



CHICAGO JOURNALS

Journal of Consumer Research, Inc.

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Reviewed work(s):

Source: *Journal of Consumer Research*, (-Not available-), p. 000

Published by: [The University of Chicago Press](#)

Stable URL: <http://www.jstor.org/stable/10.1086/661229>

Accessed: 03/02/2012 14:01

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The Dynamic Impact of Variety among Means on Motivation

JORDAN ETKIN
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Consumers often have a variety of products that they may use to help them pursue their goals. These products constitute a set of means toward consumers' goal attainment. This article investigates (1) how the amount of variety (high vs. low) among a set of means affects motivation to pursue the associated goal and (2) how this relationship changes over the course of goal pursuit as progress is made toward goal attainment. Five studies demonstrate that when progress toward goal attainment is low, having more variety within a set of means to goal attainment increases motivation to pursue the goal. However, when progress toward goal attainment is high, having less variety within a set of means to goal attainment increases motivation to pursue the goal. These findings suggest perceived variety among means is an important determinant of motivation in goal pursuit.

Many of consumers' choices are driven by their goals. For example, consumers go to the gym because they care about being fit and have family dinners because they wish to maintain strong interpersonal relationships. In addition to engaging in goal-congruent behaviors, consumers often use products to help them advance toward goal attainment. Most goals are associated with multiple products, or "means," to goal attainment (Kruglanski et al. 2002). Together, these goal-related products can be thought of as constituting a set of means to goal attainment. To illustrate, consider Joe, who has an active fitness goal and who uses protein supplements to help him pursue this goal. The set of protein supplements that Joe uses as means to his fitness goal may include protein bars, protein powders, protein gels, and so forth, or any combination of these products.

Sets of means to goal attainment may differ in terms of the

variety of products contained within the set. For instance, a set of means may be less varied, consisting of a set of relatively similar products that only differ on a few attributes, or they may be more varied, consisting of a set of diverse products that differ along multiple attributes. Returning to Joe and his protein supplements, a less varied set of protein supplements may consist of PowerBar protein bars of various flavors (peanut butter, chocolate chip, etc.), whereas a more varied set of protein supplements may consist of assorted protein supplements that differ in terms of flavor, form, and brand (vanilla whey protein powder, strawberry protein bites, etc.). Might the variety in Joe's set of means to goal attainment influence his motivation to pursue his fitness goal?

In the present research we examine how variety among a set of means influences motivation to pursue the associated goal. Building on existing work on variety, goal pursuit, and motivation, we propose that the variety among means to goal attainment will influence consumers' motivation to pursue their goals. Further, we suggest that the relationship between variety and motivation will depend on the amount of progress made toward goal attainment. We propose that when consumers are far from goal attainment, they will be more motivated to pursue a goal when there is more variety among a set of means to goal attainment. However, when consumers are close to goal attainment, we propose they will be more motivated to pursue a goal when there is less variety among a set of means to goal attainment. In the remainder of the article, we first review relevant literature on variety and motivation, from which we develop our predictions regarding the relationship between variety among means to a goal and motivation. Next, we present and discuss a series of five studies that support our hypotheses.

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Ann McGill served as editor and Joel Huber served as associate editor for this article.

Electronically published June 20, 2011

We conclude with a discussion of the theoretical and managerial implications of the findings.

VARIETY AND MOTIVATION

Consumers often use means to help them pursue their goals. Generally speaking, a means to goal attainment may be any activity, event, or circumstance perceived as likely to contribute to attainment of that goal (Kruglanski et al. 2002; Markman, Brendl, and Kim 2009; Shah and Kruglanski 2003). For any given goal, there are typically multiple means that would facilitate its attainment (Kruglanski et al. 2002). The sum total of all of the means related to a single goal is termed the goal's *equifinality configuration* in the goal systems literature (Kruglanski et al. 2002), and any subset of a goal's equifinality set may constitute a consumer's idiosyncratic set of means to goal attainment.

The presence or availability of means to goal attainment has been found to affect motivation to pursue the relevant goal. Because means and goals are associatively linked, properties associated with means to goal attainment may transfer to the goal itself (Fishbach, Shah, and Kruglanski 2004; Kruglanski et al. 2002; Shah and Kruglanski 2003). For example, when primed with the goal of food enjoyment, the positive affect associated with this goal transferred to eating high-caloric food, its means to attainment (Fishbach et al. 2004). Properties of sets of means to goal attainment may also transfer to the related goal. For instance, the size of a goal's equifinality set has been found to affect goal-directed motivation; participants felt more committed to a goal when they had a larger (vs. smaller) set of available means to goal attainment, which in turn motivated them to exert more effort in goal pursuit (Kruglanski, Pierro, and Sheveland 2010).

Although previous research has explored some instances where means to goal attainment affect motivation, little is known about how the amount of variety within a set of means to goal attainment may affect motivation. Just as sets of means may differ in number, they may also differ in terms of amount of variety within the set. For example, variety in a set of means may range from high, consisting of products that simultaneously differ along multiple attributes (i.e., form and function; Gourville and Soman 2005), to low, consisting of relatively similar products (e.g., that only differ on a single attribute, such as flavor). We propose that the variety among a set of means will affect motivation to pursue the associated goal. Specifically, we predict that having more variety in a set of means will have a positive impact on motivation when consumers are far from their goal, but that less variety in a set of means will have a positive impact on motivation when consumers are close to their goal.

Our reasoning is as follows. When far from goal attainment, consumers may feel uncertain about the best way to approach their goal. They also may anticipate that their preferences among means to goal attainment may change over time. Having more (vs. less) variety among a set of means to goal attainment may benefit low-progress consumers by helping to reduce these sources of uncertainty

associated with goal pursuit. Indeed, one reason that consumers seek variety is to allow for potential changes in future preferences (Simonson 1990). Because they have further to go before accomplishing their goals, low-progress consumers may also experience uncertainty if they anticipate satiating on a particular means to goal attainment. By facilitating "means-switching," the presence of variety among means reduces the potential of satiation, minimizing this source of uncertainty (Kruglanski and Jaffe 1988; Raju 1980; Redden 2008; Simonson 1990). Thus, having more (vs. less) variety in a set of means should do more to reduce the uncertainty associated with goal pursuit when goal progress is low. Based on this intuition, we propose that consumers who have made low goal progress will be more motivated to pursue a goal when they have more variety among means to its attainment.

H1: When progress toward a goal is low, a more (vs. less) varied set of means will increase motivation to pursue the goal.

In contrast, the benefits of having a lot of variety among means to goal attainment for consumers close to goal attainment are less clear. Because they are close to goal attainment, high-progress consumers are less likely to feel uncertain about their future preferences among means to goal attainment. Likewise, they may also be less concerned with the possibility of satiating on any particular means. Thus, the benefits of having variety among means to goal attainment experienced by low-progress consumers may not be as relevant to high-progress consumers.

