this hypothesis in five studies. We began with a field study (Study 1) in which we investigated the proposed hypothesis in the context of contributing to a charity goal. In Study 2, we directly assessed people's concerns ("Can I get there?" vs. "When will I get there?") at different stages of goal pursuit and explored how they affect motivation. In Study 3 and Study 4, we tested whether certainty about goal attainment was the mechanism underlying the shifting concerns by manipulating the point at which people can be relative assured of the goal's attainability: We either delayed (Study 3) or moved up (Study 4) the time when people could be certain that the goal was attainable and examined how different velocity information influenced motivation. In Study 5, we returned to another field experiment and tested the validity of our hypothesis in the context of a customer loyalty program.

STUDY 1: VOLUNTEERING

We begin our investigation in a group goal context. Prior research suggests that when people identify with a certain group, they adopt the group goal as their own and contribute to the shared goal as long as it is meaningful (Karau

and Williams 1997; Wann and Branscombe 1993). Because people seek the same information in the pursuit of group goals as they do in individual goals (Koo and Fishbach 2008), we were able to test our hypothesis in a group goal context and teamed up with Relief Nursery, a nationally recognized nonprofit organization dedicated to preventing child abuse, to solicit volunteers for the organization.

Method

Participants in this study included 132 students (63 females, 64 males, 5 unidentified) who were approached on the campus of a large southwestern university. This field experiment used a 2 (progress level: low vs. high) × 2 (velocity: low vs. high) between-subjects design.

Two experimenters distributed campaign letters on campus. The experimenters approached participants in public areas, briefly introduced themselves as representatives of Relief Nursery, and explained the mission of the organization. They also explained that they were running a campaign to recruit volunteers for the organization and passed out a campaign letter from Relief Nursery, along with a one-page sign-up sheet.

The letter from Relief Nursery described a child abuse case and provided a picture of a victim of such a case. Following this description, the letter explained the mission of the organization and described its current recruiting campaign. Specifically, the letter explained that to effectively implement the early-intervention programs that prevent child abuse, the local office of the organization would need 1,200 volunteer hours for the next six to nine months. The letter further explained potential tasks for volunteers and emphasized that the organization would ensure a proper match between the volunteers' expertise and the assigned activities.

The letter then presented the current situation of the campaign and indicated that the organization was either 200 hours away (high progress) or 800 hours away (low progress) from reaching the campaign goal of 1,200 volunteer hours. The letter also stated that, according to the progress made during the past few weeks, the sign-up rate had been either relatively slow, at approximately 10 committed hours per week (low velocity), or relatively fast, at approximately 10 committed hours per day (high velocity).

Participants were then urged to volunteer for the organization and were given a sign-up form. They were first asked whether they would like to volunteer for Relief Nursery. Those who indicated no were thanked and dismissed. Those who indicated yes provided their personal information and contact details. More important, they also indicated the number of total hours they were willing to commit to volunteering for Relief Nursery in the next nine months. After they completed the sheet, participants were thanked and assured that the organizer of the program would get in touch with them to arrange the assignments.

Results and Discussion

Of all the participants approached, 54.5% committed to volunteer for Relief Nursery, generating 845 volunteer hours for the campaign. The volunteers' information was passed on to Relief Nursery for utilization in upcoming activities.

We measured participants' motivation to help the campaign by their willingness to volunteer. We first analyzed

the percentage of approached people who committed to help. A logistic regression of their decisions of whether to volunteer on the level of progress, the velocity in goal attainment, and the interaction between them yielded the predicted progress level × velocity interaction ($\beta = -3.81$, Wald's $\chi^2(1, N = 132) = 23.26$, $p < .01$). When progress on attaining the campaign goal was low, 78.8% of the people in the high velocity condition committed to help, compared with 40.0% in the low velocity condition ($\chi^2(1, N = 63) = 9.88$, $p < .01$). In contrast, when progress on the campaign goal was high, 75.0% of those approached in the low velocity condition committed to help, compared with 27.0% in the high velocity condition ($\chi^2(1, N = 69) = 15.80$, $p < .01$; see Figure 1).

Also of interest was the number of hours people committed to volunteering for Relief Nursery. An analysis of variance (ANOVA) of this variable yielded a significant progress level × velocity interaction ($F(1, 128) = 7.77$, $p < .01$) and no main effects. When progress on attaining the campaign goal was low, people who were told that the sign-up rate was fast committed more hours ($M = 10.36$ hours) than those who were told that the sign-up rate was slow ($M = 5.13$ hours; $t(61) = -1.88$, $p < .06$). Conversely, when progress on attaining the campaign goal was high, people who were told that the sign-up rate was slow committed more hours ($M = 7.06$ hours) than those who were told that the sign-up rate was fast ($M = 3.32$ hours; $t(67) = 2.17$, $p < .05$; see Figure 2).

The results of Study 1 provide initial support for our hypothesis in a public charity goal context by showing that while a high (vs. low) velocity in progressing motivated more effort when the overall progress level on attaining the goal was low, a low (vs. high) velocity became more motivating when the progress level was relatively high. According to our theorizing, this occurred because people shifted their focus from "Can I get there?" to "When will I get there?" as they progressed toward the end point. In Study 2, we test this mechanism directly.

