The Categorization of Time and Its Impact on Task Initiation

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It could be argued that success in life is a function of a consumer's ability to get things done. The key step in getting things done is to get started. This research explores the effect of the categorization of time on task initiation. Specifically, we theorize that consumers use a variety of cues to categorize future points in time (events) into either events that are like the present event or those that are unlike the present event. When the deadline of a task is categorized in a like-the-present category, it triggers the default implemental mind-set and hence results in a greater likelihood of task initiation. A series of field and lab studies among farmers in India and undergraduate and MBA students in North America provided support to this theorizing. Our findings have implication for goal-striving strategy and choice architecture.

February twenty fourth looked a lot closer from this side of Christmas. (J. K. Rowling, *Harry Potter and the Goblet of Fire*)

Much of our lifetime is devoted to getting things done. Whether it is getting a paper ready for submission to this journal, working on a consulting project, packing for a trip, saving for a new home, helping our kids prepare for their next hockey tournament, or preparing for the TriWizard Cup (like Harry Potter), consumers often need to get activities done by some deadlines in the future. Evidently, many people struggle to get things done, consequently creating a market for self-help books (Allen 2002) and MBA courses on this topic. One lesson from these books and classes is that the key to getting things done is to get things started. Indeed, an oft-quoted idiom that has been attributed to Aristotle and to Mary Poppins proclaims that "well begun is half done."

In the present research, we study the manner in which consumers mentally represent time and its effects on their tendency to initiate tasks. The concept of time is a multidimensional construct. We make a distinction between an event in time (a distinct point in time; a day or a specific outcome) and the duration of time (the period between two events), and we view time more generally as a progression of successive events. We study consumers faced with a deadline for a well-defined task and examine their likelihood of initiating the task. It is intuitive to expect that the likelihood of initiating the task will monotonically increase as consumers temporally approach the deadline and the available time resources dwindle. This relationship between available time duration and task initiation is consistent with research in economics, intertemporal choice, psychology, and marketing that conceptualizes time as a linear construct (Ainslie and Haslam 1992; Becker 1965; Hornik 1984; Kellaris and Kent 1992; Zauberman et al. 2009). However, the fact that time elapses continuously does not necessarily mean that the mental representation of events in time is also continuous. People routinely manage time in a categorical manner, typically for the purposes of planning, tracking, and documenting activities. For instance, most consumers (and corporations) arrange activities by the day, plan expenses by

the month, and set goals for the year. Similarly, students tend to compartmentalize events in time by academic terms, farmers by harvesting seasons, and accountants by financial quarters.

Does the categorization of events in time affect consumers' tendency to initiate tasks? We propose that categorization would lead consumers to divide future events in time into two categories—a like-the-present category that is viewed in the same manner as present events, and an unlike-the-present category that is viewed differently. Since the default mind-set toward present tasks is implemental and is characterized by an action orientation, and consumers treat events and tasks in the same temporal category with the same mind-set, we argue that consumers' propensity to initiate a task would be higher if the task is categorized in a like-the-present category than in an unlike-the-present category. For example, consumers regularly use the end of month as a cue to categorize future time events, and thus we expect that they would be more likely to start working on a task whose deadline is in the current month than in the next month, holding the time duration between the present and the deadline constant. Similarly, Harry Potter used Christmas as a cue to categorize future time events and suddenly felt a greater sense of urgency in preparing for the TriWizard Cup right after Christmas.

Stated formally, our investigations address the following specific research questions:

1) Does the categorization of time events influence consumers' decisions to initiate tasks? We hypothesize and show that consumers are more likely to initiate a task when the deadline is categorized in a like-the-present category than in an unlike-the-present category.
2) What theoretical account drives the effect? We propose that when the task deadline is categorized in a like-the-present category, consumers view the task with a stronger implemental mind-set (i.e., the default mind-set toward present tasks) than when the task deadline is categorized in an unlike-the-present category, and consequently, they have a stronger tendency to initiate the task.

The rest of this article is organized in three sections. First, we review relevant literature, develop a theoretical framework, and propose testable hypotheses. Second, we present the results of several field and laboratory experiments that support our framework. Finally, we conclude with a general discussion and potential avenues for future research.

CONCEPTUAL FRAMEWORK

Success in various domains in life essentially boils down to the ability to set and achieve task-oriented goals. It is therefore not a surprise that a lot of research has been conducted with the aim of better understanding goal pursuit in general and the factors that facilitate and hinder goal attainment in particular (Gollwitzer 1993). Early researchers

FIGURE 1

THEORETICAL FRAMEWORK
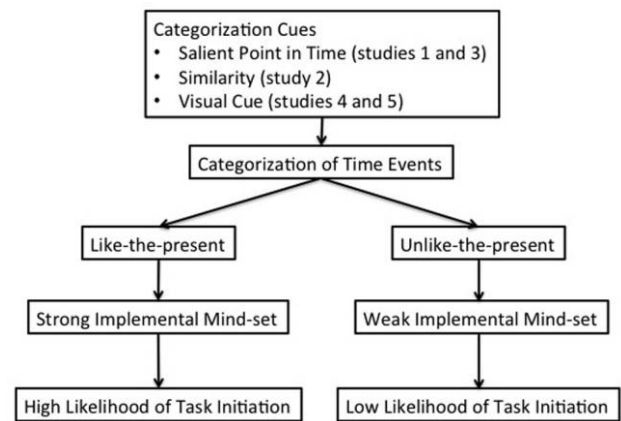
(Heckhausen and Gollwitzer 1987; Heckhausen and Kuhl 1985; Lewin 1926) typically drew a distinction between two stages of goal pursuit—motivation (goal setting, strategizing, and planning) and volition (action orientation and implementation)—and argued that as people approach a goal over space and time, they switch from a motivational stage to a volitional stage. In a similar vein, Gollwitzer (2012) and others (Xu and Wyer 2010) made a distinction between a deliberative mind-set, an information processing mode characterized by planning and evaluation, and an implemental mind-set, an information processing mode characterized by action orientation, goal commitment, and willingness to make choices. However, the literature is generally silent on precisely what decides the shift from a deliberative mind-set to an implemental mind-set.