Further, the presence of variety is not without its costs. Having too much variety might complicate goal pursuit; indeed, "too much variety" has been found to increase decision conflict, the incidence of choice deferral, and post-choice dissatisfaction (Chernev 2003; Dhar 1997; Diehl and Poyner 2010; Gourville and Soman 2005; Iyengar and Lepper 2000). Instead of benefiting from variety, high-progress consumers may be overwhelmed by having a broader array of means to goal attainment and desire instead to reduce uncertainty about the most direct way to reach their goal. As they are farther along the path toward achieving their goals, these consumers will likely be more concerned with staying focused on reaching their goal than having a wide set of options to pursue the goal. In contrast, having more variety among means to goal attainment suggests a greater number of distinct paths to reach the goal, which may dilute the perceived degree of focus within the set of means (Berger, Draganska, and Simonson 2007). Without clear benefits of variety among means to offset these costs, the downsides of variety will likely weigh more heavily on consumers who have made high (vs. low) progress toward goal attainment. Therefore, we propose that high-progress consumers will be more motivated to pursue a goal when there is less variety among its means to attainment.

H2: When progress toward a goal is high, a less (vs. more) varied set of means will increase motivation to pursue the goal.

We test our propositions in a series of five studies. In studies 1A and 1B we test our basic interaction prediction between variety among means and goal progress on motivation and find support using actual and perceived variety. Next, in study 2 we consider the most extreme case of low variety—a set of identical products that serve as means—and its effect on motivation. In studies 3 and 4 we show that the dynamic impact of variety among means on motivation extends to real behavior, using persistence and performance on a goal-related task in study 3 and actual willingness to pay for a set of products in study 4. Across these studies we obtain consistent support for our two key hypotheses regarding the impact of goal progress and variety among means to goal attainment on motivation.

STUDY 1A: EFFECT OF PRIMED PROGRESS AND MEANS VARIETY

The purpose of study 1A was to provide an initial test of how goal progress and variety among means interact to affect motivation to pursue the focal goal. We manipulated both variety in the set of means and perceived goal progress and measured the impact on motivation (commitment and effort devoted to goal pursuit; Fishbach and Dhar 2005).

Design and Procedures

Eighty-one undergraduate students at the University of Maryland were randomly assigned to a 2 (goal progress: low vs. high) by 2 (variety among means: low vs. high) between-subjects design. First, participants were asked whether “being physically fit is a goal that you have” (yes-no). Participants then received the goal progress manipulation. Specifically, goal progress was manipulated by drawing participants’ attention to their own frequency of exercise (i.e., as one means for meeting a goal of being physically fit): participants were asked how many times they exercised in the past week and when they last exercised (i.e., “How many times have you exercised in the past seven days?” “When was the last time that you exercised?”). Perceptions of goal progress were manipulated by varying the frequency of response options to these questions. Participants in the low goal progress condition gave their responses on high-frequency scales (i.e., response options “5 or fewer,” “6–7,” “8–9,” “10 or more” in response to the question, “How many times have you exercised in the past week?”), designed to make participants feel as if they had made low progress toward their goal. Participants in the high goal progress condition gave their responses on low-frequency scales (i.e., response options “0,” “1–2,” “3–4,” “5 or more” in response to the question, “How many times have you exercised in the past week?”), designed to make participants feel as if they had made high progress toward their goal.

Next, participants were shown a set of six protein supplements and were asked to choose three that they would like to try after their next three workouts to help them achieve their fitness goal. The variety of these protein sup-

plements was manipulated by varying the similarity of products in the set. Half of participants viewed a set of six PowerBar protein bars that varied only in flavor (low variety set), whereas half viewed a set of six assorted protein supplements that varied in form, brand, and flavor (high variety set; see app. A). Participants were asked to rate the similarity of the items within the set (“As a set, how similar were the protein supplements that you saw on the previous page?”) on a 7-point scale (1 = not at all similar, 7 = very similar), as well as their commitment to the goal (“How committed are you to your fitness goal?”) and intentions to devote effort to goal pursuit (“How much effort are you willing to devote toward achieving your fitness goal?”) also on 7-point scales (1 = not at all committed, not a lot of effort, 7 = very committed, a lot of effort).

Results

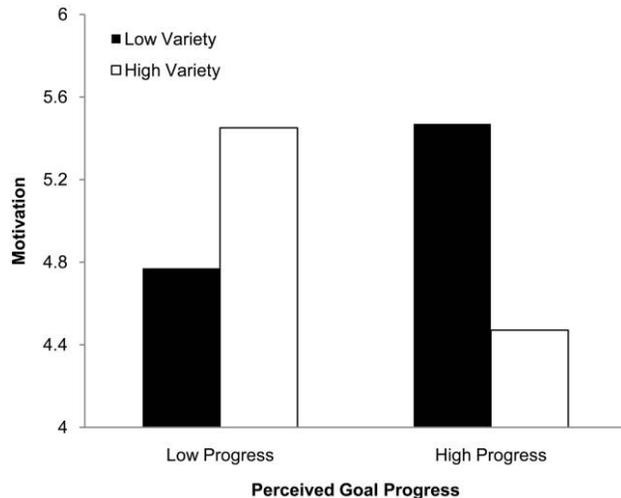
Manipulation Checks. Only those participants who reported having a fitness goal (i.e., responded “yes”; $N = 79$) were included in further analyses. A 2 (goal progress) \times 2 (variety among means) ANOVA on perceived similarity of the items within the set revealed only a main effect of variety ($F(1, 75) = 4.61, p < .05$). As expected, the items within the low variety set were perceived to be more similar ($M_{\text{low}} = 5.68$) than the items within the high variety set ($M_{\text{high}} = 5.11$).

A pretest was conducted to validate our manipulation of goal progress. Participants ($N = 43$) were first asked whether “being physically fit is a goal that you have” (yes-no; all reported yes). Next, they were either exposed to the low goal progress manipulation (high-frequency response scales) or the high goal progress manipulation (low-frequency response scales) and were then asked to report their perceptions of progress made toward goal attainment on a 7-point scale (1 = not a lot of progress, 7 = very much progress). As we expected, participants exposed to the low progress manipulation perceived themselves to have made less progress toward their fitness goal compared to those exposed to the high progress manipulation ($M_{\text{low-progress}} = 3.60, M_{\text{high-progress}} = 4.65; F(1, 41) = 4.41, p < .05$).

Motivation. The main dependent measure in this study was participants’ reported motivation to pursue the fitness goal. Participants’ responses to the questions about their commitment and willingness to devote effort to their fitness goal were averaged to create a measure of motivation ($r = .75$). A 2 (goal progress) \times 2 (variety among means) ANOVA on this measure of motivation revealed the predicted interaction ($F(1, 75) = 11.31, p < .01$; see fig. 1). As expected, participants in the low goal progress condition reported being more motivated to pursue their fitness goal when they viewed the high variety ($M_{\text{high}} = 5.45$) versus low variety ($M_{\text{low}} = 4.77$) set of protein supplements ($F(1, 75) = 3.30, p < .05$). However, participants in the high goal progress condition were more motivated to pursue their fitness goal when they viewed the low variety ($M_{\text{low}} = 5.47$) versus high variety ($M_{\text{high}} = 4.47$) set of supplements ($F(1, 75) = 7.26, p < .01$).