Figure 1
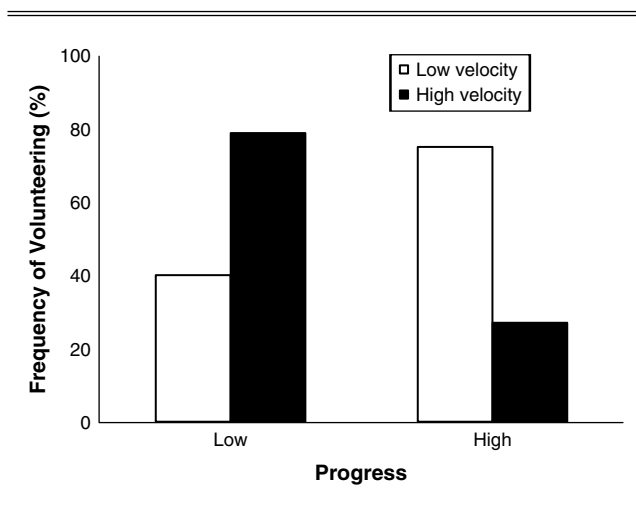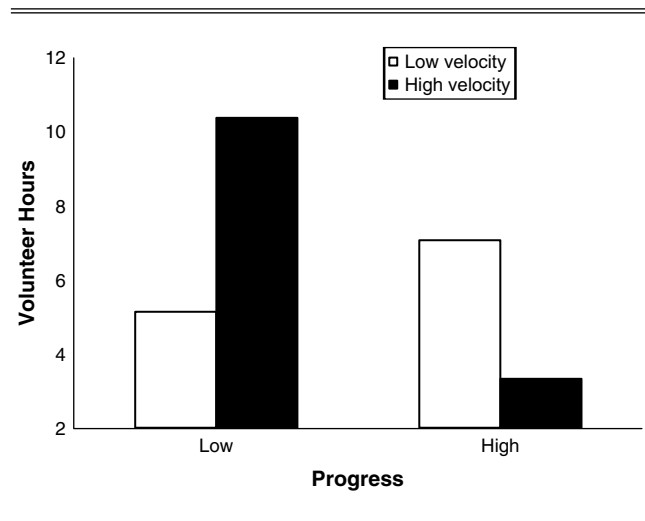STUDY 1: VOLUNTEER FREQUENCY AS A FUNCTION OF PROGRESS AND PERCEIVED VELOCITY

Figure 2
STUDY 1: VOLUNTEER HOURS AS A FUNCTION OF PROGRESS AND PERCEIVED VELOCITY

STUDY 2: SENSORY TASK

In Study 2, we manipulated participants' levels of progress and their perceived velocity in a target identification task before measuring their underlying inferences. We also measured their persistence in waiting for a bonus question under extreme noise.

Method

A total of 159 undergraduate students (79 females, 80 males) at a large southwestern university participated in this study for partial course credit. This study used a 2 (progress level: low vs. high) × 2 (velocity: low vs. high) between-subjects design.

The cover story told participants that their task was to identify ambiguous visual and audio stimuli presented in the task. Points would be awarded for correct answers, and those who reached 900 total points in the task would receive a limited-edition school key chain as reward.

In explaining the setup of the experiment, we told participants that there were two types of targets in the task: visual and audio. For the visual questions, they would need to decipher strings of letters in ambiguous fonts, and the awarded points depended on how close their answers were to the correct ones. For audio questions, they would need to identify the ambiguous sound played in their headphones. We also displayed a dynamic progress bar with the end point of 900 to provide real-time feedback on participants' point accumulation.

In the first visual section of questions, participants deciphered five ambiguous letter strings. By the end of the section, participants in the high progress conditions had gained 600 points, whereas those in the low progress conditions had collected 300 points. Because participants did not know the total number of questions in the task, they were unable to infer their relative performance by simply looking at the number of points they had achieved, which allowed us to manipulate perceived velocity through social comparison. A performance analysis page after these questions informed

participants in the high velocity conditions that "based on the questions you have completed, you are gaining points at a FASTER rate than the majority of all participants in our database." In contrast, those in the low velocity conditions were told that they were gaining points at a slower rate than the majority of participants in the database.

After receiving this information, participants clicked "Continue" and were greeted by an "optional audio question." Participants were told that the optional audio question was worth 100 points but that they would need to wait for their turn because of technical restrictions. Participants were then asked to put on their headphones and wait for this audio question or to click "Continue" to quit waiting at any time. During the wait time, noisy "music" was played through the headphones. We measured the amount of time participants persisted in waiting for the optional question as an indicator of their motivation for getting the bonus.

We also tested the mechanism through which the perceived velocity affected motivation. Under the cover story of getting feedback on the design of the experiments, we told participants that they would occasionally run into questions related to the design rather than to the content of the experiment in pop-up boxes during the task. A box showed up directly after participants received the feedback on velocity (but before the optional question). In this box, we included a question that examined the extent to which participants were concerned about goal attainability ("How likely do you think it is that you will reach 900 points for the key chain?") and another one about when they would reach the end point ("How soon do you think you will reach 900 points for the key chain?"). Both items were measured on seven-point scales. We also included questions for potential alternative mechanisms, such as goal value and importance (e.g., "How much are you willing to pay for the limited-edition school key chain?" and "How important is it for you to reach 900 points for the school key chain?"), and mood states. After answering these questions, participants returned to the main task. All participants reached 900 points in the end and received the key chain or cash equivalent.

