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The Small-Area Hypothesis: Effects of Progress Monitoring on Goal Adherence

MINJUNG KOO
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This article examines a small-area hypothesis: individuals striving toward a goal end state exhibit greater motivation when their attention is directed to whichever is smaller in size—their accumulated or remaining progress. The result is that, at the beginning of goal pursuit, directing attention to accumulated progress increases goal adherence relative to directing attention to remaining progress (e.g., 20% completed is more impactful than 80% remaining). However, with closeness to the goal, directing attention to accumulated progress lessens goal adherence relative to directing attention to remaining progress (e.g., 20% remaining is more impactful than 80% completed; studies 1–2). The focus on small areas increases motivation by creating an illusion of fast progress (study 3). Therefore, when individuals wish to prolong goal pursuit and avoid reaching the goal's end state, they slow down goal adherence when their attention is directed to small areas (study 4).

Starting toward a goal can often feel easier than following through and reaching this goal's end state, as individuals with good intentions often fail to invest the time, effort, or monetary resources required to bring their goals to completion. For example, students sometimes drop out of college, and home owners may quit saving money before accumulating enough to complete renovations. In the context of consumer reward programs, consumers often sign up for a program but fail to complete all required steps to earn their reward ($\approx 75\%$ incompletions; Capizzi and Ferguson 2005). What factors then influence the motivation to bring goals to completion?

The main insight from classic and modern research on motivation is that persistence increases with the subjective proximity to goal attainment (Cheema and Bagchi 2011; Hull 1934; Kivetz, Urminsky, and Zheng 2006; Louro, Pieters, and Zeelenberg 2007; Nunes and Drèze 2006; Soman and Shi 2003; Zeigarnik 1927). The closer people are to the goal, the more resources they invest in reaching it. For ex-

ample, in the context of reward programs, consumers are more likely to make a purchase and to make it sooner if they are only a few (vs. many) purchases away from receiving the reward. The theory that underlies this effect refers to the impact of each next step toward goal completion. People prefer actions that appear more impactful and thus increase the perceived pace of progress. For example, consumers prefer reward programs in which each step is psychologically large (e.g., each purchase is worth 1,000 vs. 10 points), because larger steps appear more impactful (Cantor and Kihlstrom 1987; Carver and Scheier 1998). In the course of pursuing a goal, the impact of actions appears larger as one approaches goal completion.

Building on the notion that the perceived impact of actions underlies motivation to perform the action, we propose and explore the small-area hypothesis. According to this hypothesis, how people monitor their progress toward goal completion influences their motivation. Specifically, we distinguish between framing progress in terms of completed actions versus remaining actions to complete the goal (Koo and Fishbach 2008). We propose that at the beginning of goal pursuit, a focus on accumulated progress (e.g., 20% completed) is more motivating than a focus on remaining progress (e.g., 80% remaining). Then, toward the end of goal pursuit, a focus on remaining progress (e.g., 20% remaining) is more motivating than a focus on completed progress (e.g., 80% completed). We suggest that directing attention to small areas increases motivation because the marginal impact of each action toward goal achievement then appears relatively larger. It follows that if people wish

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to prolong the pursuit rather than finish it (e.g., a multiride train ticket, a theater series subscription, a hedonic shopping spree), the focus on small areas will slow pursuit and encourage disengagement. We explore the small-area hypothesis and test it in a series of field and lab studies that use both real and experimentally designed reward programs.

THEORETICAL BACKGROUND

The motivation to reach a goal's end state often increases as the distance to the goal decreases. Classic research refers to this phenomenon as the goal-gradient hypothesis (Brown 1948; Hull 1932; Lewin 1938; Losco and Epstein 1977; Miller 1944), and some of the modern research refers to it as the goal-looms-larger effect (Brendl and Higgins 1996; Förster, Higgins, and Idson 1998). Studies on this hypothesis (or effect) document an inverse relationship between distance from goal completion and motivation to bring goals to completion (e.g., Cheema and Bagchi 2011; Nunes and Drèze 2006). For example, Kivetz et al. (2006) measured how much consumers in a coffee-shop frequent-buyer program ("buy 10, get one free") accelerated their purchases as they progressed toward earning a reward. The closer consumers were to the reward, the shorter their interpurchase intervals became.

The literature offers several explanations for the impact of goal proximity on motivation. Work in Gestalt psychology suggests people's desires for closure underlie the motivation to reach a goal's end state (Zeigarnik 1927). Work on prospect theory explains that the marginal value of each action increases as people make progress toward a goal's end state, because of the principle of diminishing sensitivity (Heath, Larrick, and Wu 1999). According to this explanation, goal outcomes have a greater marginal value when they are closer to the reference point of the goal's end state, because the value function is steeper near this point. Yet another explanation for the impact of proximity refers to the perceived contribution of each successive action to the completion of the goal (Brendl and Higgins 1996; Förster et al. 1998). According to this explanation, the perceived contribution of each step toward goal achievement increases over the course of goal pursuit. For example, purchasing the first beverage in a "buy 10, get one free" reward program reduces the distance to the goal by 10% (1 out of 10 remaining beverages), whereas purchasing the last beverage reduces the distance by 100% (1 out of 1 remaining beverage). Because the perceived impact of each action toward goal completion increases as people get closer to it, their motivation to take the next action increases as well.

These accounts for the goal-gradient hypothesis imply that people are motivated to take actions that have greater impact, because they allow fast progress (Carver and Scheier 1998; Levin, Schneider, and Gaeth 1998; Kivetz et al. 2006). In the context of a reward program, the last actions appear to complete all of the remaining progress, and people prefer them over middle actions that complete less of the remaining actions, which they in turn prefer over beginning actions that complete an even smaller proportion of the goal. This

insight on the perceived impact of actions is further relevant for exploring motivation beyond goal proximity effects. Specifically, we rely on existing theory in exploring how the representation of goal progress in terms of completed versus remaining actions affects motivation.

THE SMALL-AREA HYPOTHESIS

We distinguish between two potential framings of a given, fixed level of goal progress: in terms of actions completed to date or of actions remaining to complete the goal. For example, consumers enrolled in a coffee-shop reward program can attend the number of purchases they have completed or the number of purchases they have to yet make to receive the free-beverage reward. Their attention to either completed or remaining progress may then influence their motivation to continue pursuing the reward goal.

We predict that individuals will express greater motivation to pursue actions when they focus on whichever is smaller in size—the area of their completed actions or of their remaining actions—because motivation increases with the perceived impact of each new step, and each new step will appear more impactful if compared to a smaller set of other steps toward the goal. That is, at the beginning of goal pursuit, when a person is far from goal attainment, attention to completed progress (small area) will be more motivating than attention to remaining progress (large area). In contrast, beyond the midpoint of goal pursuit, attention to remaining progress (small area) will increase motivation relative to attention to accumulated progress (large area).

To illustrate, consider a customer who has collected two stamps (equal to two purchases) out of 10 on her reward card. She will see a third purchase as more impactful when she considers the two completed purchases (adding 50%: another purchase to two existing ones) rather than the eight purchases remaining to get the reward (removing 12.5%: one purchase out of eight remaining ones). Conversely, if the customer has completed eight purchases, considering the remaining two will render the ninth purchase more impactful (removing 50%) than considering the existing eight (adding 12.5%). We conceptualize this effect as the small-area hypothesis because motivation is greater when people attend to the smaller area in terms of the number of either completed or remaining actions to the goal. We note that, by definition, the completed area is smaller than the remaining area when progress is low, whereas the remaining area is smaller than the completed area when progress is high (the flip is at 50%).

The small-area effect is orthogonal to the goal-gradient effect, such that both proximity to goal attainment and attention to small areas independently increase the perceived impact of an action and thereby increase motivation. Notably, what is common to both of these effects is the assumption that people perceive the impact of each step in proportional terms (e.g., making 50% of progress given the standard) rather than absolute terms (e.g., making a single unit of progress). This assumption echoes previous research on psychophysics of judgment and decision making, which

has shown that perception and preference are sensitive to relative (proportional) rather than absolute dimensions (Herrnstein and Prelec 1991; Stevens 1957).