FIGURE 1

EFFECTS OF PRIMED PROGRESS AND VARIETY AMONG MEANS ON MOTIVATION: STUDY 1A



These results provide an initial demonstration of the impact of variety in a set of means to goal attainment on motivation over the course of goal pursuit. When perceived progress toward goal attainment is low, a more (vs. less) varied set of means increases motivation (hypothesis 1), whereas when perceived progress toward goal attainment is high, a less (vs. more) varied set of means increases motivation (hypothesis 2). One plausible critique of the design of study 1A is that our manipulation of variety among means involved varying the means themselves (i.e., showing participants different sets of products) with minimal overlap between sets. Manipulating variety in this way leaves open the possibility that characteristics of the products themselves rather than the degree of variety between conditions produced our results. We address this concern in study 1B by holding the set of means constant and manipulating perceived variety in a separate priming task.

STUDY 1B: EFFECTS OF PROGRESS AND PRIMED PERCEPTIONS OF VARIETY

This study had the following objectives: (1) to replicate the interaction pattern obtained in study 1A while holding the actual products in the set of means constant and (2) to show that our predicted effects of goal progress and variety on motivation hold when individuals naturally evaluate their own progress toward goal attainment. To accomplish these objectives, we showed all participants the same set of protein supplements, manipulated degree of perceived variety through an ostensibly unrelated task, and measured perceived goal progress.

Design and Procedures

Ninety-six undergraduate students at the University of Maryland were randomly assigned to one of two conditions (variety among means: low vs. high) and perceived goal progress was measured. First, participants were asked whether being physically fit was a goal that they have (yes-no). Participants were then asked to write out an example of one specific fitness goal they wished to attain (e.g., “go to the gym three times a week”) and to rate the amount of progress they had made toward their fitness goal (“How much progress do you perceive that you have made toward your goal of being fit?”).

Next, to manipulate perceived variety in the target protein supplements, we showed all participants two pictures side by side, one of a microwave and one of a traditional oven. Participants were either asked to describe how the microwave and oven were similar (in the low variety condition) or how they were different (in the high variety condition). Previous research suggests that perceptions of variety are inversely related to perceptions of similarity (i.e., sets of products that are perceived as more similar are also perceived as less varied; Mogilner, Rudnick, and Iyengar 2008). Thus, by asking participants to elaborate on similarities between the microwave and the oven, we intended to reduce perceptions of variety in the subsequently presented set of PowerBar protein supplements, and vice versa when participants were asked to elaborate on differences.

After exposure to this variety manipulation, participants were shown a set of six PowerBar protein products of various flavors and forms (bar, powder, gel, etc.; see app. B) and were asked to choose three that they would like to try after their next three workouts to help them achieve their fitness goal. Finally, motivation to pursue the fitness goal was assessed through two measures. Participants indicated their commitment to their fitness goal and intentions to devote effort to attainment of the goal on 7-point scales (1 = not at all committed, not a lot of effort; 7 = very committed, a lot of effort).

Result

Manipulation Check. Only participants who reported having a fitness goal (i.e., responded “yes”; $N = 95$) were included in further analyses. A pretest ($N = 35$) assessed perceptions of variety among items in the set of protein supplements following the priming task. Participants were first asked whether “being physically fit is a goal that you have” (yes-no; three participants were excluded for reporting that they did not have a fitness goal). Next, perceptions of variety were assessed using two measures (“How similar were the protein supplements that you saw on the previous page?” and “How focused is the set of protein supplements?”) on 7-point scales (1 = not at all similar, not at all focused; 7 = very similar, very focused; $r = .50$). An ANOVA using the average of these two measures confirmed the success of the variety manipulation ($F(1, 33) = 4.75$, $p < .05$). Participants who were asked to describe similarities

in the priming task perceived the set of protein supplements as more similar (i.e., low variety set) than did participants asked to describe differences (i.e., high variety set; $M_{\text{low}} = 5.45$ vs. $M_{\text{high}} = 4.63$).

Motivation. The main dependent measure in this study was participants' reported motivation to pursue the fitness goal. Participants' responses to the questions about their commitment and willingness to devote effort to their fitness goal were averaged and mean-centered to create a measure of motivation ($r = .81$). A regression of motivation on goal progress (measured), variety (manipulated), and their interaction revealed a significant main effect of goal progress ($\beta = .47$; $t = 5.39$, $p < .001$) qualified by the predicted interaction ($\beta = -.24$; $t = -2.76$, $p < .01$; see fig. 2).

To explore the nature of the interaction, we examined the effects of variety conditions on motivation at both low and high levels of goal progress. We performed a spotlight analysis at plus and minus one standard deviation from the mean of goal progress (Fitzsimons 2008). Consistent with our predictions, the planned contrast at low levels of goal progress revealed that motivation was higher when participants viewed the high versus low variety set of means ($M_{\text{high}} = 4.63$, $M_{\text{low}} = 3.98$; $\beta = -.34$, $t = -2.15$, $p < .05$). The planned contrast at high levels of goal progress revealed the reverse pattern: motivation was higher when participants viewed the low versus high variety set of means ($M_{\text{low}} = 5.94$, $M_{\text{high}} = 5.27$; $\beta = .33$, $t = 1.95$, $p = .05$).

These data provide further evidence that the variety in a set of means to goal attainment interacts with one's stage in the course of goal pursuit (low vs. high progress) to have an impact on motivation. Replicating the results of study 1A, we find that a set of means perceived to be more (vs. less) varied increases motivation to pursue the associated goal when one is far from goal attainment (hypothesis 1) but that a set of means perceived to be less (vs. more) varied increases motivation to pursue the associated goal when one approaches goal attainment (hypothesis 2). Further, we show these effects while holding the actual set of means constant and manipulating perceptions of the amount of variety within the set.