We propose that the temporal category membership of the task deadline matters. Specifically, when the task deadline is in the same category as the present (i.e., in a like-the-present category), consumers view the task with a stronger implemental mind-set than when the task deadline is in a different category than the present (i.e., in an unlike-the-present category). Consequently, consumers are more likely to initiate the task in the former condition than in the latter. Figure 1 depicts our conceptual framework, and we elaborate on its conceptual underpinnings in the paragraphs that follow.

Categorization of Events in Time

The categorization of space, persons, and objects is a ubiquitous and spontaneous process (Allport 1954; Brewer 1988; Cohen and Basu 1987; Devine 1989; Fiske and Neuberg 1990) and widely influences perception, judgment, choices, and motivation. For example, in the domain of spatial perception, Tversky (1992) showed that "the same real distance was remembered as smaller if it was between

two points in the same group [*category*] but larger if it was between points in different groups [*categories*]" (132, italics added for emphasis; see also Huttenlocher, Hedges, and Duncan 1991). In the domain of judgment, Mishra and Mishra (2010) showed that because American consumers categorize land by state borders, they perceive natural disasters (e.g., earthquakes, environmental risks) to have a disproportionally larger impact on an inside-state-border location than an outside-state-border location, holding the objective spatial distance the same. In the domain of consumer choices, LeClerc, Hsee, and Nunes (2005) found that consumers evaluate target products relative to other products in the same category and hence favor a high-ranking product in a low-status category over a low-ranking product in a high-status category even when the former product is objectively worse than the latter. Of particular relevance to our current investigation on the impact of categorization on task goal pursuit, Zhao, Lee, and Soman (2012) found that consumers categorize waiting environments by visual cues or semantic information and that the spatial category they are in influences their commitment to and action orientation toward the focal task.

In addition to categorizing space, persons, and objects, consumers also categorize events in time using a variety of cues. For example, if a consumer had just read Allen's (2002) prescriptive advice on managing tasks, she might think about events that are going to happen this week differently from events in future weeks. In this situation, she uses the end of a week, a salient point in time or a marker, to categorize future time events. Likewise, Harry Potter used Christmas to categorize future time such that events after Christmas were viewed differently than events before Christmas. As another example, a professor of marketing teaches only on Mondays, and for her all Mondays are similar to each other but very different from all the other days. In this case, she categorizes time events into Mondays versus other days by similarity (Goldstone 1994). Finally, a consumer might have a routine job in which all the weekdays are alike but are all different from the weekends. As a result, she may categorize time events into weekdays versus weekends on the basis of similarity.

Consider a simple analogy to illustrate the categorization process. A consumer has a number of objects and her task is to sort these objects into two bins. She has been given a prototypical object for bin 1, a blue wooden square, and has been told to put all objects similar to this prototype in bin 1 and all others in bin 2. She puts a blue wooden circle, a red wooden triangle, and a red plastic square in bin 1 because each object shares at least one property in common with the prototype (with the relevant cues being color, material, and shape). Red glass hexagons and green plastic circles go into bin 2. Extending this analogy to events in time, consumers might use many cues to determine similarity to the present (the prototype)—and hence category membership—the temporal location of the event relative to a salient point in time, or the similarity of the event in time to the present. Using the bin analogy, this process would result in two categories

of events—one is like the present and the other is unlike the present. Consequently, consumers would show different task initiation tendencies for events (task deadlines) that are in a like-the-present category versus an unlike-the-present category.

Action Phases and Mind-Set

Perhaps the earliest theorizing on the action phases in task goal pursuit over time was done by Kurt Lewin (1926), who argued that individuals go through a goal-setting stage and a goal-striving stage to complete tasks and that these two stages were driven by distinct psychological processes. This distinction was echoed by Ach (1935, as cited in Gollwitzer 2012) and later revived by Kuhl (1983, as cited in Klinger 1992). More recently, Heckhausen and Gollwitzer (1987) proposed a four-phase Rubicon model which posits that the course of a task goal pursuit consists of four successive phases; the pre-decision phase, the post-decision (but pre-action) phase, the actional phase, and finally the post-actional phase. The shift from the post-decision (but pre-action) phase to the actional phase is of particular relevance to the present research. Gollwitzer and colleagues (Gollwitzer 1990, 2012; Gollwitzer, Heckhausen, and Steller 1990) argue that in the pre-decision stage, consumers are in a deliberative mind-set characterized by weighing the cons and pros of tasks; whereas in the actional phase, they are in an implemental mind-set characterized by an action orientation and a positively biased view toward the task.

For a consumer who has already passed the pre-decision phase, an implemental mind-set facilitates further goal pursuit. For instance, Pösl (as cited in Gollwitzer 2012) found that people with an implemental mind-set were faster to initiate a task than those with a deliberative mind-set. This effect is stronger when individuals were faced with multiple tasks and needed to prioritize these tasks. In addition, Brandstätter and Frank (2002) found that an implemental mind-set could lead to greater persistence; for example, people persisted longer solving an unsolvable puzzle.

How can an implemental mind-set be induced? Researchers have shown that consumers can become more implemental after thinking about how outcomes can be achieved (Taylor and Gollwitzer 1995) and by the activation of procedural knowledge (Xu and Wyer 2007, 2008). In addition, physical locations can also trigger an implemental mind-set. For example, Lee and Ariely (2006) studied shoppers physically moving from outside to inside a grocery store and found that they became more implementation-oriented after entering the store. Zhao et al. (2012) showed that consumers' mind-set could become more implemental when they crossed task-irrelevant physical boundaries (e.g., space marked by an area carpet or a queue guide). More generally, the categorization of space seems to create the proverbial Rubicon from the Heckenhausen and Gollwitzer (1987) model such that stepping from "outside" (the store or the queue area) to "inside" activates a stronger implemental mind-set.