We predict that small areas motivate people when they wish to complete their goals; therefore, the motivational impact of emphasizing a small area should be limited to goal pursuits in which completion is desirable. Indeed, the incentives to pursue a goal often depend on completing the goal, in a process captured by discrepancy theories (e.g., Carver and Scheier 1998; Locke and Latham 2002). For example, for reward programs, the benefits from the goal are tied to goal completion, such as when coffee drinkers make 10 purchases to receive a free beverage and frequent flyers fly a certain number of miles to receive a free upgrade. However, sometimes benefits are not contingent on goal completion—for example, when consumers enroll in a reward program that provides benefits “as you go.” Some membership programs are structured such that members pay a fee when they join and enjoy the benefits for a limited number of visits or purchases. This structure characterizes, for example, multiride train tickets, sport teams’ season tickets, and gift cards. Beyond membership programs, individuals often value pursuing goals more than attaining these goals, such as when they engage in hedonic shopping or having a nice meal. For these goal pursuits, completion is undesirable, and the incentives are to prolong the pursuit and enjoy the benefits. If people wish to prolong the pursuit, the small-area hypothesis predicts the opposite pattern: perception of faster progress is demotivating, and focusing on small areas will make people slow their pursuit by postponing their next step toward goal completion. For example, people might postpone the next train ride or attend a later show, walk slower to the exit in a mall, and slow down eating their meal when their attention is on a small area because these goals are enjoyable to pursue. If instead, pursuit is unpleasant (e.g., taking medicines) or the reward to goal completion is not attractive (e.g., getting a free ticket to an unattractive event), individuals might procrastinate, but small areas will not slow their pursuit beyond what large areas do.

The current research explores the small-area hypothesis in the context of reward programs (Bagchi and Li 2011; Deighton 2000; Lewis 2004; Taylor and Neslin 2005), in which higher motivation translates into a temporal dimension, including shorter interpurchase/visit times, and a quantity dimension, including more units of purchase and a higher participation rate. The manifestation of motivation depends on the type of program. For example, if a program requires discrete purchases (e.g., “buy 10 car washes, get one free”), motivated customers will make more frequent purchases. If, instead, the program requires larger purchases to achieve a goal (e.g., “spend \$100, get 10% credit”), motivation will manifest itself in more frequent as well as larger units of purchase. In addition, the rate of enrollment and how soon people enroll indicate their degree of motivation.

OVERVIEW OF RESEARCH

Four studies explore the small-area hypothesis: the notion that motivation increases when people attend whichever is less—their completed or remaining actions. We test this hypothesis in the context of using reward programs and completing experimental tasks. We examine how people’s responses to information that emphasizes their completed versus remaining progress changes with proximity to a goal end state. (Notably, we do not examine motivation at different levels of progress, but rather, motivation as a function of different emphases within each level of progress.)

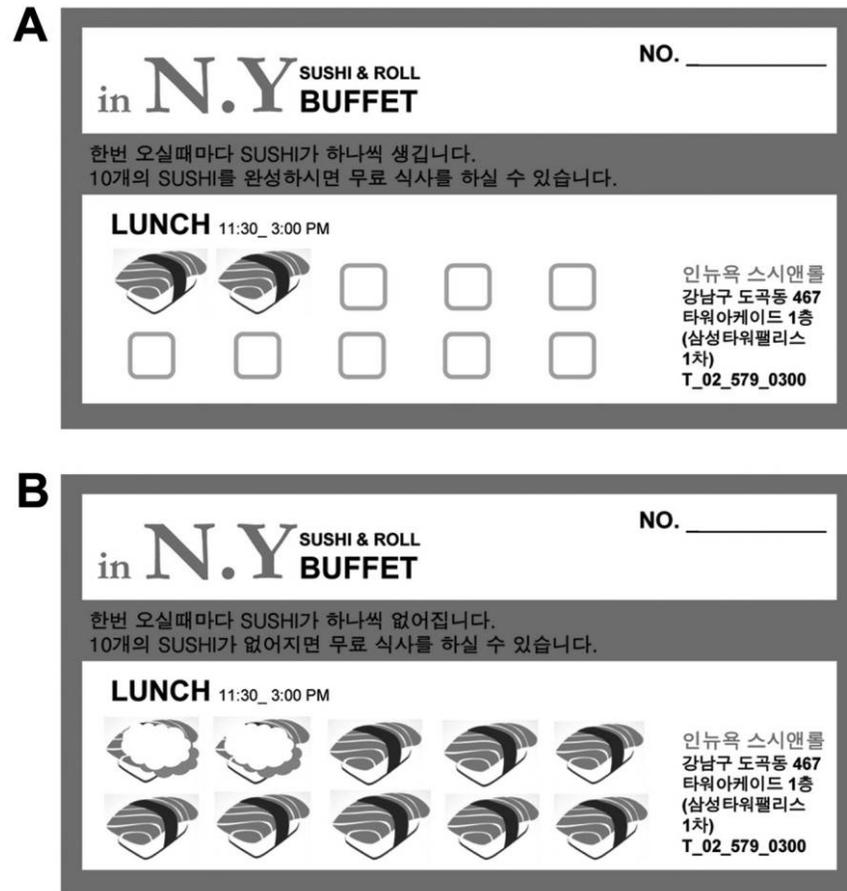
Study 1 is a field experiment that monitors consumer participation in a restaurant’s loyalty program. We test whether a reward structure that emphasizes accumulated (vs. remaining) progress increases the return rate of customers who make low progress on their first visit to the restaurant but decreases the return rate for those who make high progress on their first visit. Study 2 tests whether the impact of small areas is at both the beginning (for completed actions) and end (for remaining actions) and whether it is independent of a potential negative impact of large areas. Study 3 then tests whether purchases made with the focus on the small area appear more impactful toward completing the goal and whether this perceived impact underlies the motivational effect. Finally, study 4 tests whether people wishing to prolong the pursuit of a goal will postpone their next action if they attend to the small area. Such an inhibitory effect on goal pursuit will further confirm that perceived impact underlies the small-area hypothesis.

STUDY 1: A FIELD EXPERIMENT IN A SUSHI RESTAURANT

We conducted a field experiment in a sushi restaurant that offered a buffet lunch menu. For four months, we ran a reward program in the format of “buy 10 meals, get one free.” We manipulated attention to accumulated versus remaining progress by providing customers with a frequent buyer card on which they either received a stamp for each meal purchase (i.e., focus on accumulated progress) or had a slot removed for each meal purchase (i.e., focus on remaining progress). We operationalized the initial progress level as the number of meals customers purchased upon receiving the reward card. Because a single customer commonly paid for his or her entire party, the size of the party determined the level of progress on the card each customer received. We measured whether and how soon customers returned to the restaurant and the number of meals they purchased on their second visit. We predicted that across these measures, the greater the progress customers made on their first visit (i.e., the more meals they purchased), the greater the impact the card that emphasized remaining (vs. accumulated) purchases would have on their subsequent behavior.

FIGURE 1

STUDY 1: (A) REWARD CARD THAT EMPHASIZES ACCUMULATED PROGRESS
(B) REWARD CARD THAT EMPHASIZES REMAINING PROGRESS



NOTE.—Color version available as an online enhancement.

Method

Participants in this study were customers at a sushi restaurant in a major metropolitan area of South Korea who were invited to join a reward program. This restaurant is located in a residential/business area and attracts a mixed crowd of businesspeople dining with colleagues, as well as families and friends. It has relatively high traffic and few regular customers. Over a period of 4 months, we issued 907 reward cards, corresponding to 907 participants, though some customers may have redeemed one card and then received another, leading them to participate in the study more than once. The study employed a 2 (focus: accumulated vs. remaining progress) between-subjects design, with one naturalistic-observation variable: level of goal progress. The restaurant served a lunch sushi buffet that charged 20,000 won (US\$18) per person. We offered paying customers free

enrollment in a reward program that offered a free lunch meal after they purchased 10 lunch meals. We offered the reward program only for lunch buffet meals. The restaurant had no history of promotions.

Participants received a frequent-buyer card similar to the one displayed in figure 1. We randomly assigned participants to one of two conditions. In the accumulated-progress condition, participants received a card to which a sushi-shaped stamp was added from left to right for each purchase. Thus, we directed their visual attention to the number of completed stamps. The text on the card indicated that customers would get a sushi stamp per every lunch meal and would be eligible for a free lunch meal once they received 10 stamps. In the remaining-progress condition, participants received a card on which we had printed 10 sushi pictures, and we used a punch to remove one picture from left to right for each

purchase. Thus, we directed their visual attention to the number of remaining slots. The instructions on the card stated that a slot would be removed per every lunch meal and that customers would be eligible for a free lunch meal after all 10 sushi pictures were removed. Each card had a number that we used to track participants' usage.

To assess the level of initial progress, we recorded the number of purchases made at the time each reward card was issued. Because a single customer often paid for several dinners, we were able to obtain natural variations in the level of progress customers achieved on their first visit. We did not enroll in our program customers who paid for more than 10 dinners. We offered the latter a coupon for a free meal on their next visit and did not include them in our data set.