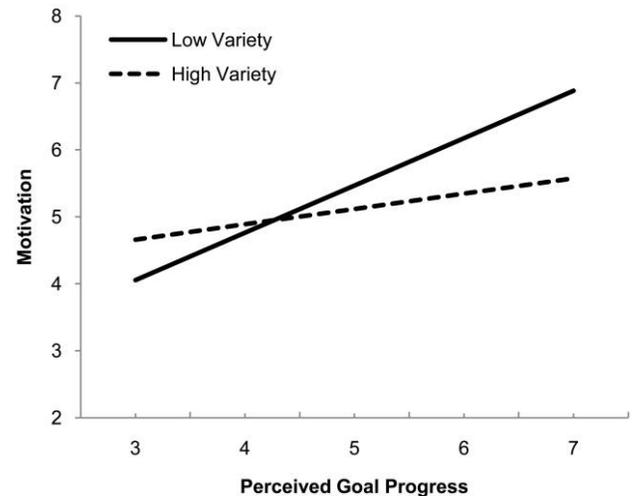
Studies 1A and 1B suggest that the amount of variety most motivating for goal pursuit depends on perceived goal progress. But will some degree of variety in a set of means always be beneficial for motivation to pursue a goal? Although the stimuli used in our studies thus far have all incorporated some amount of variety, there are many instances where consumers may encounter a set of means with no variety. For example, protein bars are sold both in variety packs that contain bars of different flavors and in "identical" packs, which contain multiple bars of the same flavor (e.g., chocolate). How might sets of identical means to goal pursuit affect motivation? We examine this question in the next study.

STUDY 2: EFFECT OF IDENTICAL MEANS ON MOTIVATION

We argue that identical sets of means can be viewed as a low variety set taken to the extreme: a set of means that has

FIGURE 2

EFFECTS OF PERCEIVED GOAL PROGRESS AND PRIMED PERCEPTIONS OF VARIETY AMONG MEANS ON MOTIVATION: STUDY 1B



NOTE.—Figure shows the effect on motivation of low and high variety over a continuous measure of goal progress. Spotlight analyses compare motivation between low and high variety at -1 SD from the mean of goal progress (2.92) and $+1$ SD from the mean of goal progress (5.70).

so little variety to the point that it only consists of a single type of product. Interpreting this special case within the context of our larger framework, we propose that consumers who have made high progress toward goal attainment will be even more motivated by an identical set of means that has no variety relative to sets of means that do have some (even a relatively small amount of) variety, whereas consumers who have made low goal progress will be more motivated by a set containing at least some variety relative to an identical set of means. In study 2 we test this idea by comparing the impact of an identical set of means (a set of six chocolate chip protein bars) to a varied set of means (a set of six protein bars of different flavors, as in study 1A) on motivation to pursue the goal.

Design and Procedures

Fifty-three undergraduate students at the University of Maryland were randomly assigned to one of two conditions (variety among means: identical vs. varied), and perceived goal progress was measured. First, participants were asked to confirm that they were actively pursuing a fitness goal (yes-no) and to report how much progress they had made toward goal pursuit in a series of two measures ("I exercise . . . [rarely = 1, frequently = 7]"; "I exercise . . . [a little = 1, a lot = 7]") on 7-point scales.

Next, participants were shown a set of six protein supplements. Because choice is not an integral part of the present investigation, we asked participants to think about using these supplements as means to pursue their goal instead of asking them to make a series of choices as in studies 1A and 1B. Participants were told that these supplements can be used after a workout to help them achieve their fitness goal. Variety was manipulated by varying the actual similarity of products in the set. Half of participants viewed a set of identical protein bars (six chocolate-flavored PowerBar protein bars; see app. C) and half viewed a set of varied protein bars (the low variety set of six different flavors of PowerBar protein bars used in study 1A). After viewing one of the two sets of bars, participants were asked to rate their commitment to the goal and intentions to devote effort to goal pursuit on 7-point scales (1 = not at all committed, not a lot of effort; 7 = very committed, a lot of effort).

Results

Manipulation Check. All participants indicated that they were pursuing a fitness goal and were therefore included in the following analyses.

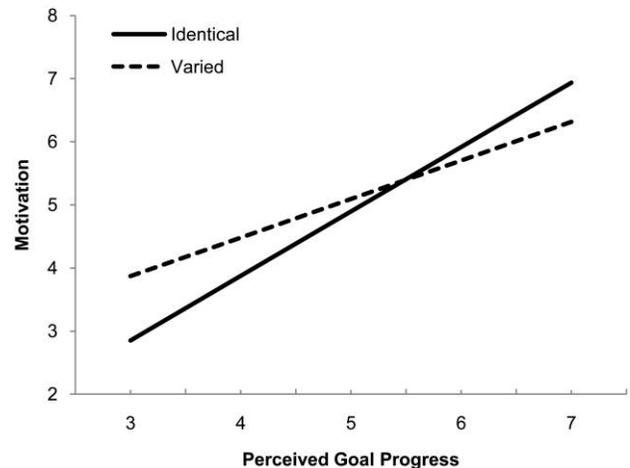
Motivation. The main dependent measure in this study was participants' reported motivation to pursue their fitness goals. Participants' responses to the questions about their commitment and willingness to devote effort to their fitness goal were averaged to create a measure of motivation ($r = .80$). Participants' responses to the two progress measures were averaged and mean-centered to form an index of goal progress ($r = .86$). A regression of motivation onto goal progress, variety, and their interaction revealed a significant main effect of goal progress ($\beta = .82$; $t = 10.95$, $p < .001$) and the predicted interaction between goal progress and variety ($\beta = -.21$; $t = -2.75$, $p < .01$; see fig. 3).

Consistent with our theory, subsequent spotlight analyses (Fitzsimons 2008) revealed that motivation was higher for participants who had made low progress toward their fitness goal when asked to think about using the varied versus identical set of means to goal attainment ($M_{\text{varied}} = 4.54$, $M_{\text{identical}} = 3.98$; $\beta = -.24$, $t = -1.89$, $p = .065$). Conversely, motivation was higher for participants who had made high progress toward their fitness goal when asked to think about using the identical versus varied set of means to goal attainment ($M_{\text{identical}} = 6.60$, $M_{\text{varied}} = 6.11$; $\beta = .28$, $t = 2.09$, $p < .05$).

The results of this study confirm our predictions about how a set of identical means (i.e., the complete absence of variety) affects motivation to pursue a goal. We find that individuals who have made low goal progress are more motivated by a varied than an identical set of means to goal attainment (hypothesis 1), whereas individuals who have made high goal progress toward achieving their goal are even more motivated by an identical than a low-variety set of means to goal attainment (hypothesis 2). These results provide additional evidence for our argument that one's state

FIGURE 3

EFFECTS OF PERCEIVED GOAL PROGRESS AND VARIETY AMONG MEANS ON MOTIVATION: STUDY 2



NOTE.—Figure shows the effect on motivation of low and high variety over a continuous measure of goal progress. Spotlight analyses compare motivation between low and high variety at -1 SD from the mean of goal progress (3.05) and $+1$ SD from the mean of goal progress (6.40).

of goal progress and variety among a set of means interact to affect motivation to pursue the goal. Those who have made high progress toward goal attainment are more motivated by less variety in the set.