Extending this theorizing to the domain of time, we pro-

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pose that the same task would be viewed with a stronger implemental mind-set when the task deadline is in a like-the-present category than in an unlike-the-present category because (1) consumers are implemental toward present tasks that they are about to engage in (Gollwitzer 2012) and (2) consumers view category members (in the current case, members of the like-the-present category) similarly (Cohen and Basu 1987). Therefore, we predict that consumers would be more likely to initiate a focal task categorized in a like-the-present category than in an unlike-the-present category.

This theorizing is captured by the following hypotheses.

> **H1**: Consumers are more likely to initiate a task when its deadline is categorized in a like-the-present category than in an unlike-the-present category.

> **H2**: The effect proposed in hypothesis 1 occurs because consumers adopt a stronger implemental mind-set when categorizing the task deadline in a like-the-present category than an unlike-the-present category.

OVERVIEW OF EMPIRICAL WORK

We present five studies that tested our theoretical framework. Our experimental paradigm is simple—in each study, we give participants a well-defined task with a precise deadline. We then highlight a categorization cue that would result in the categorization of the deadline event into either a like-the-present or an unlike-the-present category and show differences in task initiation. In reality, it is likely that multiple categorization cues operate simultaneously. For example, when consumers categorize next Saturday into a different category than this Tuesday, the reasons might be (1) next Saturday is in a different week than this Tuesday, (2) next Saturday is a different day of the week than this Tuesday, and (3) next Saturday is a weekend as opposed to a weekday. Our experimental strategy was simply to highlight one categorization cue in each study and to predict an effect based on that particular cue. For instance, consider a consumer on a Monday making a decision about a task that is due next Monday. If we highlight the fact that the task is due next week rather than this week, we expect the task to be categorized as unlike the present. However if we highlight that all the Mondays share similarity, we expect the task to be categorized as like the present.

In the first three studies, we document the predicted effect in both field and laboratory settings using different categorization cues. In study 4, we provide process evidence that the categorization of time events influences the mind-set toward tasks. In study 5, we moderate this effect by imposing a particular mind-set before participants make the task initiation decision and predict that the imposed mind-set would turn off the proposed effect. While we focus our reporting in the article on variables of interest, we report all variable exclusions (if any), all manipulations, and all mea-

sures, as well as how we determined our sample size, in the online appendix.

STUDY 1

Study 1 documented the effect of categorizing events in time on task initiation in a community in rural India. This study was part of a larger project aimed at developing financial literacy and skills among farmers. All participants in this study had attended a financial literacy lecture in which they learned about a number of savings products as well as the basic principles of financial literacy. They were offered a savings product with a financial incentive for achieving a savings target within 6 months.

We highlighted the end of a calendar year as the categorization cue and predicted that farmers with a deadline that fell before the year end would categorize the deadline in a like-the-present category and thus be more likely to initiate the task, as compared to those with a deadline that fell after the year end and categorized the deadline in an unlike-the-present category.

Method

This study used a 2 (temporal category of deadline: like-the-present vs. unlike-the-present) between-participants design. Two hundred and ninety-five male farmers (all with two children in the four to eight years age range), who had attended a lecture on financial literacy, participated in the study.

A member of the financial literacy team approached participants individually either in June or July 2010 following the lecture. We first reminded participants that one of the main goals for saving was to create a fund for educating their children and then presented a savings product. The farmers could earn a financial incentive provided that they opened the bank account and accumulated at least Rs 5,000 in the account within 6 months. We explained these details to the farmers and reminded them that they "*have to complete the paperwork and deposit at least Rs. 5000 in the account by December xx, 2010 (vs. January xx, 2011).*" This reminder was also printed on a display board and shown to each farmer. We then told participants that if they so wished, they could open an account with zero deposit and complete the paperwork immediately while a bank representative was present. Alternatively, they could open the account at any point in time by going to the closest branch of the bank.

The end of the calendar year served as a categorization cue. For those who were approached in June, their deadline (i.e., December xx, 2010) was in a like-the-present category; whereas for those who were approached in July, their deadline (i.e., January xx, 2011) was in an unlike-the-present category.

Results and Discussion

Farmers whose deadline was in December 2010 were more likely to open the account immediately (31.86%; 51/

161) than those whose deadline was in January 2011 (8.09%; 11/136; $\chi^2(1) = 24.84$, $p < .001$). When the 6-month distant deadline for accumulating Rs 5,000 in their accounts was in the current year rather than in the next year, there was greater task initiation although the available time for completing the task was the same across the two conditions.

In addition, we found that more people succeeded in completing the task in the like-the-present condition (27.95%; 45/161) than in the unlike-the-present condition (4.42%; 6/136; $\chi^2(1) = 28.72$, $p < .001$). This pattern also held when we use conditional success rate. Specifically, among people who eventually opened an account (52 people in the like-the-present condition and 11 people in the unlike-the-present condition), more people succeed in the like-the-present condition (86.54%; 45/52) than in the unlike-the-present condition (54.55%; 6/11; $\chi^2(1) = 6.03$, $p < .05$). Although our theoretical framework makes no prediction on the impact of temporal categorization on task completion, these results suggested that initiating the task early could also facilitate task completion.