Results and Discussion

All participants quit waiting for the bonus question eventually, allowing us to use the amount of time they persisted as a measure of their motivation. An ANOVA of the wait time (in seconds) yielded the hypothesized progress level × velocity interaction (F(1, 155) = 10.04, $p < .01$). No other effects emerged in this analysis. Of the participants who had made only low progress on the goal, those who thought they were progressing quickly persisted longer under the noise (M = 114.92 seconds) than those who thought they were progressing slowly (M = 72.24 seconds; t(73) = −2.37, $p < .05$). In contrast, of the participants who had made high levels of progress, those who learned that they were progressing slowly persisted more (M = 98.52 seconds) than those who thought they were progressing relatively fast (M = 67.56 seconds; t(82) = 2.07, $p < .05$; see Figure 3).

We further analyzed the concerns that people had at different stages of goal pursuit. An ANOVA of the perceived attainability of the goal ("Can I get there?") yielded a main effect of progress level (F(1, 155) = 5.04, $p < .05$) and a main effect of velocity (F(1, 155) = 23.28, $p < .01$). In addition, an ANOVA of how soon participants thought they

Figure 3
STUDY 2: WAIT TIME AS A FUNCTION OF PROGRESS AND PERCEIVED VELOCITY
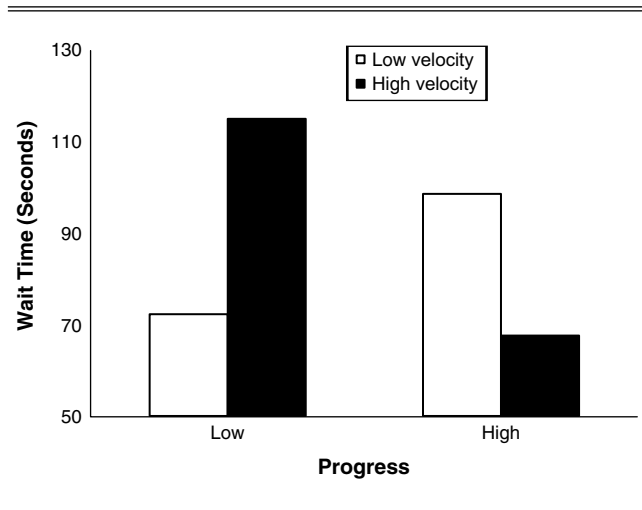
would reach the goal ("When will I get there?") yielded a main effect of velocity (F(1, 155) = 47.37, $p < .01$). There was no significant difference in perceived goal value, commitment level, or mood across conditions.

How, then, did these concerns influence participants' motivation? Specifically, did the two concerns ("Can I get there?" vs. "When will I get there?") weigh differently when people advanced from a low to a high level of progress? To answer this question, we performed two moderated mediation analyses. In the first analysis, we examined whether the relationship between velocity feedback (low vs. high) and motivation was mediated by participants' concerns about "Can I get there?" and whether this mediation was moderated by their progress levels. According to our theorizing, the path from velocity feedback (independent variable) to motivation (dependent variable) should operate through the concern about "Can I get there?" (mediator), and this should apply only when the participant has achieved a low (vs. high) level of progress.

To assess this moderated mediation model, we followed Preacher, Rucker, and Hayes (2007, Model 3) and used a bootstrapping procedure that generated a sample size of 5,000 to assess the regression models. The first part of this model showed that velocity positively predicted participants' perceived goal attainability (β = .35, t(159) = 4.72, $p < .01$). The second part of the model, which regressed participants' motivation on velocity, their concern about "Can I get there," their progress level, and the interaction between their concern and progress levels, yielded a significant concern × progress level interaction (β = −.24, t(159) = −2.98, $p < .01$), suggesting that the effect of the concern about "Can I get there?" on participants' motivation depended on their level of progress. Specifically, when participants' progress level was low, high perceived goal attainability (an inference based on high velocity) elicited greater motivation (β = .19, z = 2.48, $p = .01$); this effect, however, became nonsignificant when participants' progress level was high (β = .01, z = .44, n.s.; see Figure 4).

Figure 4
STUDY 2: MODERATED MEDIATION MODEL OF THE INFLUENCE OF CONCERN ABOUT "CAN I GET THERE?" ON WAITING TIME
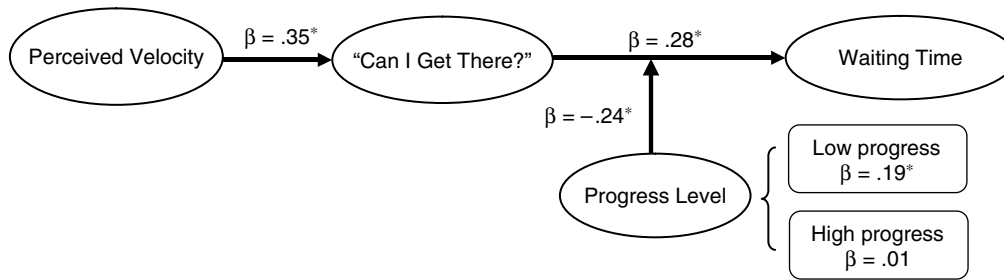
$^*p < .01.$