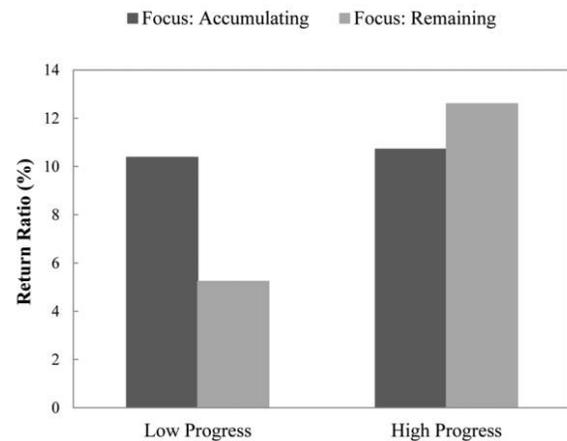
To assess motivation to participate in the reward program, we collected three measures. First, we recorded the return ratio: the likelihood of returning to the restaurant with the card. Second, we recorded intervisit time: how soon participants returned with their cards (the number of days between the card issuance date and the return date). Because the reward program required discrete purchases, more frequent activity indicated increased motivation (Kivetz et al. 2006; Uncles, Ehrenberg, and Hammond 1995). Finally, we measured the number of purchases participants made on their second visit, which corresponded to the number of people they brought with them and for whom they paid.

Results and Discussion

We first analyzed participants' return ratio. During the 4-month period, 8.7% of the participants (79 out of 907) returned to the restaurant to use their cards. To test our hypothesis, we used a logistic regression with three independent variables: focus (accumulated: 1; remaining: -1), progress level (the number of initial purchases; $M = 3.04$, $SD = 1.76$, range = 8, see table 1), and the interaction between two variables. The dependent variable received a value of 1 if participants returned and 0 if they did not. The regression yielded a main effect for progress level ($b = .13$, $z = 2.21$, $p < .05$), indicating that those who attained a higher level of progress were more likely to use the card again. This effect reflects the goal-gradient effect: those who made more purchases on the first visit were closer to the reward of the free meal and thus more likely to come back. Notably, this effect is also partially normative, as those who made more purchases had a greater monetary incentive to use the card again since they needed to invest less money to receive a

FIGURE 2

STUDY 1: RETURN RATIO AS A FUNCTION OF LEVEL OF PROGRESS AND FOCUS ON ACCUMULATED VERSUS REMAINING PURCHASES TO RECEIVE A REWARD



NOTE.—Following Aiken and West (1991), we present value predicted by the regression model to obtain at ± 1 standard deviation from the means.

free meal. The regression also yielded a main effect for focus ($b = .49$, $z = 2.09$, $p < .05$). Participants were more likely to come back with the card that highlighted remaining (vs. accumulated) purchases, possibly because attention to accumulated purchases encourages resting on one's laurels (Amir and Ariely 2008).

More importantly, the regression yielded the predicted focus \times progress-level interaction ($b = -.12$, $z = -1.97$, $p < .05$; see fig. 2) that qualified the main effect of focus. It indicates that the more progress participants made on their first visit, the more likely they were to return if their card emphasized remaining purchases compared with completed purchases. Conversely, the less progress they made, the more likely they were to return with the card emphasizing completed compared with remaining purchases. This pattern supports the small-area hypothesis because the higher the initial progress was, the smaller the remaining-purchases area was, and the lower the initial progress was, the smaller the completed-purchases area was.

Next, we tested the impact of our variables on how

TABLE 1

DISTRIBUTION OF THE NUMBER OF INITIAL PURCHASES (I.E., PROGRESS) IN STUDY 1

Focus	Number of initial purchases									Total
	1	2	3	4	5	6	7	8	9	
Accumulated progress	33	199	96	44	29	18	12	10	8	450
Remaining progress	33	215	98	47	19	22	14	6	3	457

quickly participants returned. We analyzed the number of days between the card issuance and the second purchase (intervisit time: $M = 31$ days, $SD = 27.14$ days, range = 99 days). We used the Tobit model (Tobin 1958), which is a special case of a censored regression model. This model accounts for the effect of a majority of participants who did not return and provides a valid treatment for the measure that is continuous but truncated at the higher end (study period, 123 days). Hence, the model included all participants, with an assignment of a dummy variable of 123 days to those who did not return. The independent variables included focus (accumulated vs. remaining progress), progress level, and the interaction between two variables. The results displayed a pattern similar to the return ratio. The model yielded an effect for progress level ($b = -11.50$, $t = -2.01$, $p < .05$), suggesting those who made higher levels of progress returned more quickly (consistent with the goal-gradient effect). The regression also yielded an effect for focus ($b = -47.02$, $t = -2.18$, $p < .05$) and the predicted focus \times progress-level interaction ($b = 12.30$, $t = 2.14$, $p < .05$; see fig. 3). This interaction indicates that the more progress participants made on their first visit, the sooner they returned if their card emphasized remaining (vs. completed) purchases. Conversely, the less progress they made, the sooner they returned if their card emphasized completed (vs. remaining) purchases.

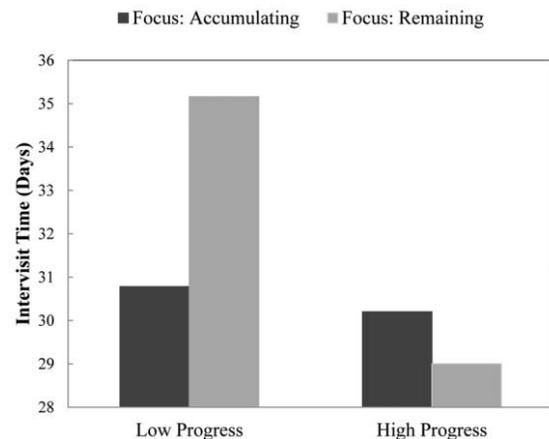
Finally, we obtained a similar pattern for the number of purchases participants made on their follow-up visits. Using the Tobit model with truncation at the lower end (purchase = 0), we found main effects for progress level ($b = .38$, $t = 2.03$, $p < .05$) and focus ($b = 1.57$, $t = 2.23$, $p < .05$). As predicted, the model yielded a focus \times progress-level interaction ($b = -.38$, $t = -2.05$, $p < .05$). This interaction indicates that the more progress participants made on their first visit, the more purchases they made on their following visit (e.g., they brought more people to dine with them) if their card emphasized remaining (vs. completed) purchases.

Taken together, these findings provide an initial field demonstration of the small-area hypothesis. Though participation in the program was likely partially a function of individual differences in reward sensitivity, we find that participants who initially made a higher level of progress were more likely to return to the restaurant and accelerate their purchases temporally as well as quantitatively when their attention was directed to their remaining (small area) rather than completed progress (large area). Conversely, low-progress participants expressed greater motivation to participate in the reward program when their attention was directed to their accumulated (small area) rather than remaining progress (large area). Because the initial level of progress was a continuous variable, these findings further suggest that as small areas increase gradually, the incremental motivational gain decreases.

One limitation of study 1 is that it cannot separate the effect of completed and remaining actions. Theoretically, the focus on remaining progress might therefore be the sole driver of our effect, particularly because we do not observe

FIGURE 3

STUDY 1: INTERVISIT TIME AS A FUNCTION OF LEVEL OF PROGRESS AND FOCUS ON ACCUMULATED VERSUS REMAINING PURCHASES TO RECEIVE A REWARD



NOTE.—Following Aiken and West (1991), we present value predicted by the regression model to obtain at ± 1 standard deviation from the means.

a difference between low and high levels of progress when participants focused on completed actions (see figs. 2 and 3). We believe this null effect reflects the sum influence of two opposing forces: a motivational increase with proximity to the end state (goal gradient) and a motivational decrease when moving from a small to a large area. For example, in the comparison between 20% versus 80% completed actions, 80% to date is more motivating by end-state proximity (goal-gradient effect), and 20% is more motivating by the small-area hypothesis. These influences may have canceled each other out. To directly demonstrate the impact of both completed and remaining actions and to further separate the motivating effect of small areas from the demotivating effect of large areas, in study 2, we added a control, neutral-focus condition, which allowed us to test for the effects of both completed and remaining progress.

STUDY 2: SMALL AREAS INCREASE MOTIVATION AT THE BEGINNING AND END OF GOAL PURSUIT

Moving from the field to the lab in study 2 provided a better experimental control. Accordingly, in this study, we randomly allocated participants to low versus high progress. We further held constant the amount of actual work participants completed while we varied the proportion of the goal this work presumably attained, a procedure that enabled us to control for the possibility that different levels of prior resource investment influenced participants' motivation to

pursue the goal. Finally, we added a control, no-focus condition, which enabled us to test the motivational boost of small areas for both completed and remaining actions and independently of a potential negative motivational impact of large areas.