Results from this field study supported hypothesis 1, that consumers are more likely to initiate a task when the task deadline is classified in a like-the-present category than in an unlike-the-present category. As any field study, however, the present study had potential issues with the inability to randomly assign participants and the lack of control due to contamination and communication between participants. Hence we ran a conceptual replication with MBA students at the University of Toronto. We gave these MBA students an opportunity to do some freelance consulting work, ostensibly for a company that many of them wanted to work for. One hundred and thirty first-year MBA students (39 females) who expressed interest in this job received further details, such as a job description, how much time it would approximately take, and so on. We approached participants either 5 days or 25 days before an MBA formal dinner, a traditionally big event that was clearly on our participants' minds at the time this experiment was conducted. We believe that participants would use this salient time point to categorize time events. We then assigned participants a task that was due either in 10 days (task 1) or in 20 days (task 2). Regardless of job versions, those who were approached 5 days before the formal dinner had a deadline in an unlike-the-present category, whereas those who were approached 25 days before the formal dinner had a deadline in a like-the-present category. We then reminded participants about the formal dinner and asked when they would like to start working on the task (1 = definitely now, 9 = definitely later). We found that participants who had a deadline in a like-the-present category were more willing to initiate the task now (task 1: $M = 2.55$, SD $= 1.35$; task 2: $M = 3.97$, SD $= 1.47$) than those who had a deadline in an unlike-the-present category (task 1: $M = 5.69$, SD $= 1.92$; $t(63) = 7.44$, $p < .01$; task 2: $M = 5.55$, SD $= 1.80$; $t(63) = 3.88$, $p < .01$).

Together, results from the field study with farmers in India and MBA students at the University of Toronto supported hypothesis 1 that there was a greater tendency to commence a task when the task deadline was categorized in a like-the-present category than in an unlike-the-present category. In these studies, participants used a salient point in time as a cue to categorize future time events. We use a different categorization cue in study 2.

STUDY 2

Study 2 used similarity as a categorization cue. We contend that days that are in the same position through a week (e.g., this Monday and next Monday) are more similar than days that are in different positions through a week (e.g., this Monday and next Tuesday), not only because these days share the same name and the same position through a week but also because people engage in similar activities on these days. For example, a professor may teach the same class each Monday, a manager may organize the same routine meeting each Wednesday, and a consumer may watch a hockey game every Friday. Therefore, in study 2 we gave participants a task deadline that was 7 days away from the present day (e.g., if participants took the study on a Monday, then the task deadline was next Monday; if participants took the study on a Tuesday, then the task deadline was next Tuesday) and either prompted them to focus on this type of similarity between the task deadline and the present day (via an ostensibly unrelated sorting game) or not. We predicted that because in the former condition participants were more likely to classify the task deadline in a like-the-present category, they would be more likely to initiate the focal task in the former condition than in the latter condition.

Method

This study used a 2 (categorization cue: day of week vs. control) between-participants design. Fifty-two participants (29 females), including students and staff from the University of Chicago and local residents in Chicago, participated in this study.

Participants read that they were to finish two unrelated tasks and that the first task was a sorting task. Unknown to the participants, this sorting task served as a manipulation of categorization cue. We ran this study in the week of May 21, 2012. In the sorting-by-day-of-week condition, participants saw 10 days of that month (e.g., May 5, 12, 23) and were asked to sort them by days (e.g., Mondays, Tuesdays, Wednesdays, Thursdays, and so on). To aid in this task, we told participants that May 1, 2012, was a Tuesday. We expected that this categorization task would prompt participants to classify the task deadline, which they would see later in this study (i.e., 7 days from the present) in a like-the-present category. In the control condition, participants saw 10 numbers that were identical to the dates used in the sorting-by-day-of-week condition (e.g., 5, 12, 23) and were asked to sort these numbers by their remainders when they were divided by 2. Because the sorting task in the control condition was neither related to time nor related to classi-

fying numbers by whether they were 7 apart from each other, we expected that participants would be less likely to classify the task deadline in a like-the-present category than those in the sorting-by-day-of-week condition.

Upon finishing this sorting task, participants read a hypothetical scenario in which they needed to organize a birthday party for their best friend. We ran this study Monday through Friday in the week of May 21, 2012, and the task deadline was always 7 days away from the present. We used the same scenario each day but adjusted the specific dates in the scenario. For example, participants who took this study on Monday read "Today is *Monday* (*May 21st*). You woke up in the morning and suddenly realized that one of your best friends has a birthday *next Monday*. You really like this friend and decided to throw him/her a party." Likewise, participants who took this study on Tuesday read the same scenario, except that the italicized parts were replaced with *Tuesday* (*May 22nd*) and *next Tuesday*, respectively. We then measured likelihood of task initiation by asking "Will you start preparing for this party now or later? (1 = definitely later; 7 = definitely now)."

Results and Discussion

As predicted, participants in the sorting by day-of-week condition were more willing to start preparing for the party now ($M = 5.10$, SD = 1.57) than those in the control condition ($M = 3.83$, SD = 1.80; $t(50) = 2.73$, $p < .01$). (We had also run a third condition in which participants were asked to divide numbers by 7 and sort them by their remainders. This procedure was algorithmically similar to the procedure of sorting into days of the week, but it did not fit well with our theoretical framework and hence is not reported here. Please refer to the online appendix for details.)

Results from study 2 were thus consistent with hypothesis 1. Specifically, when prompted to focus on the similarity between the future task deadline and the present via the sorting-by-day-of-week task, participants were more likely to categorize the task deadline in a like-the-present category and thus more likely to initiate the focal task, as compared with participants who were not prompted to focus on this cue. Collectively, studies 1 and 2 support hypothesis 1 in both field and lab settings, using different categorization cues.

STUDY 3

Study 3 provides further evidence on the categorization process using the end of a month as the categorization cue. Specifically, we asked participants to imagine that they had a task due in 5 days, and manipulated the start and end dates of the task such that the task deadline moved from a like-the-present category (i.e., this month) to an unlike-the-present category (i.e., next month) across conditions. We predicted that there would be an abrupt decrease in people's willingness to initiate the task when the deadline just moved from a like-the-present category to an unlike-the-present category.