Studies 1A, 1B, and 2 provide consistent support for our hypotheses. When far from goal attainment, having more variety among means increases motivation to pursue the goal. However, when close to goal attainment, having less variety among means increases motivation to pursue the goal. Although these studies demonstrate our predicted effects, they do so with a hypothetical measure of motivation (commitment and intentions to devote energy). In studies 3 and 4, we replicate these effects of goal progress and variety among means using real behavioral measures of motivation. In study 3, we manipulate perceived progress and variety among means to an academic goal and measure real persistence and performance on a goal-related task. In study 4, we manipulate perceived progress and variety among means to a fitness goal and capture the effects on motivation with a more managerially relevant measure: willingness to pay for the means.

STUDY 3: PERSISTENCE AND PERFORMANCE ON A GOAL-RELATED TASK

In study 3 we sought to find support for our hypotheses regarding the effects of goal progress and variety among

means on motivation with a real measure of motivation: persistence and performance on a goal-related task. When individuals feel more motivated to pursue a goal, they work harder and perform better at subsequent goal-related tasks (Kruglanski et al. 2002). Thus, in this study, we gave participants the opportunity to work on a goal-related task and measured their persistence and performance on this task following our progress and variety manipulations. Further, to increase the generalizability of our findings, in study 3 we tested our hypotheses in a new goal domain—academic goals—and manipulated perceptions of variety among behaviors (instead of products as in studies 1A, 1B, and 2) related to goal attainment.

Design and Procedures

One hundred and four undergraduates at the University of Maryland enrolled in summer school participated in this study in exchange for a small cash payment. Participants were randomly assigned to condition in a 2 (goal progress condition: low vs. high) by 2 (variety among means: low vs. high) between-subjects design.

First, participants were asked to confirm that they were pursuing an academic goal (yes-no) and were then asked to bring to mind an instance where they spent a small or large amount of time studying, intended to serve as anchors for subsequent inferences of progress made toward the academic goal. In the low progress condition, participants were asked to report the last time they had spent at least 30 consecutive minutes studying, intended to make participants feel that they had not spent much time studying. In the high progress condition, participants were asked to report the last time they had spent at least 8 consecutive hours studying, intended to make participants feel that they had spent a lot of time studying. To check the validity of this manipulation (i.e., that these prompts led people to bring to mind short vs. long periods of studying), we also asked participants to report how many hours they had spent studying in the past day. Following the manipulation, participants were asked to report how frequently they study (1 = rarely, 7 = frequently; 1 = a little, 7 = a lot) and to rate how much progress they had made toward achieving their academic goal on a 7-point scale (1 = not a lot of progress; 7 = a lot of progress).

Next, variety among means was manipulated through a similarity priming task. Participants were given a list of four academic behaviors related to their academic goal (reading a textbook, meeting with a tutor, attending a review session, and reading supplementary materials) and asked to describe the relationship between these behaviors. In the low variety condition, participants were asked to describe how these goal-related behaviors were similar to one another, whereas in the high variety condition, they were asked to describe how they were different from one another.

Finally, all participants were presented with an anagram task that measured real motivation to pursue their academic goal. Participants were told that the anagram task was developed by psychologists to be an indicator of academic

performance; as such, the task was positioned as directly related to participants' academic goal. The task consisted of 10 difficult but solvable anagrams (adapted from Shah, Higgins, and Friedman 1998). Participants were able to attempt as many anagrams as they wished, proceeding at their own pace. The anagrams were presented sequentially, and on each page participants had the option to view the next anagram or to quit the task.

Results

Manipulation Checks. Only those participants who reported having an academic goal (i.e., responded "yes"; $N = 102$) were included in further analyses. To check the validity of the goal progress manipulation, we ran a 2 (goal progress) \times 2 (variety among means) ANOVA on the number of hours participants reported studying in the past day. Supporting the validity of our progress manipulation, this analysis revealed only a main effect of goal progress ($F(1, 98) = 10.13, p < .01$). Participants reported having spent more hours in the past day studying in the high progress (i.e., high anchor) condition relative to the low progress (i.e., low anchor) condition ($M_{\text{high progress}} = 3.53$ hours, $M_{\text{low progress}} = 2.20$ hours).

To form a measure of perceived progress, participants' responses to the questions regarding how frequently they study and how much progress they have made were averaged ($\alpha = .76$). A 2 (goal progress) \times 2 (variety among means) ANOVA on perceived goal progress revealed only a main effect of goal progress ($F(1, 97) = 3.90, p = .05$). As expected, participants perceived that they had made more progress toward achieving their academic goal in the high progress condition ($M_{\text{high progress}} = 5.33$) relative to the low progress condition ($M_{\text{low progress}} = 4.92$). This manipulation check of perceived progress suggests that participants found it relatively easy to bring to mind instances in which they had studied for 30 minutes and in which they had studied for 8 hours; had they not found these instances easy to bring to mind, we likely would have found the opposite pattern, such that those asked to bring to mind 8 hours (vs. 30 minutes) of studying would have felt lower perceived progress toward their academic goals (Schwarz et al. 1991). The obtained pattern indicates that the prompt to bring to mind a longer (vs. shorter) period of studying led participants to perceive they had made greater progress toward their academic goal.

In addition, a pretest ($N = 105$; all participants reported having an academic goal) confirmed the success of the variety manipulation: participants who were asked to describe similarities among the four behaviors (i.e., low variety condition) perceived the set as more similar ($M_{\text{low}} = 5.21$) than participants asked to describe differences (i.e., high variety condition; $M_{\text{high}} = 4.62$; $F(1, 103) = 5.12, p < .05$).

Motivation. The key dependent measures in this study were the number of anagrams attempted (persistence) and the number correctly solved (performance) by participants. First, a 2 (goal progress) \times 2 (variety among means)

ANOVA on the number of anagrams attempted revealed the predicted interaction ($F(1, 98) = 9.11, p < .01$; see fig. 4). As we expected, in the low goal progress condition participants attempted to solve more anagrams when asked to describe how the academic goal-related means were different (high variety condition) versus similar (low variety condition; $M_{\text{high}} = 8.54, M_{\text{low}} = 6.90; F(1, 98) = 4.19, p < .05$). However, in the high goal progress condition participants attempted to solve more anagrams when asked to describe how the academic goal-related means were similar (low variety condition) versus different (high variety condition; $M_{\text{low}} = 8.12, M_{\text{high}} = 6.43; F(1, 98) = 4.96, p < .05$).

Next, a 2 (goal progress) \times 2 (variety among means) ANOVA on the number of anagrams solved correctly also revealed a significant interaction ($F(1, 98) = 6.25, p < .05$; see fig. 5). In the low goal progress condition participants solved directionally more anagrams correctly in the high variety condition relative to the low variety condition ($M_{\text{high}} = 7.07, M_{\text{low}} = 5.76; F(1, 98) = 2.80, p < .1$). However, in the high goal progress condition participants solved more anagrams correctly in the low variety condition relative to the high variety condition ($M_{\text{low}} = 6.68, M_{\text{high}} = 5.29; F(1, 98) = 3.49, p = .06$).