Specifically, participants completed eight trials of a lexical task before they learned (1) they had completed a small/large portion of the task (accumulated-progress conditions), (2) they had a small/large portion of the task ahead of them (remaining-progress conditions), or (3) their current position at the task (control condition). At that point, they all had a break during which they completed an easy numerical task. We assessed their motivation to return to the main lexical task by the speed with which participants completed the “break” task, as shorter breaks allowed timely completion of the main task, which was required to earn a bonus (see Custers and Aarts [2005] for a similar procedure). We predicted that when the perceived progress was low, attention to completed progress (smaller area) would increase participants’ speed (i.e., shorter breaks) more than attention to remaining progress (large area) and the control condition. Conversely, when the perceived progress was high, attention to remaining progress (smaller area) would increase participants’ speed more than attention to completed progress (large area) and the control condition.

Method

One hundred and thirty-nine college students (74 females, 65 males) in Korea took part in the study in return for monetary compensation. This study employed a 3 (focus: accumulated progress vs. control vs. remaining progress) \times 2 (progress: low vs. high) between-subjects design. Participants completed a study titled “word completion task” in individual sessions on desktop computers. The task comprised several trials. In each trial, participants had to complete a Korean noun based on its initial consonants (this task is much harder in Korean than English). They had to provide one (out of several) possible answers before they could proceed to the next trial. Participants learned that they could earn a bonus for successful and timely task completion.

Participants further learned that at one point during the task, they would get a short break, during which they would complete a simple task, presumably to clear their working memory. The real purpose of the break task was to measure participants’ eagerness to return and complete their main task. Because participants could earn a performance bonus for completing the main task within a given time, they had an incentive to finish the break task as quickly as possible and resume the main task. We purposely left the amount of time allowed and the details on the bonus vague. In order to manipulate task progress, we also did not specify the length of the task (number of trials).

Once participants completed eight trials, they learned about their position in the task. This information manipulated both perceived progress and focus. First, to manipulate perceived progress, the experimental program notified par-

ticipants that they had completed either 20% of the task (low progress) or 80% of the task (high progress). The presentation of this progress information manipulated the focus on a small versus large area. Specifically, participants in the completed-progress condition read that they had “completed [20% / 80%] of the task,” whereas those in the remaining-progress condition read that they had “[80% / 20%] left to complete the task.” A chart that consisted of a bar containing an arrow accompanied the verbal descriptions. The bar represented the amount of work necessary to attain the goal (100%), and the arrow represented the portion of the task that the participant had completed or that remained. Specifically, in the completed-progress condition, the arrow was colored from the starting point (0%) to the portion of the task completed (either 20% or 80%). In the remaining-progress condition, the arrow was colored from the present portion to the end point (either 80% or 20%). Participants in the control condition learned their position by noticing it on a chart containing a horizontal line and 10 tick marks. A vertical arrow and a text box (“Now, you are here”) pointed to their position in the trial: either second or eighth (see fig. 4). This control condition enabled us to maintain progress information while eliminating the emphasis on completed or remaining actions (see Koo and Fishbach 2010).

To test the effectiveness of the focus manipulation, an experimenter, who was watching the participants unobtrusively through a partition, interrupted the study immediately after participants learned their position to ask the participants, “Where are you now on the trials?” We coded participants’ responses as reflecting a focus on (a) completed progress (e.g., “I’ve completed [20% / 80%]”), (b) remaining progress (e.g., “There are [80% / 20%] left”), or (c) relative position (e.g., “[I am at the 2nd/8th position]”).

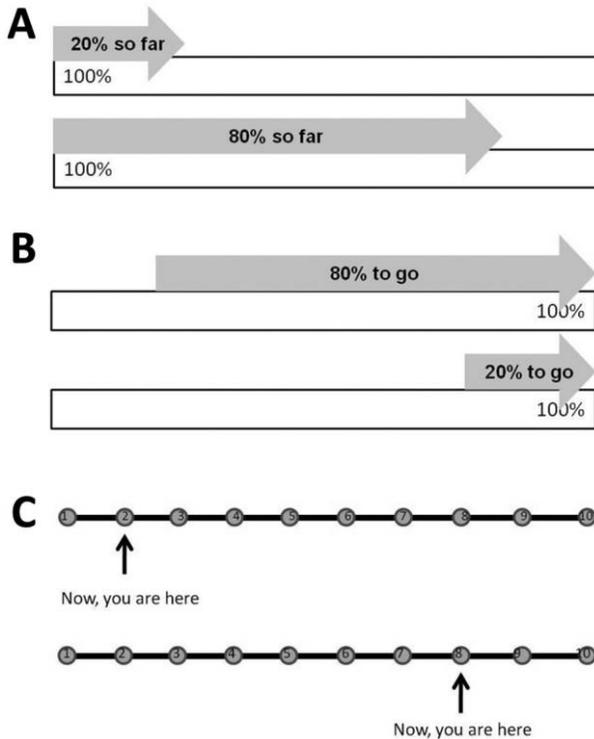
Next, the experimental program introduced a “break” task, presumably to clear participants’ memory. Participants had to type a sequence of numbers (1–9) in a loop until they completed a 9×10 matrix. The purpose of this task was to measure participants’ motivation to return to the main task, in order to successfully finish it on time. Accordingly, our main dependent variable was the speed of completing the number-entering task. Because participants could return to the main task as soon as they completed the number-entering task, we could infer their motivation to work on their main goal by the speed at which they finished the number-entering task. After completing the number-entering task, participants learned the experiment was over and were thoroughly debriefed.

Results and Discussions

The total time participants took to complete the lexical task (eight trials) was similar across conditions ($M = 6.18$ minutes, $SD = 3.94$ minutes) and was unaffected by the manipulations, which we introduced after task completion. To test the effectiveness of our focus manipulation, we analyzed participants’ progress reports as a function of focus (accumulated vs. control vs. remaining). As expected, a mul-

FIGURE 4

STUDY 2: (A) FEEDBACK ON COMPLETED PROGRESS
 (B) FEEDBACK ON REMAINING PROGRESS
 (C) NEUTRAL PROGRESS FEEDBACK



NOTE.—Color version available as an online enhancement.

tinomial logistic regression yielded the predicted effect of focus ($\chi^2(4, N = 139) = 202.98, p < .001$); 87.5% of those in the accumulated condition reported their completed progress, compared to 2.2% of the control and 14.8% in the remaining conditions who reported completed progress ($\chi^2(2, N = 139) = 86.05, p < .001$). In addition, 93.3% of those in the control condition reported their relative positions, compared to no one (0%) in the accumulated and remaining conditions ($\chi^2(2, N = 139) = 125.61, p < .001$). Finally, 85.1% of those in the remaining condition reported their remaining progress, compared to 4.5% in the control and 12.5% in the accumulated conditions ($\chi^2(2, N = 139) = 82.31, p < .001$). These results confirm that participants noticed their focus conditions.

To test the main hypothesis, we analyzed how long participants took to complete the number-entering (i.e., break) task. A focus \times progress ANOVA on this measure yielded a marginal effect of progress ($F(1, 133) = 2.72, p = .10$). That is, consistent with a goal-gradient effect, those in the high-progress condition were faster ($M = 49.50$ seconds, $SD = 18.74$ seconds) than those in the low-progress con-

dition ($M = 54.70$ seconds, $SD = 21.91$ seconds). We found no main effect of focus ($F(2, 133) = 1.53, p > .20$). In support of the hypothesis, the ANOVA yielded the predicted focus \times progress interaction ($F(2, 133) = 7.42, p < .01$; see fig. 5). Planned contrasts revealed that when progress was low, those who received feedback that emphasized completed progress (small area) were faster ($M = 43.23$ seconds, $SD = 10.11$ seconds) than those in the remaining-progress condition (large area; $M = 64.72$ seconds, $SD = 20.86$ seconds; $t(133) = 3.42, p < .001$) or control condition ($M = 55.78$ seconds, $SD = 17.73$ seconds; $t(133) = 2.13, p < .05$). The difference between remaining progress (large area; $M = 64.72$ seconds) and control condition ($M = 55.78$ seconds) did not reach significance ($t(133) = 1.52, p = .13$).

In contrast, when progress was high, participants completed the task faster in the remaining-progress condition (small area; $M = 41.89$ seconds, $SD = 10.15$ seconds) than in the completed-progress (large area; $M = 52.36$ seconds, $SD = 18.51$ seconds; $t(133) = 2.01, p < .05$) and control conditions ($M = 52.96$ seconds, $SD = 23.24$ seconds; $t(133) = 2.06, p < .05$). Completion times were similar in the completed-progress and control conditions ($t < 1$).