Method

This study used a one-way between-participants design with four levels. One hundred undergraduate students (43 females) from the University of Toronto participated in this study.

We ran this study in April and presented participants with the following scenario and question: "*Imagine that today is* **April 24th** (**vs. 25th vs. 26th vs. 27th**), *and you have to finish a 4-hour data entry job by* **29th** (**vs. 30th vs. 1st May vs. 2nd May**). *When will you start work?* (1 = *definitely now, 9 = definitely later*)."

In this scenario, the end of April served as a naturally occurring categorization cue. Therefore participants who had a deadline on April 29 or 30 should categorize the deadline in a like-the-present category, whereas those who had a deadline on May 1 or 2 should categorize it in an unlike-the-present category.

Results and Discussion

A one-way ANOVA on participants' willingness to initiate the task yielded a significant effect across conditions ($F(3, 96) = 16.88$, $p < .001$). Since participants in the "April 24–April 29" condition ($M = 3.60$, SD = 1.73) and the "April 25–April 30" condition ($M = 3.84$, SD = 1.80) did not differ in their willingness to initiate the task, and those in the "April 26–May 1" condition ($M = 6.12$, SD = 1.56) and the "April 27–May 2" condition ($M = 6.08$, SD = 1.61) also did not differ, we combined the former two conditions as the like-the-present condition and the latter two as the unlike-the-present condition. An independent t-test showed that people in the like-the-present condition were more likely to start working now ($M = 3.72$, SD = 1.75) than those in the unlike-the-present condition ($M = 6.10$, SD = 1.57; $t(98) = 7.16$, $p < .001$).

As figure 2 and the analysis reported above show, there was an abrupt decrease in willingness to initiate the task when the deadline just moved from a like-the-present category to an unlike-the-present category. This pattern of data is consistent with a categorization approach to events.

Collectively, the studies reported thus far supported hypothesis 1 using different categorization cues. In our next two studies, we provide evidence on the proposed mechanism of an implemental mind-set.
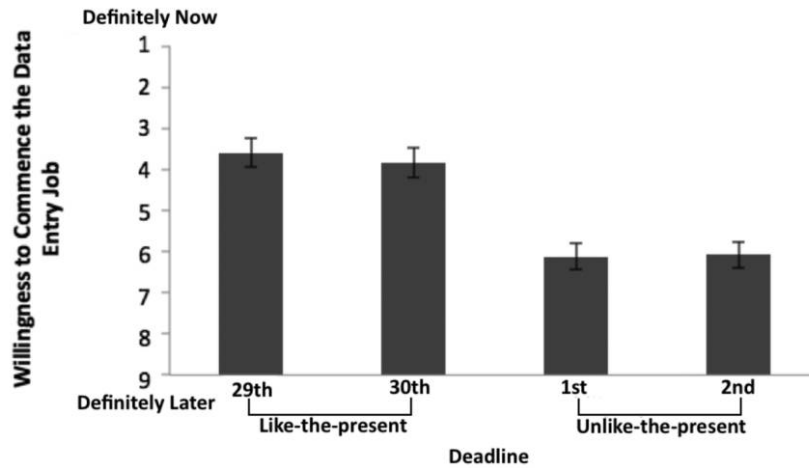
STUDY 4

The objective of study 4 was to test the impact of categorization on implemental mind-set. One characteristic of an implemental mind-set is representation of events in a how-to-do manner (Taylor and Gollwitzer 1995); therefore, in this study we used the behavior identification form (BIF; Vallacher and Wegner 1989) to measure participants' mental construal of events that were to happen either in a like-the-present category or in an unlike-the-present category. In addition, we used a different (visual) cue to prompt the

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FIGURE 2

WILLINGNESS TO COMMENCE THE DATA ENTRY JOB, STUDY 3 (1 = DEFINITELY NOW, 9 = DEFINITELY LATER)

categorization of events—the background colors of dates in a calendar.

Method

This study used a 2 (temporal category of event: like-the-present vs. unlike-the-present) between-participants design. Forty-two undergraduate students (28 females) from the University of Toronto participated in this study.

We conducted this study on March 9, 2011 (a Wednesday) as a part of a series of unrelated studies. We told participants that this study was about judging actions. Specifically, participants read, *"Any action can be described in many ways; however the appropriateness of these descriptions may largely depend on the occasion on which the action occurs. In today's study, we are interested in your judgment of the appropriateness of descriptions of several actions. Please pick the one that you think is most appropriate in the occasion that is given to you in this study."* We then showed participants a calendar of March 2011 and told them that all the given actions would occur on March 13, 2011 (a Sunday).

The day we ran this experiment and the day that the target actions would occur were in the same week. In the like-the-present condition, we used the same background color for this week; whereas in the unlike-the-present condition, we used one background color for weekdays and another background color for weekends (see fig. 3). We reasoned that

FIGURE 3

THE CALENDAR MANIPULATION, STUDY 4: THE LIKE-THE-PRESENT CONDITION (*LEFT*);
THE UNLIKE-THE-PRESENT CONDITION (*RIGHT*)
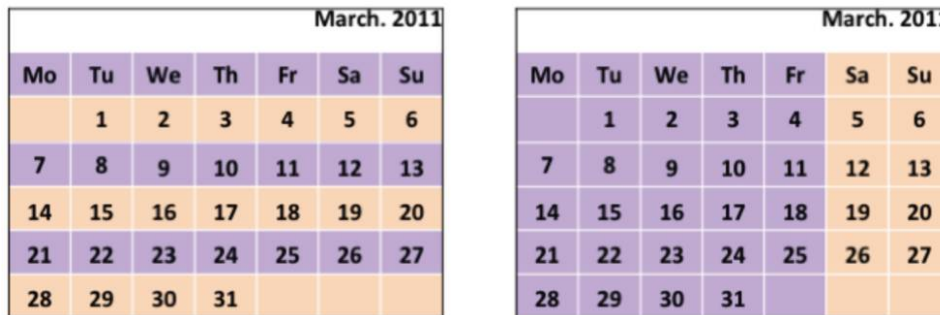
NOTE.—The date of the present: March 9; the date of the target action: March 13.