The results of study 3 provide support for our hypotheses with actual motivation measured in a new goal domain: persistence and performance on an academic goal-related task. Consistent with hypothesis 1, when perceived goal progress was low, participants worked harder on an academic goal-related anagram task when primed to think about a set of academic goal-related means as different from one another (i.e., high variety condition) versus similar to

FIGURE 4

EFFECTS OF GOAL PROGRESS AND VARIETY AMONG MEANS ON PERSISTENCE ON A GOAL-RELATED TASK: STUDY 3

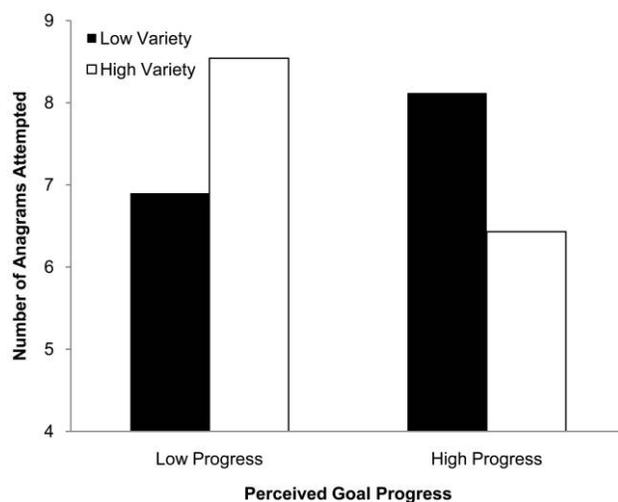
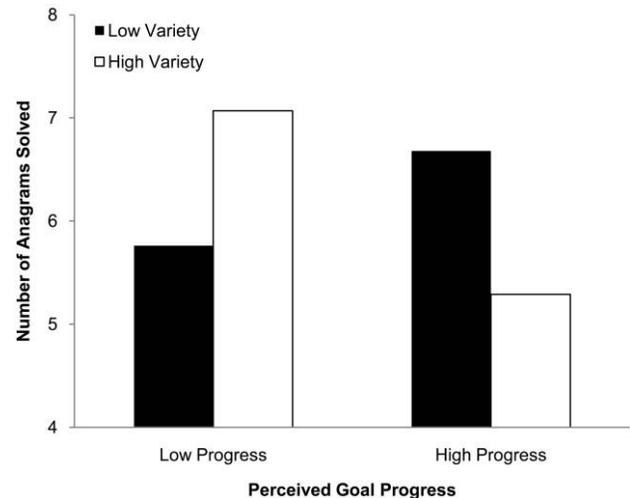


FIGURE 5

EFFECTS OF GOAL PROGRESS AND VARIETY AMONG MEANS ON PERFORMANCE ON A GOAL-RELATED TASK: STUDY 3



one another (i.e., low variety condition). Consistent with hypothesis 2, when perceived goal progress was high, participants worked harder on an academic goal-related anagram task when primed to think about similarities among the set (i.e., low variety condition) versus differences among the set (i.e., high variety condition).

Previous research suggests that the value ascribed to a goal transfers to its means of attainment (Fishbach et al. 2004). Thus, another way to capture motivation to pursue a goal is to consider willingness to pay for its means of attainment. When consumers are more motivated to pursue a goal, they value the goal more highly, and this higher value should transfer to increase the value of the means to the goal. In study 4 we test this reasoning by measuring participants' real willingness to pay for a set of means to goal attainment.

STUDY 4: WILLINGNESS TO PAY FOR MEANS TO GOAL ATTAINMENT

The key objective of study 4 was to test whether these effects of goal progress and variety among means on motivation extend to real willingness to pay for means to goal attainment. To assess willingness to pay, we invited participants to enter an auction for a set of means to goal attainment. All participants bid on the same product (i.e., a pack of seven protein bars) following manipulations of perceived goal progress and perceived variety. In addition, this study included measures of perceived importance and attainability of the goal to rule out effects on attitudes toward the goal itself as a function of our manipulations.

Design and Procedures

One hundred and five undergraduates at the University of Maryland participated in this study in exchange for course credit. Participants were randomly assigned to condition in a 2 (goal progress condition: low vs. high) by 2 (variety among means: low vs. high) between-subjects design.

First, participants were asked to indicate whether they were pursuing a fitness goal (yes-no). They were then given the same goal progress prime used in study 1A. In the high goal progress condition, participants were asked to respond to a series of items regarding the frequency of their recent workouts on low-frequency scales (i.e., response options “0,” “1–2,” “3–4,” “5 or more” in response to the question, “How many times have you exercised in the past week?”). In the low goal progress condition, participants were asked to respond to a series of items regarding the frequency of their recent workouts on high-frequency scales (i.e., response options “5 or fewer,” “6–7,” “8–9,” “10 or more” in response to the question, “How many times have you exercised in the past week?”). Participants were given a list of the flavors of the bars in the pack (i.e., Caramel Brownie, Caramel Crunch, Double Peanut Butter, Oatmeal, Peanut Butter, Rocky Road, and Strawberry Cheesecake) and told (correctly) that each bar had approximately 165 calories, 14 grams of protein, 14 grams of carbohydrates, and 8 grams of sugar. Variety was manipulated via a similarity prime (as in study 3). In the low variety condition, participants were asked to describe how the protein bars in the pack were similar to one another, whereas in the high variety condition, participants were asked to describe how the protein bars in the pack were different from one another.

Next, participants were invited to participate in a real auction with the other participants in their session for this pack of seven HealthSmart protein bars (see app. D). They were each allowed to make one bid, the highest amount that they would be willing to pay for the protein bars. Participants made their bids on the pack of protein bars in a blank space provided below the description of the bars. If they would not be willing to pay any amount of money for the pack of protein bars, participants were instructed to write “0” as their bid. To further demonstrate that the auction was real, we asked participants to enter their e-mail address after making a bid so that they could be contacted if they were the highest bidder, and we provided the room number where winners would be directed to collect the pack of bars.

Finally, the participants answered a series of follow-up questions regarding the similarity of the set of protein bars (1 = not at all similar, 7 = very similar), the importance of their fitness goal (1 = not at all important, 7 = very important), and the attainability of their fitness goal (1 = not at all attainable, 7 = very attainable).