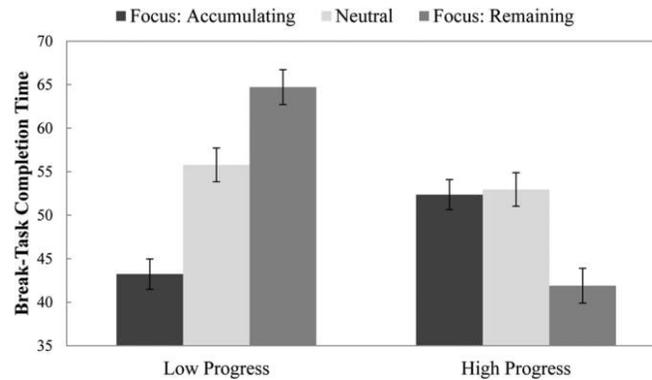
We found that attending to the area that was smaller in size increased the motivation to work on a goal. The motivational impact of small areas occurred both at 20% completed actions and at 20% remaining actions, that is, at the beginning and end of goal pursuit, and it was orthogonal to the (marginal) effect of level of progress on increased motivation: the goal-gradient effect. Moreover, a motivational deficit of large areas did not drive the motivational impact of small areas. That is, the focus on large areas did not decrease motivation compared with a control condition, but the focus on small areas increased motivation compared with control.

These findings further rule out the possibility that attention to remaining actions solely drives the small-area effect. If attention to remaining action is the sole cause of the effect, it is further possible that when individuals are too far from their goal, attention to remaining actions actually decreases motivation, and, by diverting attention away from the remaining actions, we were able to attenuate this negative impact. In contrast with the remaining-actions-solely alternative, we find a unique effect for attention to completed actions (compared with control), which could not be triggered by diverting attention away from remaining actions.

Similar to study 1, which assessed intervisit times, study 2 assessed the speed of performing an interim task. Taken together, studies 1 and 2 find that the emphasis on small areas motivates individuals to resume a focal task and disengage with other, competing tasks (i.e., attend alternative restaurants in study 1 and attending the filler task in study 2). Indeed, in consumer contexts, pursuing one goal often involves giving up another goal, and our findings suggest that one way to encourage individuals to overcome distractions is by framing progress on a main goal in terms of small areas.

FIGURE 5

STUDY 2: EAGERNESS TO RETURN TO THE MAIN TASK (INDICATED BY TIME FOR COMPLETING A BREAK TASK) AS A FUNCTION OF LEVEL OF PROGRESS AND FOCUS



NOTE.—Lower numbers indicate greater motivation.

In our next study, we further tested the underlying mechanism of the small-area hypothesis: whether small areas create a perception of faster progress. Our theory posits that small areas increase motivation because people perceive an additional step toward the end state as more impactful when they compare it to a smaller number of actions. A focus on small areas would make people believe they are making faster progress than a focus on large areas would, which in turn increases their motivation.

STUDY 3: THE MEDIATIONAL ROLE OF PERCEIVED PACE OF PROGRESS

To examine whether emphasizing smaller areas creates the perception of faster progress, which in turn increases motivation to complete the goal, we provided participants with a frequent-buyer card that manipulated the focus on completed versus remaining purchases. We further manipulated the preexisting level of goal progress by giving participants artificial advancement toward reaching a goal (Kivetz et al. 2006; Nunes and Drèze 2006). We then measured participants' expected pace of progress and intention to participate in the reward program. We predicted that when the endowed progress was low, the focus on accumulated progress (smaller area) would increase perceived goal progress and goal adherence more than the focus on remaining progress. Conversely, when the endowed progress was high, the impact of the focus on remaining progress (smaller area) would be greater than the impact of the focus on completed progress.

Method

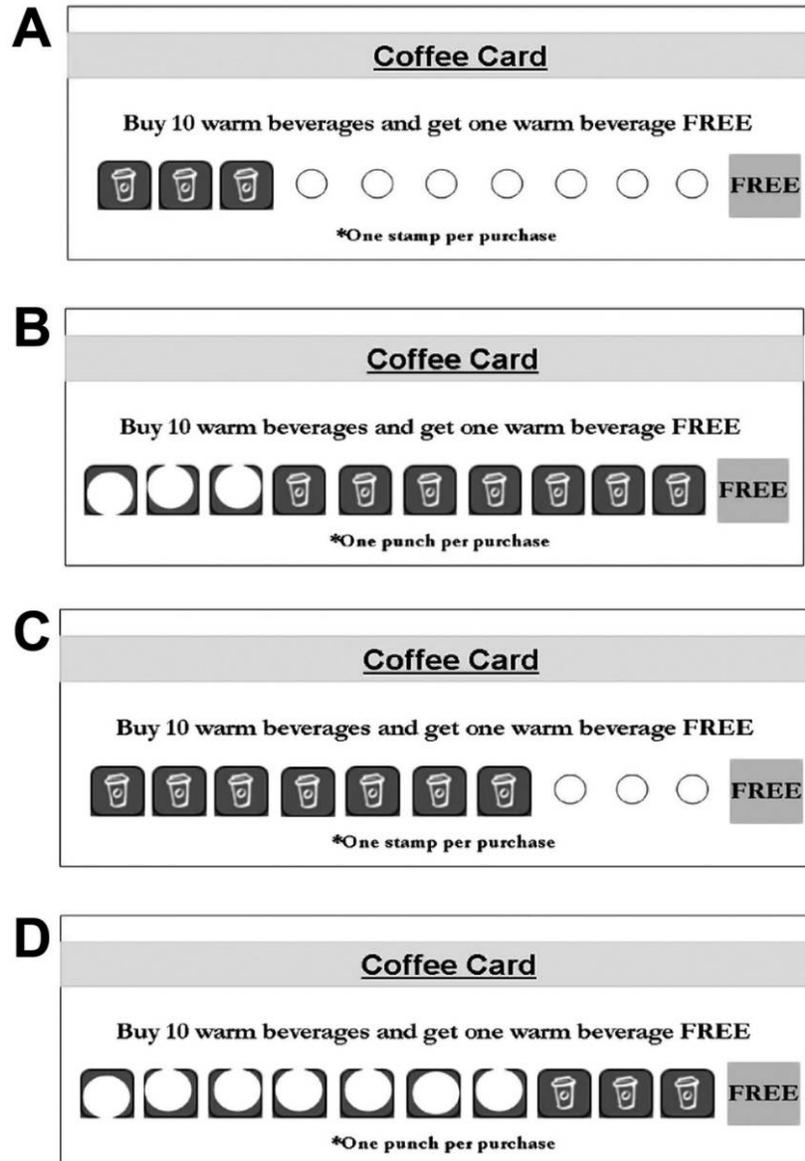
Seventy-four participants (31 females, 43 males) at the University of Chicago took part in the study in return for monetary compensation. This study employed a 2 (focus: accumulated vs. remaining progress) \times 2 (progress: low vs. high) between-subjects design. Participants read that a new coffee shop on campus was offering a reward program. As part of the program, customers would receive a frequent coffee card that granted them one free hot beverage for purchasing 10 hot beverages.

Participants then assumed that a friend who recently graduated had given them his or her partially completed coffee card, and they received an actual card (see fig. 6). In the accumulated-progress condition, several slots were filled out with coffee-cup-shaped stamps, representing the purchases presumably already made, and the rest were empty; thus, participants' visual attention was directed to the completed slots. Participants read that they would receive one stamp per purchase. In the remaining-progress condition, all slots were originally filled with coffee-cup-shaped images, and several slots were punched out from the left to right, representing the purchases presumably already made; thus, participants' attention was directed to the printed slots remaining to receive the reward. Participants read that one slot would be removed per purchase.

As a manipulation of the existing level of progress, the card included either three or seven earned purchases. Specifically, in the low-progress condition, the card had three slots filled or seven slots remaining. In the high-progress condition, the card had seven slots filled or three slots remaining.

FIGURE 6

STUDY 3: (A) LOW PROGRESS, FOCUS ON ACCUMULATED PROGRESS; (B) LOW PROGRESS, FOCUS ON REMAINING PROGRESS; (C) HIGH PROGRESS, FOCUS ON ACCUMULATED PROGRESS; (D) HIGH PROGRESS, FOCUS ON REMAINING PROGRESS



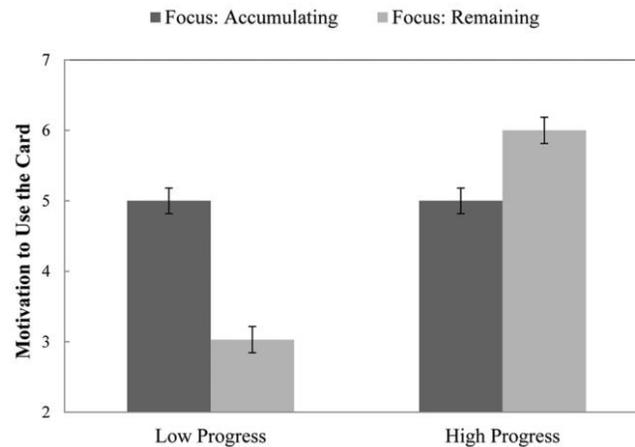
NOTE.—Color version available as an online enhancement.