We then performed a second moderated mediation analysis to examine whether the path from velocity feedback (independent variable) to motivation (dependent variable) operated through the concern about "When will I get there?" (mediator) and whether it applied only when a participant had made a high (vs. low) level of progress. The first part of this model showed that velocity feedback positively predicted how soon participants thought they could reach 900 points for the reward ($\beta = .48$, $t(159) = 6.84$, $p < .01$). The second part of the model, which regressed participants' motivation on velocity, their concern about "When will I get there," their progress level, and the interaction between their concern and progress levels, yielded a significant concern $\times$ progress level interaction ($\beta = -.28$, $t(159) = -3.50$, $p < .01$), suggesting that the effect of the concern about "When will I get there?" on motivation again depended on their progress level. When the progress level was high, the concern about when the participants could attain the goal elicited greater motivation ($\beta = -.26$, $z = -4.69$, $p < .01$); this effect, however, was not significant when the participants' progress level was low ($\beta = -.01$, $z = -.01$, n.s.; see Figure 5). This analysis suggests that only when people have accumulated sufficient progress do they switch to focus on the time frame of goal attainment, and their concern about "When will I get there?" influences their motivation.

The results from Study 2 support our proposed mechanism that the type of velocity (high or low) affects motivation differently, depending on the stage of pursuit. According to our conceptualization, people shift their primary concern from "Can I get there" to "When will I get there" when they become relatively certain about the goal's attainability. The next two studies test this specific hypothesis by varying the point at which people can be certain about whether they can attain the goal. Specifically, we reason that if the level of progress indeed switches people's focus by confirming a goal's attainability, whenever high levels of progress do not confirm a goal's attainment (e.g., when goal attainment does not depend on a person's performance), people should be motivated more by the knowledge that they are moving at a high (vs. low) velocity, regardless of their progress level. Conversely, if people can be certain about the goal's attainability early on in the pursuit, they should be motivated by a low (vs. high) velocity even when their current progress is still low. We tested these implications in Study 3 and Study 4.

STUDY 3: COLLABORATION

Participants in Study 3 completed a number-related task for a performance-based reward. The task was framed either as an individual task, in which the attainability of the reward depended solely on participants' own performance

Figure 5
STUDY 2: MODERATED MEDIATION MODEL OF THE INFLUENCE OF CONCERN ABOUT "WHEN WILL I GET THERE?"
ON WAITING TIME
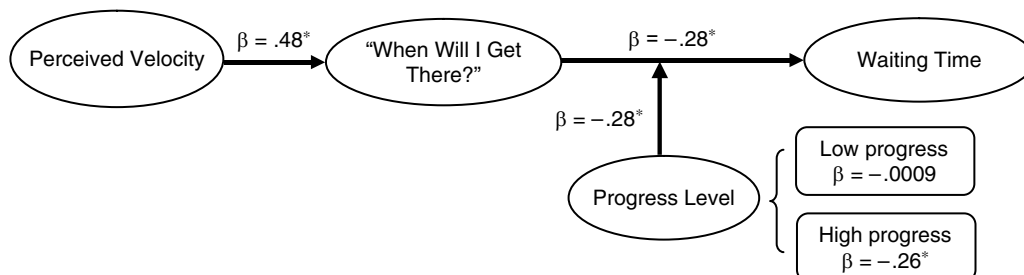
$^*p < .01.$

and thus became relatively certain as one accumulated sufficient progress, or as a collaborative task, in which the attainability of the reward was based on joint performance with an unknown teammate and thus remained uncertain throughout the task.

Method

A total of 229 undergraduate students (111 females, 118 males) participated in this study. The experiment used a 2 (progress level: low vs. high) × 2 (velocity: low vs. high) × 2 (task frame: individual vs. collaborative) between-subjects design.

Participants completed a study that was professed to test people's sense of numbers. The instructions explained that the task was divided into multiple sections and that participants would gain points for correctly answering each question. We framed the task as either individual or collaborative in determining the performance-based reward: In the individual-task conditions, participants could win an additional $30 cash reward if they could reach 700 points by the end of the task; therefore, whether they could win the bonus depended solely on their own performance. In the collaborative-task conditions, participants would be randomly paired with another student who was completing the same task in a separate room. If their average score reached 700 points, each of them would win an additional $30 cash reward. In this case, whether they could win the reward depended not only on their own performance but also on that of an unknown person; therefore, attainment remained relatively uncertain throughout the goal pursuit.

After the general instructions, participants started the first section of the task and completed ten number-related questions (e.g., "If $x + (x + 1) + (x + 2) = 366$, what is x?"). Participants indicated their answers on a slider with numbered marks only on both ends and were told that the points they would gain depended on how close their answers were to the correct number on the slider. This procedure helped ensure that participants were less certain about the exact points they would gain even if they knew the correct answer, which allowed us to more convincingly manipulate their progress level and velocity.

We manipulated progress level and velocity through feedback to participants. In the high progress conditions, participants earned 505 points after the first ten questions, whereas those in the low progress conditions earned 205 points after the same ten questions. We again manipulated participants' perceived velocity through social comparison: After the first section, a feedback page informed participants in the high velocity conditions that "based on the questions you have completed so far, you are gaining points at a FASTER rate than the majority of participants in our database," whereas the participants in the low velocity conditions were told that they were gaining points at a slower rate than that of the majority of participants in the database.