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when the background colors of the present day and the day the events were supposed to happen were the same, people would be more likely to categorize the events in a like-the-present category than when the background colors were different.

Participants then completed the behavior identification form (Vallacher and Wegner 1989). Specifically, they read 25 events (i.e., tasks, such as making a list), each with both a high-level identity (e.g., getting organized) and a low-level identity (e.g., writing things down), and were asked to choose the identity that better described the action that would occur on March 13, 2011. Because low-level identities described the implemental aspect of actions whereas high-level identities described why or with what effect the actions are performed, the more low-level identities a participant chose, the more implemental his/her mind-set was.

Results and Discussion

We calculated an implemental mind-set index for each participant. Specifically, participants got 1 point for each low-level identity they chose, and 0 points for each high-level identity they chose. Since there were 25 events in total, the implemental mind-set index ranged from 0 to 25. As predicted, participants in the like-the-present condition scored higher in the implemental mind-set index ($M = 15.57$, SD = 2.50) than those in the unlike-the-present condition ($M = 11.48$, SD = 2.4; $t(40) = 5.41$, $p < .001$).

Results from this study supported hypothesis 2. Specifically, the categorization of time events influences mind-set, such that events classified in a like-the-present category are viewed with a stronger implemental mind-set than events classified in an unlike-the-present category.

STUDY 5

Study 5 took a moderation approach to test the proposed mechanism that the categorization of time events influences task initiation via an implemental mind-set. Specifically, we systematically manipulated mind-set (i.e., control, implemental, or deliberative) before participants made the task

initiation decision and predicted that by imposing a particular task-relevant mind-set—be it implemental or deliberative, the proposed effect of temporal categorization on task initiation would be attenuated. In addition, we used a surprise memory task at the end of the study to measure participants' categorization of task deadlines.

Method

This study used a 2 (temporal category of deadline: like-the-present vs. unlike-the-present) × 3 (current mind-set: control vs. implemental vs. deliberative) between-participants design. Two hundred and fifteen participants (137 females) from Mechanical Turk participated in this study.

Participants read that they would complete several unrelated tasks. Unknown to the participants, the first task served as a mind-set manipulation, and the procedure was adapted from Brandstätter and Frank (2002). In the implemental and deliberative conditions, participants read that in a previous survey we asked a group of people to list personal problems and in this study they needed to help solve a randomly selected personal problem from that survey. In the implemental condition, participants received the personal problem, "What should I do to save money for the future?" and were asked to list six distinct actions. In the deliberative condition, participants received the personal problem, "Should I save money for the future, or buy whatever I like to enjoy the present?" and were asked to list three distinct reasons why the person should save money for the future and three distinct reasons why the person should not save money for the future. In the control condition, we asked participants to list familiar brands of nine product categories (e.g., juice, chocolate, ice cream).

Next participants made a task initiation decision. Specifically, we presented them with a time line (see fig. 4) and told them that each box represented one day. We further told them that the box with "Today" in it indicated today, and the box with "Movie" in it indicated the day of a new movie release. The box in the middle of the time line had "Gift" in it, and we specified what it meant in the decision

FIGURE 4

MANIPULATION OF CATEGORIZATION CUE, STUDY 5

scenario. Participants read, "*Imagine that you need to buy a birthday gift for a friend. There is a gift shop a few blocks away from your apartment, and you decided to select a gift there. You have to get the gift ready on the day marked by 'Gift', because you will need to bring it to your friend's birthday party*." We used background colors of the boxes to manipulate the temporal category the deadline belonged to. Specifically, in the like-the-present condition, the period from "Today" to "Gift" shared the same background color; in the unlike-the-present condition, the period from "Gift" to "Movie" shared the same background color (i.e., the background colors of "Today" and "Gift" were different). We then asked participants whether they would go to the gift shop today to select the gift (1 = definitely yes, 7 = definitely no).

Participants then worked on filler tasks (evaluating pictures) before encountering a surprise memory test. Specifically, we asked participants to recall whether their deadline of getting the gift was closer to "Today" or to "Movie" (A, closer to "Today"; B, closer to "Movie"), assuming that choosing the former indicated classifying the task deadline into a like-the-present category and that choosing the latter indicated classifying the task deadline into an unlike-the-present category.

Results and Discussion

Task Initiation. A 2 (temporal category of deadline: like-the-present vs. unlike-the-present) × 3 (current mind-set: control vs. implemental vs. deliberative) ANOVA on willingness to initiate the task yielded the predicted interaction ($F(2, 209) = 3.21$, $p < .05$; see fig. 5). The main effect of the mind-set manipulation was also significant ($F(2, 209) = 6.40$, $p < .01$; in the control condition, $M = 4.87$, $SD = 1.94$; in the implemental condition, $M = 3.99$, $SD = 1.85$; in the deliberative condition, $M = 5.03$, $SD = 1.82$).