For our dependent variables, we measured intention to enroll in the program and the expected pace of progress. Participants indicated their intention to use their reward cards to participate in the program (“Would you use this reward card?” 7-point scale: 1 = not likely, 7 = certainly) and indicated their expected pace of progress (“To what

extent does filling one slot [in the accumulated-progress condition] or removing one slot [in the remaining-progress condition] make you feel that you are making progress toward getting one free beverage?” 7-point scale: 1 = not at all, 7 = very much). Finally, participants indicated how

FIGURE 7

STUDY 3: MOTIVATION AS A FUNCTION OF LEVEL OF PROGRESS AND FOCUS ON ACCUMULATED VERSUS REMAINING PURCHASES TO RECEIVE A REWARD



often they drank hot beverages (5-point scale: 1 = never, 5 = all the time).

Results and Discussions

Manipulation Check. To test the effectiveness of the focus manipulation, another group of participants ($N = 22$; nine women) completed a similar focus-manipulation survey as did the main-study participants, with the level of progress held constant at the midpoint (i.e., five completed vs. five remaining slots). Then they indicated their intention to use their reward cards (1 = not likely, 7 = certainly) and evaluated the reward program on three scales (1 = dislike very much, very unfavorable, negative; 7 = like very much, very favorable, positive; $\alpha = .66$). Upon completion of the survey, to solicit participants' perception of the card, an experimenter asked them to describe the progress level of the reward card they viewed ("Could you describe the coffee card that you saw? In terms of the progress level, which part jumped out at you first?"). The experimenter recorded the progress reports the participants provided, and a coder later classified the reports into three categories: completed progress (e.g., "5 slots were completed," "5 were already filled"), remaining progress (e.g., "There are 5 remaining," "There are still 5 left"), and both (e.g., "5 slots were punched away and there are still 5 left," "5 need to be filled and 5 already filled up").

As expected, a multinomial logistic regression yielded the predicted effect of focus ($\chi^2(2, N = 22) = 21.02, p < .001$). Ninety-one percent of those in the accumulated condition reported the completed progress, compared with 9% in the remaining condition who reported completed progress. Eighty-two percent of those in the remaining condition reported remaining progress, compared with 0% (i.e., no one) in the accumulated condition who reported remaining pro-

gress. Nine percent in the accumulated condition and 9% in the remaining condition reported both completed and remaining progress. Participants' intention to use the card did not differ between the two conditions ($M_{\text{accum.}} = 5.55, SD = 1.04$ vs. $M_{\text{remain.}} = 5.63, SD = 1.29; t < 1$). In addition, the focus manipulation did not affect the evaluations of the reward program ($M_{\text{accum.}} = 5.03, SD = .71$ vs. $M_{\text{remain.}} = 4.76, SD = .84; t < 1$).

Back to the main-study participants: a focus \times progress ANOVA on the frequency of drinking beverages did not yield any effect or interaction (all $F < 1$), indicating that participants across conditions did not differ in terms of their consumption habits.

Hypotheses Testing. A focus \times progress ANOVA of participants' intention to use the card yielded a main effect for progress ($F(1, 70) = 15.30, p < .001$), indicating greater motivation to use the card when preexisting progress was high ($M = 5.49, SD = 1.52$) than when it was low ($M = 3.99, SD = 2.05$). We found no main effect for focus ($F(1, 70) = 1.64, p > .20$). In support of the hypothesis, the ANOVA yielded the predicted focus \times progress interaction ($F(1, 70) = 15.30, p < .001$; see fig. 7). Planned contrasts revealed that when progress was low, participants' intentions to use the card were higher when they focused on accumulated progress ($M = 5.00, SD = 1.80$), which is smaller in size, than when they focused on remaining progress ($M = 3.03, SD = 1.82; t(70) = 3.57, p < .01$). However, when progress was high, participants' intentions to use the card were higher when they focused on remaining progress ($M = 6.00, SD = 1.15$), which was smaller in size, than when they focused on accumulated progress ($M = 5.00, SD = 1.69; t(70) = -1.97, p < .05$). Attending the area that was smaller in size, either completed or remaining progress, ap-

pears to have increased motivation to participate in the reward program.

Our theory posits that the focus on small areas increased enrollment in the reward program by creating an illusion of making progress more quickly. An ANOVA of expected pace of progress yielded a main effect for progress ($F(1, 70) = 8.67, p < .01$) and no main effect for focus ($F < 1$). That is, participants in the high-progress condition indicated they would make greater progress with their next purchase ($M = 4.87, SD = 1.54$) than did those in the low-progress condition ($M = 3.84, SD = 1.62$). This result is consistent with research on the goal-looms-larger effect, which suggests the perceived contribution of each step toward goal achievement increases as people get closer to the goal end state (e.g., Brendl and Higgins 1996; Förster et al. 1998). More important, this ANOVA yielded the predicted focus \times progress interaction ($F(1, 70) = 9.75, p < .01$). When progress was low, participants who focused on accumulated progress expected to make greater progress in their next purchase ($M = 4.41, SD = 1.66$) than did those who focused on remaining progress ($M = 3.31, SD = 1.40; t(70) = 2.17, p < .05$). However, when progress was high, those who focused on remaining progress expected to make greater progress ($M = 5.42, SD = 1.35$) than did those who focused on accumulated progress ($M = 4.35, SD = 1.57; t(70) = -2.28, p < .05$).

We hypothesized the expected pace of progress mediates the effect of small areas (i.e., the interactive effect of focus and progress) on motivation to participate in the program. To test this hypothesis, we conducted mediated moderation based on Muller, Judd, and Yzerbyt (2005). As we predicted, the analysis revealed that the interaction between focus and progress affected both the motivation to use the reward card ($\beta = .39, t(70) = 3.91, p < .001$) and the expected progress ($\beta = .33, t(70) = 3.12, p < .01$). In addition, expected progress affected the motivation to use the card ($\beta = .60, t(72) = 6.30, p < .001$). In a regression, which included focus, progress, the interaction between focus and progress, expected progress, and the interaction between expected progress and progress as predictors of motivation to use the reward card (eq. 6 from Muller et al. 2005), the effect of expected progress remained similar ($\beta = .44, t(68) = 4.38, p < .001$), whereas the effect of the interaction between focus and progress (i.e., the small-area effect) was weaker ($\beta = .24, t(68) = 2.55, p = .013$; Sobel $z = 2.55, p < .01$). Thus, the expected pace of goal progress partially mediated the effect of small areas on the motivation to participate in the reward program.

Taken together, the findings of study 3 extend our previous findings while showing that the focus on small areas increases investment in a reward program by creating an illusion of faster progress. When the perceived impact of action increases, the motivation to take this action follows.

The studies so far have investigated the small-area hypothesis when individuals pursue a goal for which completion is desirable, that is, when individuals earn a reward only upon completion of all required actions. But if the

impact of small areas reflects individuals' desires to complete their goals, this impact should be different for pursuits people would like to prolong, that is, when pursuing the activity is more desirable than completing the activity. For example, goal completion is undesirable for reward programs that provide benefits "as you go," such as gift cards or coupons. According to the small-area hypothesis, when people wish to prolong the pursuit of such goals, a reverse pattern will emerge: the focus on smaller areas will undermine motivation to take subsequent actions, because a perception of faster progress will bring the goal to an end.

STUDY 4: SMALL AREAS DECREASE ENGAGEMENT WHEN ENDING A GOAL IS UNDESIRABLE

This study tests whether the effect of emphasizing small areas reverses when people wish to prolong rather than complete the pursuit of a goal. To this aim, we compared two types of reward programs at a local bagel store: a regular reward program in which benefits are earned upon goal completion ("buy 10 sandwiches, get one free") and a prepaid-card program that provides benefits for a limited number of purchases ("get 10 free bagel sandwiches"). Similar to study 3, within these two programs, we manipulated the focus on completed versus remaining purchases and the level of endowed progress and assessed participants' eagerness to start their participation in the program. We predicted that for the reward program that requires completion, emphasizing whichever was smaller (completed or remaining progress), depending on the level of endowed progress, would increase eagerness to start participating in the program. However, for the prepaid-card program, when one wishes to prolong the pursuit, we predicted that emphasizing small areas would decrease eagerness to start participating in the program. Finding a reverse impact of small areas when goal completion is undesirable not only will highlight the difference between goals people wish to pursue versus achieve but will further confirm that small areas increase motivation by creating an illusion of faster progress toward completion.

Method

One hundred and forty-one participants (60 females, 81 males) at the University of Chicago campus took part in the study in exchange for monetary compensation. This study employed a 2 (program type: reward card vs. prepaid card) \times 2 (focus: accumulated vs. remaining progress) \times 2 (progress: low vs. high) between-subjects design.