Results

Manipulation Check. All participants indicated that they were pursuing a fitness goal. A 2 (goal progress: low vs. high) \times 2 (variety among means: low vs. high) ANOVA on per-

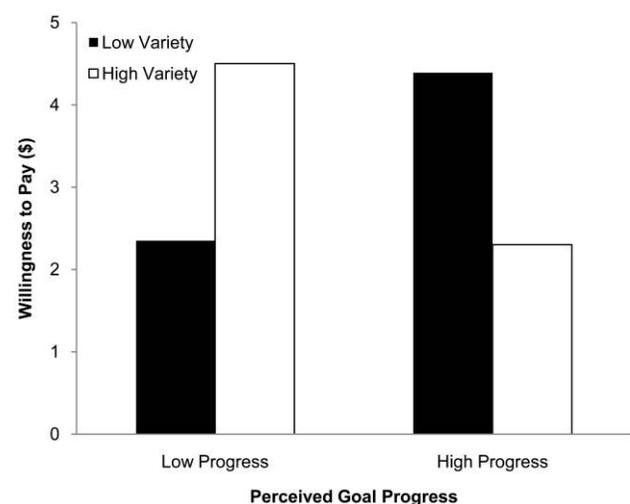
ceived similarity revealed only a main effect of variety condition. Participants perceived the pack of protein bars as more similar (i.e., less varied) when asked to think about how the bars were similar ($M_{\text{low}} = 4.93$) versus different ($M_{\text{high}} = 3.43$; $F(1, 101) = 25.82$, $p < .001$).

Motivation. Our key measure of motivation in this study was the bid made for the set of protein bars. A 2 (goal progress) \times 2 (variety among means) ANOVA on the amount bid revealed the predicted interaction between variety among means and goal progress ($F(1, 101) = 8.05$, $p < .01$; see fig. 6). As we expected, when goal progress was low, participants bid more for the box of protein bars when perceived variety was high (i.e., when asked to think about differences between the bars) versus low (i.e., when asked to think about similarities between the bars; $M_{\text{high}} = \$4.50$, $M_{\text{low}} = \$2.35$; $F(1, 101) = 3.96$, $p < .05$). However, when goal progress was high, participants bid more for the box of protein bars when perceived variety was low versus high ($M_{\text{low}} = \$4.39$, $M_{\text{high}} = \$2.30$; $F(1, 101) = 4.10$, $p < .05$).

Supplemental Measures. No significant effects of variety among means or goal progress emerged on ratings of goal importance nor on ratings of goal attainability (F 's < 1). Consistent with our predictions, these results indicate that our effects of means variety and goal progress are not driven by perceived goal importance or the attainability of the goal. Together with study 3, the results of the auction in study 4 demonstrate that our predicted effects of goal progress and variety among means affect actual behaviors in which people engage to pursue their goals.

FIGURE 6

EFFECTS OF GOAL PROGRESS AND VARIETY AMONG MEANS ON WILLINGNESS TO PAY FOR THE MEANS: STUDY 4



GENERAL DISCUSSION

Over the course of goal pursuit, consumers often use products to help them advance toward goal attainment. As is the case with any set of products, sets of means to goal attainment may differ in terms of the variety contained within the set. Understanding how the variety among means affects consumers' motivation to pursue the associated goal is an important research objective and one that had yet to be addressed.

In the present research, we propose that variety affects motivation dynamically over the course of goal pursuit. We predicted (1) that when progress toward goal attainment was low, a set of means with more variety would increase motivation relative to a set of means with less variety but (2) that when progress toward goal attainment was high, a set of means with less variety would increase motivation relative to a set of means with more variety. Across five studies we find convergent support for our hypotheses. In studies 1A and 1B we demonstrated the predicted interaction between goal progress and variety on motivation, both by manipulating actual variety and perceived variety and by manipulating and measuring perceived goal progress. Study 2 extends our analysis to a situation in which the set of means for some participants contained no variety at all (i.e., identical means). Consistent with our overall framework, participants whose perceived goal progress was higher were even more motivated by an identical set of means (e.g., a pack of identical protein bars) than a varied set. Two final studies provide further support for our hypotheses using real measures of motivation. In study 3, we measured the impact of goal progress and variety among means in the domain of academic goals, demonstrating our effects with real measures of motivation (e.g., actual persistence) on an academic goal-related task. Finally, in study 4, we show that the effects of goal progress and variety on motivation extend to real willingness to pay for a set of means to goal attainment.

We have suggested that feelings of uncertainty associated with goal pursuit play a role in the relationship between variety and motivation. To obtain more insight into the underlying process, we ran a follow-up study ($N = 113$) in which we manipulated variety among means to an academic goal as in study 3, measured goal progress, and measured perceptions of how helpful the set of means was in "reducing any uncertainty you feel about the best way to pursue your academic goal." Supporting an uncertainty account of our effects, we found a significant interaction between goal progress and variety ($\beta = -.75$, $t = -2.67$, $p < .01$). Consistent with our reasoning that high variety sets of means do more to reduce uncertainty associated with goal pursuit than do low variety sets of means when perceived goal progress is low, spotlight analyses revealed that participants who perceived goal progress to be low found the more (vs. less) varied set of means to be more helpful in reducing uncertainty associated with goal pursuit ($\beta = 2.75$; $t = 2.23$, $p < .05$). However, the opposite was true for participants who perceived goal progress to be high. Among these individuals, less (rather than more) varied sets of means were

found to be more helpful in reducing uncertainty associated with goal pursuit ($\beta = 4.32$; $t = 2.34$, $p < .05$). These results suggest that there is uncertainty associated with both high and low goal progress. However, because more variety reduces uncertainty to a greater degree when progress is low whereas less variety reduces uncertainty to a greater degree when progress is high, the nature of uncertainty associated with goal pursuit appears to differ across states of goal progress.

We had speculated that individuals far from goal attainment might be uncertain about their future preferences among means to goal attainment, implying that they may be more motivated by a set of means that offers more flexibility (i.e., a high variety set). Individuals close to goal attainment might be less concerned with potential changes in future preferences but be uncertain about the most effective way to achieve their goal, implying that they may be more motivated by a more focused set of means (i.e., a low variety set). To test this reasoning, in a second follow-up study ($N = 43$), we manipulated perceptions of progress toward achieving a fitness goal (as in studies 1A, 2, and 4) and measured the extent to which participants valued having flexibility among means to goal attainment and valued the effectiveness of means to goal attainment. The results of this follow-up study do not support this account of our effects; neither the effect of goal progress on the reported value of flexibility nor the value of effectiveness were significant (p 's $> .3$). Together, these results suggest either that the relative value of flexibility and efficacy across stages of goal pursuit do not play a role in driving our effects or that these factors do play a role in producing our effects but are not being revealed through the various self-report measures we have employed. In sum, the exact nature of the uncertainty associated with low and high goal progress remains an open question, worthy of future research.

The present research makes a number of contributions to the literatures on goals, motivation, and variety. Whereas past research has considered how consumers' goals and motivation affect their preferences for variety (Kahn and Ratner 2005), the present work is the first to consider the reverse direction of causality: how variety affects motivation directed toward goal pursuit. Our research also introduces the idea that the effect of variety on motivation changes over the course of goal pursuit. We consider the relationship between variety and motivation to be dynamic, changing over time as progress is made toward goal attainment. We find that our effects of goal progress and means variety on motivation replicate across multiple goal domains (fitness goals and academic goals), with different measures of motivation (self-report, persistence, willingness to pay) and different types of means (products and behaviors), construed both relatively concretely (as in the case with the protein bars in studies 1A, 1B, and 4) and abstractly (as in the case with the academic goal-related behaviors in study 3), suggesting that our effects would hold across a broad range of goals, subgoals, and means. Further, our results suggest that having no variety among means to goal attainment can do more to increase motivation

to pursue a goal when progress made toward goal attainment is high than having even a small amount of variety among means to attainment (study 2).