Planned contrasts showed that among participants in the control conditions, those with a deadline in a like-the-present category showed a stronger task initiation intention ($M = 4.28$, $SD = 2.05$) than those with a deadline in an unlike-the-present category ($M = 5.40$, $SD = 1.68$; $t(74) = 2.62$, $p < .05$); among participants in the implemental mind-set conditions, task initiation intention did not differ in the like-the-present condition ($M = 4.11$, $SD = 2.00$) and the unlike-the-present condition ($M = 3.85$, $SD = 1.69$; $t(69) = .58$, $p = .57$); among participants in the implemental mind-set conditions, task initiation intention did not differ in the like-the-present condition ($M = 5.11$, $SD = 1.55$) and the unlike-the-present condition ($M = 4.94$, $SD = 2.09$; $t(66) = .39$, $p = .70$).

Categorization of Task Deadline. Results from the surprise memory task show that, although the task deadline was in the middle of "Today" and "Movie," more participants in the like-the-present condition (78%; 94/120) remembered that the task deadline was "closer to Today" than in the unlike-the-present condition (55%; 67/121; $\chi^2(1) = 14.32$, $p < .001$).

Results from study 5 provided further evidence on the proposed mechanism that the categorization of time events influences task initiation intention via an implemental mind-set. Specifically, by imposing a task-relevant mind-set— implemental or deliberative—before the task initiation decision, we were able to turn off the effect proposed in hypothesis 1. In addition, participants' responses in the surprise memory task provided direct evidence of the categorization of time events; indeed more people in the like-the-present condition categorized the task deadline into the same category as the present than those in the unlike-the-present condition.

FIGURE 5

WILLINGNESS TO SELECT THE GIFT TODAY, STUDY 5 (1 = DEFINITELY YES, 7 = DEFINITELY NO)
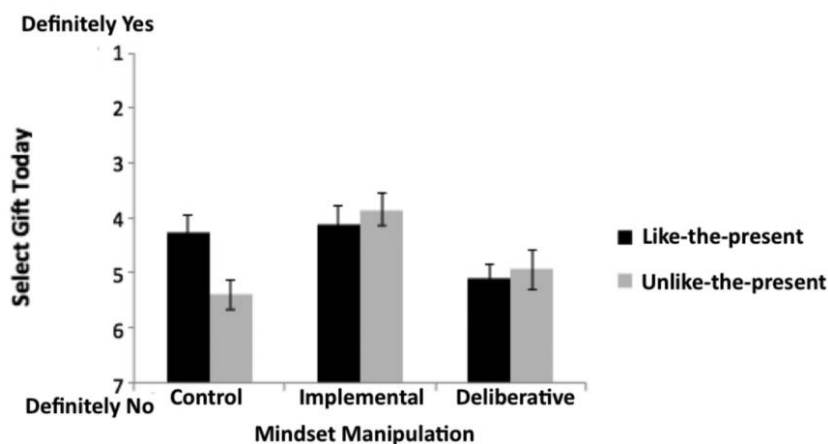
GENERAL DISCUSSION

Getting things done is part and parcel of life, and failing to do so usually results in undesirable consequences. In this article, we conducted a series of field and laboratory experiments to study consumers who need to accomplish tasks such as opening a bank account and accumulating funds in it (study 1), working on a consulting job (study 1 follow-up), throwing a birthday party (study 2), entering data (study 3), or purchasing a gift (study 5). We explored whether task initiation depends on how consumers temporally categorize the task deadline. In each study, we prompted the consumer to categorize the task deadline into either a like-the-present category or an unlike-the-present category by highlighting different categorization cues; for example, a salient point in time such as year end (study 1), month end (study 3), and an important dinner (study 1 replication), similarity of days (study 2), and visual representation (studies 4 and 5). Across our studies, we showed that participants were more likely to commence a task when its deadline was categorized in a like-the-present category than in an unlike-the-present category (studies 1, 2, 3, and 5). We further provided evidence on the proposed mechanism. Specifically, study 4 measured the impact of the categorization of events on consumers' mind-set and showed that events categorized in a like-the-present category were viewed with a stronger implemental mind-set than events categorized in an unlike-the-present category. Study 5 moderated the impact of temporal categorization on task initiation via manipulating mind-set and showed that imposing a task-relevant mind-set (implemental or deliberative) makes the effect of categorization redundant. In addition, study 5 measured the category membership of the task deadline, providing evidence on the categorization process. Taken together, our package of studies provide support to the model depicted in figure 1. Our findings contribute to previous research and yet open up new avenues for research in several domains.

Goal Striving

This research sheds light on goal striving (e.g., Bagozzi and Dholakia 1999; Carver and Scheier 1998; Higgins 1997; Oettingen and Gollwitzer 2002; Ryan et al. 1996; Sheldon and Elliot 1999) in general and action initiation (e.g., Bayer et al. 2009; Brandstätter, Lengfelder, and Gollwitzer 2001; Orbell, Hodgkins, and Sheeran 1997) in particular. Specifically, although the action phase model (Heckhausen and Gollwitzer 1987) of goal striving is well recognized, little is known about how exactly consumers move across different action phases, especially how they transit from the post-decisional (but pre-actional) phase to the actional phase, which is characterized by an implemental mind-set and a desire to get things started and done. We identified one factor—the categorization of time—that could trigger such transition and promote action initiation. By merely prompting consumers to categorize task deadlines in a like-the-present category rather than in an unlike-the-present cat-

egory, we were able to increase consumers' propensity to initiate their tasks.

We focused our research effort on studying task initiation given the belief that perhaps the biggest factor that helps people get things done is to start on the task. Evidence from our field study certainly seemed to be consistent with this belief; of the farmers who did not open bank accounts on the day in which the offer was made (246 out of 297), only one person eventually went on to complete the task successfully. Further research could study the effects of the categorization of time on other aspects of success, such as persistence and quality of the output.