We presented the study as part of the campus bagel store's new initiative to offer a promotion program for which they solicited customers' opinions. The first part of the survey described the promotion program, which imposed either a weak or a strong incentive to complete it. In the reward-card condition (completion was desirable), participants learned about a new program that offered a free bagel sandwich after the purchase of 10 sandwiches. In the prepaid-card condition

(completion is undesirable), participants read about a new program in which customers could buy a \$30 card that provided 10 bagel sandwiches, which were priced at \$5–\$7 at the store.

The next part of the survey asked participants to assume someone who had graduated that spring had left them his or her reward card (hence, they could earn a free reward after fewer purchases) or prepaid card (hence, they could get some free sandwiches). They received an actual card through which we manipulated the focus on accumulated versus remaining progress. In the accumulated-progress condition, participants expected to receive a bagel-store logo stamp for each purchase (up to 10); thus, their visual attention was on the completed slots. In the remaining-progress condition, the card was printed with 10 bagel-store logo slots, and participants expected to receive a sticker that would mask the printed slot for each purchase; thus, their attention was on the remaining (bagel-store logo) printed slots. This masking procedure was conceptually similar to but operationally different from the punching-holes procedure we used in studies 1 and 3. It enabled us to generalize our findings across different manipulations of visual attention.

To manipulate the level of endowed progress, the low-progress condition reflected three existing purchases, and the high-progress condition reflected seven. To measure motivation to participate in the program, participants answered the following question: “How much time would it take you to start using the card?” (7-point scale: 1 = I will not use it for a while, 7 = I will start using it immediately). The promptness of using the card is an appropriate measure of motivation in this context because mere intention to use the card (which we measured in study 3) should be a ceiling level for the prepaid-card condition, which participants presumably received as a gift. Finally, participants indicated how often they bought bagel sandwiches at the store (5-point scale: 1 = never, 5 = all the time).

Results and Discussions

Manipulation Check. To test the effectiveness of program manipulation (i.e., whether it elicited a desire to prolong vs. complete the card), another group of participants ($N = 20$; 4 women) read the descriptions of both the reward card and the prepaid card (the order was counterbalanced). They indicated their eagerness to finish each card (1 = I desire to prolong it as long as possible, 7 = I desire to finish it as soon as possible). A repeated measure of ANOVA yielded a main effect of program type ($F(1, 19) = 11.26$, $p < .01$), indicating participants were more eager to finish the reward card ($M = 4.85$, $SD = 1.49$) than the prepaid card ($M = 3.40$, $SD = 1.64$).

To test the effectiveness of our focus manipulation, yet another group of participants ($N = 40$; 17 women) completed a survey similar to the main-study participants, which manipulated the program type (reward vs. prepaid card) and focus (accumulated vs. remaining progress). The level of progress was held constant at the midpoint (i.e., five com-

pleted or five remaining). Participants completed the experimental survey before responding to a question asking them to describe the bagel card (“Can you describe what you saw on the bagel card? In terms of the progress level, which part jumped out at you first?”). We coded participants’ responses into two categories: completed progress (e.g., “Saw the half that was filled,” “Noticed 5 were already filled”) or remaining progress (e.g., “Noticed the remaining ones,” “5 slots left”). No one indicated both completed and remaining progress, and we removed from further analysis one participant who could not recall the card.

As expected, a binary logistic regression yielded the predicted effect of focus ($\beta = -2.24$, Wald’s $\chi^2 = 4.53$, $p < .05$). We found neither effect of program type nor interaction ($\chi^2 < 1$). Across both programs, 84% of those in the completed condition described completed progress compared with 20% of those in the remaining condition who described completed progress ($\chi^2(1, N = 39) = 16.08$, $p < .001$). These results confirm the success of our focus manipulation regardless of the program type.

Back to the main-study participants: a program type \times focus \times progress ANOVA on the frequency of bagel purchase at the store did not yield any main effect or interaction (all $F < 1$), indicating participants across conditions did not differ in terms of their prior experience.

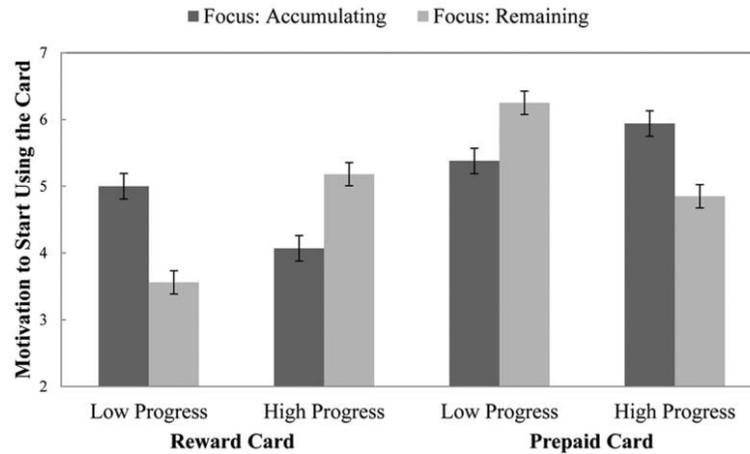
Hypotheses Testing. A program type \times focus \times progress ANOVA on participants’ motivation to start using the card yielded a main effect for program type ($F(1, 133) = 21.18$, $p < .001$), indicating greater motivation to participate in the prepaid-card program ($M = 5.63$, $SD = 1.36$) than the reward program ($M = 4.44$, $SD = 1.79$). Not surprisingly, participants thought getting several free sandwiches was a better “deal” than purchasing sandwiches for a free reward. We found no main effect for either progress or focus (all $F < 1$). In support of the hypothesis, the ANOVA yielded a three-way interaction ($F(1, 133) = 20.14$, $p < .001$; see fig. 8).

Starting with the reward card, when progress was low (three endowed purchases), participants who focused on accumulated progress were more eager to start using the card ($M = 5.00$, $SD = 1.41$) than those who focused on remaining progress ($M = 3.56$, $SD = 1.91$; $t(133) = 2.60$, $p < .05$). Conversely, when progress was high (seven endowed purchases), participants who focused on remaining progress were more eager to start using the card ($M = 5.18$, $SD = 1.63$) than those who focused on accumulated progress ($M = 4.07$, $SD = 1.73$; $t(133) = -1.97$, $p < .05$). Similar to previous studies, we find that when incentives for goal pursuit are tied to goal completion, attending to whichever is smaller in size, completed progress or remaining progress, increases motivation.

More importantly, this pattern reversed for the prepaid card. When progress was low (three endowed purchases), participants who focused on accumulated progress were less eager to start using the card ($M = 5.38$, $SD = 1.40$) than those who focused on remaining progress ($M = 6.25$, $SD = .97$; $t(133) = -2.31$, $p < .05$). Conversely, when progress

FIGURE 8

STUDY 4: MOTIVATION AS A FUNCTION OF PROGRAM TYPE (REWARD CARD VS. PREPAID CARD), PROGRESS, AND FOCUS ON ACCUMULATED VERSUS REMAINING PURCHASES



was high (seven endowed purchases), participants who focused on remaining purchases were less eager to start using the card ($M = 4.85$, $SD = 1.61$) than those who focused on completed purchases ($M = 5.94$, $SD = 1.07$; $t(133) = -2.41$, $p < .05$). For pursuit of benefits, when one wishes to prolong the pursuit, emphasizing small areas appears to reduce motivation to take subsequent actions.

Overall, the results of study 4 show that people will postpone their next action if they focus on the small area and wish to prolong the pursuit. This reverse impact of small areas provides converging evidence that individuals' motivation to complete their goals drives the impact of small areas. When reaching a goal's end state is not desirable, individuals avoid actions that appear to make a greater impact.

GENERAL DISCUSSION

In the course of pursuing their various goals, individuals adjust and direct their efforts on the basis of their perceived progress toward a goal's end state (Amir and Ariely 2008; Bandura and Cervone 1983; Carver and Scheier 1998) and prefer actions they see as more impactful in advancing them toward goal attainment (Brendl and Higgins 1996; Förster et al. 1998). Building on the notion that motivation increases as a function of perceived impact of actions, we suggest that the way people monitor progress will influence their motivation. We distinguish between two fundamental ways of monitoring goal progress—attending to accumulated progress versus remaining progress to complete a goal—and propose that individuals show greater goal adherence when they attend to whichever is smaller in size, because the next action will appear more impactful by comparison. Specifically, we predict and find that at the beginning of goal

pursuit, individuals invest more resources when they monitor accumulated progress than when they monitor remaining progress (e.g., 20% completed vs. 80% remaining). Beyond the midpoint of goal pursuit, individuals invest more resources when they monitor remaining progress than when they monitor completed progress (e.g., 20% remaining vs. 80% completed). We term this phenomenon the small-area hypothesis and demonstrate that focusing on the smaller area increases motivation because the perceived marginal impact of each action toward goal achievement increases. We further distinguish between goals people wish to continue pursuing versus goals they wish to attain, and we predict and find that to the extent that people wish to prolong pursuit of the goal and avoid goal completion (e.g., consuming a gift card or a train multiride ticket), the focus on small areas leads them to slow their pursuit and disengage from the goal.