After the feedback, participants answered a few questions about their feelings toward the experiment, including their current mood level (seven-point scale; 1 = very bad," and 7 = "very good"), among other filler questions. After answering these questions, participants entered the second section, in which they needed to provide exact answers in a box, instead of using a slider, for questions similar to those in the first section. For incorrect answers, a pop-up notification would ask them to try again. Alternatively, participants could skip the question by clicking "Continue."

We made the three questions in this section unsolvable and recorded the time participants spent on them before giving up as the indicator of their motivation. After they completed this section of questions, participants were thanked and debriefed.

Results and Discussion

We conducted a regression analysis on the average time participants spent on these unsolvable questions using progress level, velocity, task frame, and all their interaction terms as predictors. This analysis yielded a progress level × velocity × task frame three-way interaction ($F(1, 220) = 5.70$, $p < .05$). We then explored the impact of velocity feedback on participants' motivation depending on their progress level, in each type of task. As we hypothesized, there was a significant progress level × velocity interaction in the individual-task condition ($F(1, 220) = 13.5$, $p < .01$). Consistent with the previous studies, when the progress level was low, participants who thought they were gaining points quickly spent more time on the unsolvable questions ($M = 52.38$ seconds) than those who thought they were gaining points slowly ($M = 31.97$ seconds; $F(1, 220) = 9.46$, $p < .01$). In contrast, when the progress level was high, participants who thought they were gaining points slowly spent more time on the same unsolvable questions ($M = 60.78$ seconds) than those who thought they were gaining points at a faster rate ($M = 49.30$ seconds; $F(1, 220) = 4.61$, $p < .05$).

Importantly, this pattern of results did not occur when the task was framed as a collaborative task and the attainability of the goal ("Can I get there?") remained uncertain throughout the task; instead, we found a main effect of velocity ($F(1, 220) = 9.71$, $p < .01$). For all participants in this condition, those who thought they were gaining points quickly spent more time on these unanswerable questions ($M = 54.39$ seconds) than those who thought they were gaining points slowly ($M = 38.10$ seconds; see Figure 6).

Figure 6

STODY 3: AVERAGE TIME SPENT ON DIFFICULT QUESTIONS AS A FUNCTION OF PROGRESS, PERCEIVED VELOCITY, AND TASK FRAMING
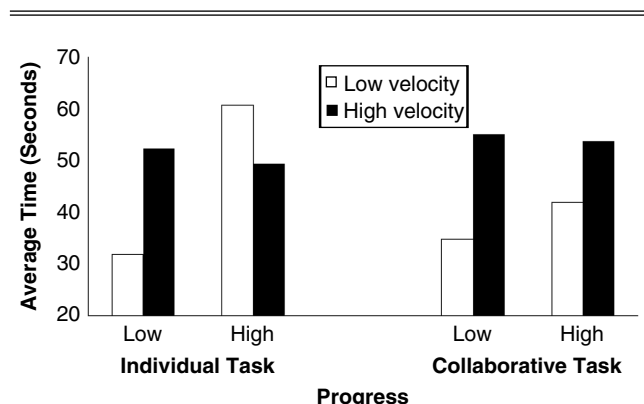
In addition, in this study, participants' mood levels did not significantly differ across conditions ($F(1, 220) = .73$, n.s.), nor did mood predict participants' motivation in reaching the goal ($\beta = -.04$, n.s.); therefore, we can rule out mood as an alternative account for the current findings.

The results of Study 3 demonstrate that when goal attainability continued to be uncertain, even high progress levels did not make people shift from asking "Can I get there?" to "When will I get there?" Thus, a high (vs. low) perceived velocity remained more motivating. This pattern confirmed that it is indeed the certainty about goal attainability that determines people's interpretation of velocity and its subsequent impact on motivation.

In Study 4, we test this mechanism from yet another perspective: If people switch to the question "When will I get there?" and are concerned about the time frame of goal attainment after they become relatively certain about the goal's attainability, they should be motivated by low (vs. high) velocity whenever they believe the goal is attainable—even when their current progress is still low.

STUDY 4: WINE LABELS

In Study 4, we provided information on the attainability of the goal at an early stage of goal pursuit. We assessed whether people who had received the early confirmation of goal attainability would behave like those who had accumulated sufficient progress and become more motivated by a low (vs. high) rate of progress.

Method

A total of 225 undergraduate students (105 females, 120 males) participated in Study 4 in return for cash compensation. This study used a 2 (velocity: low vs. high) × 2 (confirmation of goal attainability: no vs. yes) between-subjects design.

The cover story told participants that the researchers were interested in how people process information on wine labels. The participants' task was to complete nine rounds of label-related questions. In each round, they would view a wine label and answer some questions (e.g., place of origin, vintage, name) according to their memory of the information on the labels. Participants were allowed to spend as much time as they wanted to memorize the information, and they would receive points for correct answers as well as a $30 bonus for reaching 900 total points after nine rounds. Participants were further told that feedback would be provided after each round, including on their accumulated points (in absolute numbers) and on their momentary rate of progress (in percentile among all participants, according to the points they gained in the previous question). We displayed participants' total accumulated points as a number next to their goal of 900 points (e.g., "200/900") and their momentary speed as a number on a vertical bar anchored by 0% (slowest in the database) and 100% (fastest in the database).