Our findings also extend previous research on the effects of goal progress on motivation. Prior work has found mixed support for the relationship between perceived goal progress and motivation. Some research shows that motivation increases with perceived goal progress (Carver and Scheier 1998; Dreze and Nunes 2006; Kivetz, Urminsky, and Zheng 2006); for example, the goal-gradient hypothesis suggests that consumers accelerate their goal-directed efforts as they approach their goal (Kivetz et al. 2006). However, other work has not found there to be a systematic relationship between motivation and perceived goal progress (Fishbach and Dhar 2005; Fishbach and Zhang 2009; Oettingen and Mayer 2002; Zhang, Fishbach, and Dhar 2008). In this stream of research, the particular influence of goal progress on motivation has been shown to depend on a number of moderators, including goal commitment, upward versus downward social comparisons, the framing of future plans as fantasies versus expectations, and whether the initial decision to adopt a goal is perceived as autonomous. For example, Fishbach and Dhar (2005) find that when people infer that they have made high goal progress they are subsequently less motivated to pursue the focal goal. The present findings contribute to this literature by identifying means variety as an additional moderator of the effect of goal progress on motivation. Although we find mixed support for a main effect of perceived goal progress on motivation across our five studies, we consistently find that individuals who have made high versus low goal progress are more motivated when they have a low variety set of means to goal attainment, and vice versa in the case of those who have made low versus high goal progress.

We believe this research has a number of managerial implications. Consumers who are highly motivated to pursue a particular goal are more likely to stay engaged in goal pursuit, increasing the likelihood that they will purchase within product categories related to the goal. Consequently, retailers would benefit from keeping consumers motivated to pursue goals related to their product offerings. For example, retailers that sell protein supplements would benefit from keeping their customers motivated to pursue fitness goals. The present research suggests that one way retailers may maintain a high level of motivation is by strategically manipulating perceptions of variety among their goal-related product offerings.

Depending on their target consumer segments, retailers may want to enhance or minimize perceptions of variety. For example, specialty stores that are positioned to target consumers who have presumably made high progress toward their fitness goals (such as GNC) may wish to make their fitness-related product assortments seem less varied in order to increase motivation, purchase incidence, purchase volume, and so forth within the category. However, more general stores, such as Wal-Mart, that likely cater to consumers who overall have made less progress toward their fitness goals, may wish to make their

fitness-related product assortments seem more varied in order to increase motivation and purchases within the category. Managers have the ability to influence perceptions of variety in their product offerings, for example, by subcategorizing a product assortment into separately labeled categories to enhance perceptions of variety (Mogilner et al. 2008). Our work suggests that subcategorization may be beneficial for retailers if their target consumer segments have made low progress on related goals.

Our findings are also relevant to the sale of “variety packs,” or multi-unit packages of a product that contain a variety of flavors, similar to our low variety conditions (studies 1A and 2). Our results suggest that consumers’ evaluations of products sold in this format will vary depending on consumers’ stage in the course of goal pursuit. In particular, consumers who have made high goal progress may value these types of (low variety) product packs more highly than those who have made less progress. To capture this higher valuation, marketers of variety packs may want to make their consumers feel as if they have made high progress toward attainment of a goal related to the pack, for instance, by incorporating language related to having made high goal progress on the products’ packaging (e.g., “Reward yourself after a tough workout”). Our work also cautions that variety packs may not always be the best format for selling multiple units of the same product. The results of study 2 suggest that consumers who feel very accomplished in pursuing a goal may actually have less value for variety packs relative to packs of identical items (e.g., boxes containing multiple bars of the same flavor).

The present findings also offer a number of important insights for consumers. For example, people who have made less progress toward a savings goal may be more motivated to keep saving if they have many different options of ways to save, whereas people who have made more progress toward a savings goal may be more motivated if they are given more similar options of ways to save. Likewise, following an exam given early in the semester, teachers may best motivate students to improve their grades by giving them diverse options for subsequent assignments, but following an exam given late in the semester, teachers may best motivate students by giving them a less varied set of options or even a single option. Finally, patients who are at the early stages of treatment for an illness may benefit from being offered a varied set of options for remedies from their physicians, but patients who are at later stages of recovery from an illness may benefit from being given a less varied set of remedies. These and other applications of our results may have far-reaching implications for consumer well-being.

In conclusion, our findings indicate that goal progress systematically affects the attractiveness of products that consumers could use to help them achieve their goals. The extent to which consumers will value varied products relative to product assortments that contain less or no variety will depend on how much progress they perceive they have made toward their focal goal.

APPENDIX A

PRODUCT STIMULI USED IN STUDIES 1A AND 2: LOW AND HIGH VARIETY SETS

FIGURE A1

PRODUCT STIMULI USED IN STUDIES 1A AND 2: LOW VARIETY SET

A:
Protein plus PowerBar – Dark Chocolate Toffee



B:
Protein plus PowerBar – Chocolate Peanut



C:
Protein plus PowerBar – Chocolate Brownie



D:
Protein plus Bower Bar – Dulce de Leche



E
Protein plus PowerBar – Vanilla Yogurt



F
Protein plus PowerBar – Chocolate Chip



NOTE.—Color version available as online enhancement.

FIGURE A2

PRODUCT STIMULI USED IN STUDIES 1A AND 2: HIGH VARIETY SET

A:
Muscle Milk Protein Drink



B:
Prostar Whey Protein Powder



C:
50 Gram Slam Protein Drink



D:
Protein PowerBar – Dark Chocolate Toffee



E:
Detour Protein Bar



F:
PowerBar Protein Gel



NOTE.—Color version available as online enhancement.

APPENDIX B

FIGURE B1

PRODUCT STIMULI IN STUDY 1B

A: PowerBar Powder



B: PowerBar Bar



C: PowerBar Gel



D: PowerBar Bites



E: PowerBar Bar



F: PowerBar Shake



NOTE.—Color version available as online enhancement.

APPENDIX C

FIGURE C1

PRODUCT STIMULI IN STUDY 2 (IDENTICAL MEANS)

Protein plus PowerBar – Chocolate Chip



Protein plus PowerBar – Chocolate Chip



Protein plus PowerBar – Chocolate Chip



Protein plus PowerBar – Chocolate Chip



Protein plus PowerBar – Chocolate Chip



Protein plus PowerBar – Chocolate Chip



NOTE.—Color version available as online enhancement.

APPENDIX D

FIGURE D1

PRODUCT USED IN AUCTION IN STUDY 4



NOTE.—Color version available as online enhancement.

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