Specifically, we report four studies that support our predictions in the context of reward programs and experimental tasks. Study 1 was a field experiment that manipulated the focus on customers' accumulated versus remaining purchases at a restaurant. It used natural variations in goal proximity to demonstrate that for participants who were closer to getting a reward, an emphasis on remaining progress (small area) increased motivation more than an emphasis on completed purchases (large area). Conversely, the card that emphasized completed versus remaining progress motivated consumers who were far from the reward. The following lab studies provided a better experimental control and explored the mechanism underlying the small-area effect. Specifically, study 2 documented distinct motivational effects for attending small areas at both the beginning and end of goal pursuit and demonstrated that a motivational deficit of large areas does not drive the motivational impact

of small areas. Study 3 found that purchases made with the focus on the small areas appeared more impactful toward completing the goal, and the perceptions of impact mediated the effect of small areas on motivation. Study 4 further showed that small areas could undermine motivation if people wish to prolong pursuit of their goals rather than complete them.

We attribute the small-area hypothesis to the perceived greater impact of actions to goal completion. Our data support this parsimonious explanation. However, other factors may also contribute to the small-area effect. In particular, research on the dynamics of self-regulation attests that people obtain different information from completed versus remaining actions (Fishbach, Zhang, and Koo 2009; Koo and Fishbach 2008). Completed actions serve as a signal of personal commitment and increase motivation for those who are not yet committed to their goals, whereas remaining actions signal a need to progress and increase motivation for those who are already committed to their goals. Assuming people's commitment increases as they progress on their goals (e.g., as they progress on a reward program), these different signals should contribute to the small-area effect: in the beginning of goal pursuit, when commitment is low, the focus on completed actions increases motivation by signaling the presence of commitment, but the focus on remaining actions later increases motivation by signaling the need for progress. We refer to this potentially additional cause of the small-area effect as an "inferential account" and suggest that although it does not explain the mediation data in study 3 or the reversal for pursuit of enjoyable goals in study 4, in less controlled environments, it may be yet another reason small areas influence motivation.

IMPLICATIONS

Our findings have implications for work on the goal-gradient hypothesis: the increase in motivation as humans and other animals approach a goal end state (Brown 1948; Hull 1932; Kivetz et al. 2006; Nunes and Drèze 2006). We find evidence for the goal-gradient effect in our studies and demonstrate that this effect is independent of the small-area effect. Thus, for example, in support of the goal-gradient hypothesis, consumers who made high progress (i.e., many purchases) on their frequent buyer sushi card in study 1 were more likely to use the card again than those who made low progress. Similarly, in study 2, participants who learned they had completed 80% of the task took marginally shorter breaks than those who learned they had completed 20% of the task. These main effects were orthogonal to the interaction effects that supported the small-area hypothesis.

Interestingly, one of the leading explanations for the goal-gradient hypothesis is that, closer to goal attainment, the contribution of each successive action increases, and hence the motivation to take this action should increase (Förster et al. 1998). For example, for a customer who used our sushi 10-purchase reward card in study 1, the first purchase covered 10% of the distance to the goal, whereas the last purchase covered 100% of that remaining distance; hence, the

motivation to use the card was higher after nine versus one purchases. The small-area hypothesis shares the assumption that motivation is a function of the perceived contribution of an action to goal attainment, but it documents effects of framing of progress in terms of completed versus remaining actions rather than level of progress toward goal attainment. Thus, according to the small-area hypothesis, motivation is not only a function of the actual or perceived level of progress (e.g., stronger motivation after completing 80% vs. 20%) but is affected by the perception that the action has greater impact because the person is comparing it to a smaller set of other actions (e.g., stronger motivation for 20% completed vs. 80% remaining). It follows that the small-area effect will be sensitive to factors that increase the magnitude of the goal-gradient effect only if these factors influence the comparison standard for an action. For example, reward salience is one factor that contributes to the goal-gradient effect but does not change the comparison standard and therefore should not influence the size of the small-area effect. In contrast, subgoaling is one factor that changes the comparison standard and thus should increase the impact of the small-area effect. Interestingly, with regard to subgoaling, the small-area hypothesis makes a different prediction than the goal-gradient effect: the small-area hypothesis predicts the increase in motivation when a goal is broken into subgoals (see also Nunes and Drèze 2011), whereas Cheema and Bagchi (2011) showed subgoaling decreases motivation via the goal-gradient effect, because it attenuates the ease of visualizing the end state. Future research could identify the factors that determine which of these effects (goal-gradient or small-area) has more impact and thus when subgoaling is effective.

Our results are further consistent with some recent evidence that motivation to reach a goal is not always a monotonic function of remaining distance to the end state; rather, lapses occur about halfway to the goal's end state at the point where, regardless of the direction of individuals' attention (completed or remaining actions), they cannot focus on a small area that would make their subsequent action appear more impactful. Thus, Louro et al. (2007) found motivating goal pursuit was easier at the beginning and end of goal pursuit compared to the middle, and when expectancy was either low or high (vs. average). Bonezzi, Brendl, and De Angelis (2011) found that individuals spontaneously attend to completed actions at the beginning and to remaining actions at the end and therefore display lower motivation at the midpoint of goal pursuit. Although these findings on the motivational lapse at the midpoint support our small-area hypothesis, our findings are distinct from those of Bonezzi and coworkers because, rather than exploring the effect of distance from the goal (as in goal-gradient studies), we explore the effect of directing people's attention while holding the distance to the goal constant. Thus, rather than exploring moderators for the goal-gradient effect, we explore an effect that is orthogonal to the goal gradient. When we examine the impact of distance from the goal, we actually find evidence for goal gradient such that across both

focus conditions (accumulated vs. remaining), motivation increases with proximity to the goal's end state. However, in line with Bonezzi et al.'s findings, this goal-gradient effect mainly occurs when people's attention is on their remaining actions. In addition, beyond previous findings, we find that when pursuing the goal is more desirable than completing the goal, motivation peaks rather than declines around the midpoint of goal pursuit (study 4).

Another, related question is whether individuals' perception of the area size is accurate. In this regard, Lappe, Jenkin, and Harris (2007) found that individuals perceive their destination to be closer than it actually is if they look at the destination, and they perceive the distance traveled to be shorter if they look back. Their findings suggest that diverging people's attention to either part of the progress—accumulated or remaining—decreases the perceived size of the area, which in turn increases the perceived impact of subsequent actions. Such distortions are possibly further strategic (though unconscious) in motivating actions.

Our findings have further implications for the work on extrinsic versus intrinsic motivation (Deci and Ryan 1985; Ryan et al. 1996; Shah and Kruglanski 2000). This line of research on reward systems distinguishes between extrinsic actions, for which the reward is external and contingent on successful completion, and intrinsic actions that serve as their own rewards. We distinguish between consumers' goals where the benefits are conditional on goal completion (extrinsic) versus part of pursuing the goal (intrinsic). We thus draw parallels between pursuing rewards and research on intrinsic motivation. We find that when consumers pursue intrinsic goals, they engage in self-regulatory processes that are meant to slow down completion of the goal. Specifically, they postpone pursuit of goals when they perceive their next actions as having greater impact, as when they focus on the small area of their progress. This pattern is opposite that of consumers who are motivated to complete the extrinsic goal and receive the reward, and thus they increase their effort when they perceive their next actions as having greater impact.

Finally, the small-area hypothesis has important practical implications for the various incentives systems marketing promotions use. Feedback on goal progress is a key to successful customer-relationship management in general and reward programs in particular (Deighton 2000; Lewis 2004; Taylor and Neslin 2005). Marketers should design or structure feedback interventions that emphasize small areas and thus increase the perceived impact of the next action. Our findings suggest that regardless of one's actual position in goal pursuit, framing actions that appear more impactful to goal attainment serves as a driver of encouraging people to participate in a new program or try out new products, stay involved, and increase or accelerate their spending down the road. For example, weight-loss programs should design their goal-progress feedback system in a way that highlights small distances. Specifically, these programs should consider customers' levels of progress and emphasize whichever is smaller: the weight people have already lost or how much

they need to still lose to reach a desired state. Similarly, financial services can benefit from our findings: they can develop programs or financial products that encourage consumer saving by providing feedback that emphasizes small areas of goal progress—either what has been saved to date or what remains to meet the goal, depending on a customer's progress level.

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