After two trial rounds, participants commenced the main task. We ensured that all participants made the same, steady progress toward the goal of 900 points, gaining about 100 points in each question. We then manipulated participants' momentary velocity by telling them that they were performing at around the 20th percentile (e.g., 20%, 23%) after each round (low velocity conditions) or at around the 80th

percentile (e.g., 78%, 83%) after each round (high velocity conditions). By providing information on both level and rate of progress, we were able to manipulate the two variables independently and to discern their respective impact.

We also divided the task into three stages, with three rounds in each stage. In addition to the regular feedback, all the participants received an additional piece of feedback after the first three rounds saying, "You have completed Stage 1 and have gained 305 points." Participants in the early confirmation conditions were further told, "Based on your performance, you are qualified to proceed to the Stage 2. Our records indicate that most participants who qualified for Stage 2 succeeded in reaching 900 points." In comparison, participants in the no confirmation conditions were told only that they had qualified for Stage 2.

In all the conditions, we measured the amount of time participants spent on memorizing the wine label in each round as the indicator of their motivation for reaching the final goal of 900 points. All participants were debriefed after completion of the task and were entered into a lottery for a cash reward.

Results and Discussion

We first computed separate measures of participants' motivation depending on their levels of progress: the total time participants spent on memorizing wine labels in Stage 1 (Rounds 1 to 3—low progress, before the manipulation of confirmation), Stage 2 (Rounds 4 to 6—moderate progress, after manipulation of confirmation), and Stage 3 (Rounds 7 to 9—high progress). We then performed separate ANOVAs on these measures. The analysis on time spent in Stage 1 (low progress) yielded only a main effect of perceived velocity ($F(1, 187) = 11.06$, $p < .01$). At this stage, participants who were gaining points at a relatively fast rate spent more time memorizing wine labels ($M = 92.22$ seconds) than those who were progressing more slowly than others ($M = 71.84$ seconds). The analysis on time spent in Stage 3 (high progress) also yielded only a main effect of perceived velocity ($F(1, 187) = 8.33$, $p < .01$), showing that participants who were gaining points at a slower rate spent more time memorizing wine labels ($M = 87.80$ seconds) than those who thought they were progressing faster than others ($M = 68.16$ seconds).

More important, the analysis on the amount of time spent in Stage 2 yielded the predicted perceived velocity × confirmation interaction ($F(1, 187) = 5.99$, $p < .05$), and there were no main effects. At this middle stage, of the participants who did not receive confirmation on goal attainability, there was no significant difference between those who thought they were moving at a faster rate ($M = 88.30$ seconds) and those who thought they were progressing more slowly than others ($M = 73.24$ seconds; $t(91) = -1.42$, $p = .16$). If anything, the pattern seemed consistent with that observed when progress level was low: Higher perceived velocity was more motivating than slower perceived velocity. In contrast, of the participants who received confirmation on goal attainability, those who were gaining points slowly spent significantly more time memorizing wine labels ($M = 96.70$ seconds) than those who were progressing quickly ($M = 76.76$ seconds; $t(96) = 2.08$, $p < .05$; see Figure 7). This result suggests that relative certainty of goal attainability made people with low progress behave

Figure 7
STUDY 4: TIME SPENT ON MEMORIZING WINE LABELS AS A
FUNCTION OF PERCEIVED VELOCITY AND CONFIRMATION
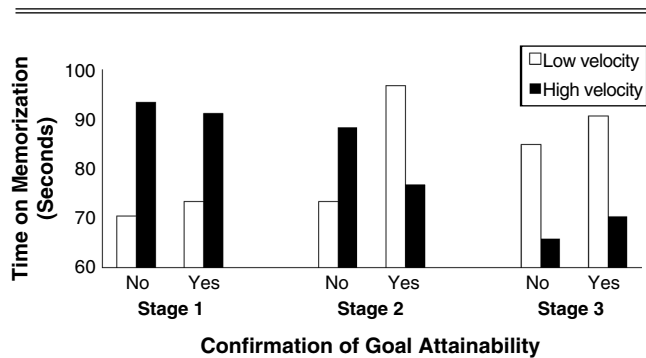
more like those who had achieved high progress and focus more on the time frame of goal attainment.

The design of the study further allowed us to explore the trend of people's motivation as they progressed toward the end point of goal attainment and, in particular, how their motivation changed when goal attainment was relatively secured. According to our model, when initial goal progress is high and people are relatively certain about goal attainment, a high velocity in progressing suggests that they are successfully reducing the remaining discrepancy in a timely manner; therefore, they should maintain, or even decrease, their effort. In contrast, a low velocity in progressing at the same stage suggests that the goal attainment might be delayed and that people should increase their efforts to ensure a speedy attainment. We analyzed the motivation of participants in the no-confirmation group to test these predictions and found the expected pattern: For participants receiving low velocity feedback, their effort did not differ significantly between Stage 1 (70.42 seconds) and Stage 2 (73.24 seconds; $F(1, 46) = .70$, n.s.), but it significantly increased from Stage 2 to Stage 3 (84.91 seconds; $F(1, 46) = 14.76$, $p < .01$), constituting a linearly increasing trend as the participants accumulated greater progress ($F(1, 46) = 12.14$, $p < .01$). In contrast, for participants receiving high velocity feedback, their effort remained unchanged as they moved from Stage 1 (93.37 seconds) to Stage 2 (88.30 seconds; $F(1, 45) = .93$, n.s.) but dropped significantly from Stage 2 to Stage 3 (65.81 seconds; $F(1, 45) = 69.95$, $p < .01$), constituting a linearly decreasing trend ($F(1, 45) = 47.07$, $p < .01$). This pattern suggests that when people approach the end point of a goal (vs. at initial stages of pursuit), a low velocity in progressing increases their motivation, whereas a high velocity in progressing has the opposite impact.

The results of Study 4 provide further evidence that people derive greater motivation from a high (vs. low) velocity in progressing when they ask "Can I get there?" but that they are more motivated by low (vs. high) velocity when they ask "When will I get there?" In Study 5, we tested the implications of the findings using another field experiment in the context of a customer loyalty program.

STUDY 5: FREE COFFEE

In Study 5, we distributed two versions of loyalty cards at a coffee shop: a "uniform velocity card" that gave customers a fixed number of points for purchases at all stages in the program, or a "variable velocity card" that allowed customers to accumulate points at a faster rate initially and at a slower rate when they approached the redemption point.

Method

The field study used a two-cell design (uniform velocity vs. variable velocity). We designed the program so that it required customers to accumulate 24 points on a loyalty card within six weeks to redeem for a free coffee and cookie combo. Depending on the condition, customers received either a uniform velocity card or a variable velocity card. Both conditions required eight purchases in total to reach 24 points, and the only difference was the rate at which consumers could accumulate points: For customers with the uniform velocity card, each coffee purchase would earn 3 points. For customers with the variable velocity card, each of the first four purchases would earn 5 points and then 1 point for each of the next four purchases. Therefore, although the number of necessary purchases was identical in both conditions, consumers experienced a different rate of progress in the program while making the same number of purchases. We distributed 120 cards among customers of a coffee shop on campus and recorded the issuing date, date of purchases, and redemption date.

Results and Discussion

By the end of the program, we collected 38 cards, a total redemption rate of 31.67%. A chi-square analysis revealed that 23.80% of the customers in the uniform velocity condition redeemed the card, compared with 40.35% in the variable velocity condition ($\chi^2(1, N = 120) = 3.80$, $p < .05$).

In addition to the redemption rate, we analyzed two additional variables as indicators of consumers' motivation: First, compared with customers who received the uniform velocity card (M = 3.20 days), those who received the variable velocity card were quicker to come back after they received the card (M = .83 days; $t(36) = 3.63$, $p < .01$), an indication that they were more motivated to initiate the pursuit of the goal. In addition, we found that customers in the variable velocity condition took less time to complete all necessary purchases for redemption (M = 16.78 days) than those in the uniform velocity condition (M = 24.80 days; $t(36) = 2.37$, $p < .05$). Notably, after customers completed all purchases, the time it took for them to come back to redeem the reward did not differ between the variable velocity (M = 2.78 days) and the uniform velocity (M = 3.73 days) conditions ($t(36) = .63$, n.s.), further indicating that what motivated customers in the variable velocity condition was the goal to reach the end point, rather than their inherent preference for the coffee.

In summary, the results of Study 5 further confirmed our hypothesis in a real-world marketing context and changed real consumers' purchase frequencies by redesigning the reward structure of a loyalty program. We found that a loyalty program with a variable velocity structure that addressed customers' different concerns at initial versus advanced stages of goal pursuit was more effective in motivating repeated purchases.

GENERAL DISCUSSION

Because people have different concerns at various stages of goal pursuit, they interpret their rate of progress toward the end point differently to address their concerns about either goal attainability ("Can I get there?") or the time frame of goal attainment ("When will I get there?"). We found that though a high velocity in progressing confirms that one can attain the goal and motivates further pursuit when one's initial progress level is low and goal attainability is uncertain, a low velocity in progressing suggests that extra effort is necessary to ensure a speedy attainment and motivates further pursuit when one has accumulated sufficient progress and the goal attainability is relatively secured.

The results of five studies provided consistent support for the hypothesized dynamics. Using a public charity goal context, in Study 1, we showed that when the progress level on volunteer recruitment was low, a high (vs. low) velocity of recruitment elicited more contributions; however, when the progress level on reaching the campaign goal was high, a low (vs. high) velocity motivated more committed help. In Study 2, we directly measured people's concerns at different stages of goal pursuit and confirmed that a high (vs. low) velocity motivated effort in initial stages of goal pursuit by increasing the perceived attainability of the goal, and that a low (vs. high) velocity motivated effort in later stages of goal pursuit by suggesting the need for additional effort to ensure speedy attainment. In Studies 3 and 4, we directly tested the proposed mechanisms by delaying or moving up the confirmation of goal attainability and showed that it was indeed people's concerns about "Can I get there?" versus "When will I get there?" that determined the impact of momentary velocity on motivation. Finally, in Study 5, we used a real customer loyalty program to demonstrate that the point structure that allowed consumers to experience a high velocity of point accumulation in the beginning but a low velocity later on motivated more repeated purchases than the traditional point structure that awarded points at a constant speed throughout the program.

Implications for Self-Regulation Theories

Central to our model is consumers' spontaneous shift of focus from the question "Can I get there?" to "When will I get there?" as they progress toward the end point of goal pursuit. This shift has important implications for the expectancy × value models, which have frequently been adopted to explain people's motivation in goal pursuit (e.g., Olson, Roese, and Zanna 1996; Vroom 1964). Our findings suggest that the two determinants of motivation do not always play equal roles. Consistent with Zhang and Huang's (2010) findings, we suggest that goal attainability—a key aspect of expectancy (Liberman and Förster 2008)—has a stronger impact on motivation when the question "Can I get there?" is the primary concern, either because people are still far from the end point (Studies 1 and 2) or because the outcome does not completely depend on their own performance (Study 3). In these situations, a high velocity in progressing, which allows people to infer higher expectancy of goal attainment, should be more effective in increasing people's motivation.

Whereas previous findings suggest that people derive motivation primarily from the value of the goal when they are relatively certain about the goal's attainability (e.g., Zhang and Huang 2010), the current research suggests an alternative mechanism that influences motivation without altering the goal value. In our studies, we found that people's concern about the time frame of goal attainment did not affect the goal value (e.g., Study 2). Instead, a low velocity operates through an informational route and elicits motivation by suggesting a need for additional effort for a speedy goal attainment. Accordingly, whenever a speedy attainment is of little value and people are not concerned about the time frame of attainment, the information on velocity should have a minimal impact on motivation.

This research also has specific relevance for research in the classical "goal looms larger" effect on motivation (e.g., Liberman and Förster 2008). Whereas previous findings have focused on how people's relative position to goal attainment can influence their motivation, we suggest that, even holding the level of progress constant, the perception of a high or low rate of progress can independently affect their motivation by providing information that addresses their different concerns. Unlike the level of progress, the velocity of movement may increase or decrease consumers' motivation in goal pursuit, depending on whether they focus on the question "Can I get there?" or "When will I get there?"

In the current model, we also extended extant research that conceptualizes the level of progress (i.e., action system) and the velocity in progressing (i.e., rate system) as two parallel systems and treats them as two orthogonal factors. In our framework, the level of goal progress determines people's primary concerns about the pursuit. Depending on their stages in a goal pursuit, people interpret the information on velocity differently to address their active concerns. This conceptualization enabled us to manipulate the two variables independently and to identify the opposite impact of the same progress rate (low or high) at various stages of goal pursuit.

An important aspect left unexplored in this research is the variation of velocity. In our studies, participants received information only about constant velocity (low or high) and experienced no change in the rate of progress. Although some customers in Study 5 experienced some variation, this decrease happened during a relatively long period and may not have generated a noticeable impact on motivation. Prior research, however, has found that people moving along a decreasing trend of velocity (e.g., having decreasing task performance) experience a negative mood (Lawrence, Carver, and Scheier 2002), which may further influence their motivation. Further research could explore how the variations in velocity, including the magnitude and direction of the changes, can be of more informational value in addressing consumers' concerns and influencing their motivation.

Although this research demonstrated that people switch from asking "Can I get there?" to "When will I get there?" as they progress toward the end point of a goal, future investigation should further explore the spontaneous nature of this shift. For example, does spontaneity mean that people are unaware of the changes in the source of motivation? Similarly, would the spontaneous switch influence whether people actively seek different types of feedback

(positive vs. negative) in goal pursuit? Further research should address these important questions.

Implications for Marketing and Nonprofit Organizations

This research has important implications for marketers who want to increase consumer motivation in goal pursuit. For example, when designing customer loyalty programs, our findings suggest that the loyalty program will be more effective in generating repeated purchases if it is structured to address consumers' active concerns. An effective loyalty program, as we demonstrated, should allow customers to experience a relatively speedy start to signal higher attainability of the reward but a relatively slow rate of progress when they are well into the program, because a low velocity suggests a greater need for effort to ensure a speedy attainment. Similarly, to motivate purchases, marketers should consider designing separate loyalty programs for customers who ask "Can I get there?" (e.g., first-time buyers) and for those who feel relatively certain about the goal's attainability (e.g., experienced customers) and thus ask "When will I get there?" On the basis of our findings, a program that allows customers to experience a low velocity in progressing will be motivating to repeat customers, whereas a program that gives customers a sense of high velocity in progressing should be more attractive to new customers.

Furthermore, because people rely on the same information when working on a social goal as on personal goals (Koo and Fishbach 2008), this research sheds important light on how organizations can motivate people to join forces and contribute to a social cause. We suggest that the communication strategy should be tailored to the level of progress on the goal and to the public's current concerns, so that it focuses on "We *can* get there" initially but shifts to emphasize the need for additional effort so that "We *will* get there soon." Information on velocity, accordingly, should be presented in a way that addresses the corresponding concerns. For example, given the same actual donation in a given period, an organization raising funds might choose to provide information about goal progress at longer intervals initially, so that each time the public will perceive a larger increase in donations and therefore experience a higher velocity in progressing and higher perceived goal attainability. As the organization gets closer to the end point of the fund-raising campaign, feedback on progress should be given more frequently so that the public perceives less progress in donations between intervals, creating a sense of slow momentary speed and in turn eliciting greater motivation. By understanding the different concerns people have in goal pursuit and tailoring the communication strategies accordingly, social agents can be more effective in motivating greater effort investment.

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