Our findings also contribute to the rich stream of research in psychology, organizational behavior, strategy, and operations that explored effective goal-striving strategies. While most of them prescribe strategies that are task relevant—for example, task segmentation (Forsyth and Burt 2008; Grünig and Kühn 2010; Lewis 2010) and goal specification (Locke and Latham 1990)—we showed that nontask factors such as cues that influence the categorization of time could also have a huge facilitating effect on task completion. More generally, our findings add to the growing stream of research on the effect of environmental cues on people's behavior (Berger and Fitzsimons 2008; Levav and Zhu 2009; Zhao et al. 2012).

Goal Adoption

While the focus of our investigation was task initiation (i.e., goal implementation), an interesting question has to do with the effect of categorization of time on the goal adoption decision. The fact that consumers are willing to precommit to goals as long as they are in the future has been well documented (Thaler and Benartzi 2004; Zauberman and Lynch 2005). Our framework suggests that consumers will be more likely to adopt new task goals when the task goals happen in an unlike-the-present category than in a like-the-present category, because in the former condition consumers are less implemental, more deliberative, and therefore more likely to be open to new goals. For example, we would predict that a professor would be less likely to say yes to a workshop invitation during a future teaching term if asked during the current teaching term, and a manager would be less likely to want to launch a new initiative on a future Monday if asked on a given Monday.

Boundary Condition

An implemental mind-set facilitates task goal pursuit. The functional benefit of an implemental mind-set will be more substantial as the difficulty of the goal pursuit increases—for instance, when consumers are busy and have multiple tasks competing for their resources. Consistent with this argument, previous research documented greater effectiveness of implemental mind-set on task initiation when individuals had multiple tasks to complete (Pösl, as cited in Gollwitzer 2012). Therefore we contend that the categorization of time followed by task initiation tendency is a func-

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tional process for busy consumers because it allows them to control the task environment. However, for consumers who are not busy, we expect a low need to prioritize and hence weaker effects of the categorization of time. Indeed, during the course of working on this research project, we realized that all of our successful demonstrations of the hypothesized effects occurred when studies were conducted with busy participants (farmers in sowing season, students during academic semesters). Therefore, we ran a follow-up study in which we systematically manipulated the perceived busyness and explored whether our proposed effect would weaken when participants felt that they were not busy. This study used a 2 (perceived busyness: busy vs. not busy) × 2 (temporal category of deadline: like the present vs. unlike the present) between-participants design.

Participants (133 part-time MBA students at the University of Toronto recruited during a summer quarter) began by thinking about either work- and study-related activities (busy condition), or personal and recreational activities (not-busy condition) they would do in the summer by checking from a list of activities. Examples of activities in the busy condition included "preparing for an exam," "work projects," "preparing proposals for clients," "preparing cases for class," and so on while examples in the not-busy condition included "spending time with family," "spending time at a resort/cottage," "vacation or travel," "watching movies or shows," and so forth. We then told participants that they were invited to give lectures on finance to undergraduate students. We ran this study on August 7 (a Tuesday) and asked participants (1) if they would be interested in providing a list of topics to be covered in the lectures and (2) if yes, to provide them by August 11 (a Saturday). We showed participants the calendar of August 2012, in which we manipulated the categorization of time in the same manner as we did in study 4. We then measured when participants planned to start thinking about the topics (1 = definitely later; 7 = definitely now). Sixty-nine participants were interested in this task and were included in data analysis. A 2 (perceived busyness: busy vs. not busy) × 2 (temporal category of deadline: like the present vs. unlike the present) ANOVA on task initiation yielded a significant two-way interaction ($F(1, 65) = 4.81, p < .05$). Specifically, when participants perceived their life to be busy, those in the like-the-present condition showed stronger willingness to initiate the task ($M = 4.35$, SD = 1.62) than those in the unlike-the-present condition ($M = 3.29$, SD = 1.27; $t(29) = 2.01, p = .054$). However when participants perceived their life to be not busy, the difference between the like-the-present condition ($M = 3.50$, SD = 1.73) and the unlike-the-present condition ($M = 4.17$, SD = 1.76) was not significant ($t(36) = 1.18, p = .25$). These data were consistent with the functionality aspect of an implemental mind-set and provided an important boundary condition for our proposed effects.

Time Perception and the Encoding of Future Durations

Our findings suggest that, although time elapses continuously, its mental representation could be categorical. In our studies, a salient point in time, similarity of time, and visual representation of time caused consumers to categorize prospective time into a like-the-present category and an unlike-the-present category, and further influenced their decisions on tasks that were due in these two categories. Specifically, consumers viewed tasks that were due in a like-the-present category with a stronger implemental mind-set than tasks that were due in an unlike-the-present category and thus were more likely to construe tasks in the former condition in a how-to-do manner, which, in turn, resulted in a greater tendency of task initiation.

Much of the research on time perception (e.g., Glenberg and Swanson 1986; Murdock 1974; Yntema and Trask 1963; Zauberman et al. 2009) focuses on the length dimension (i.e., temporal distance perception). However, as advocated by Nisan (1972), the content dimension (i.e., how temporal distance affects the way a situation is construed) is also important. Construal level theory (Trope and Liberman 2000) is one major theory that systematically explored the impact of time-related features on event construal. It shows that people tend to construe remote events abstractly (in a why-to-do manner) and near events concretely (in a how-to-do manner). However, the theory is silent on the location of the Rubicon between a "near" and a "remote" future. Our findings suggest that cues that facilitate categorization of time could serve as the Rubicon that separates the near from the remote.

Choice Architecture

Designing choice environments that nudge consumers into undertaking a desired course of action is of growing interest to academics, practitioners, and policy makers alike (Thaler and Sunstein 2008). Our work suggests one powerful method of creating nudges; the use of appropriate categorization cues can change mind-sets and hence increase the likelihood that consumers will initiate and finish those tasks. In study 1, we used this principle to nudge unbanked consumers to open savings accounts. We could similarly think of interventions that nudge consumers to engage in healthy behaviors, get annual medical check-ups, exercise regularly, and work on a schedule.

DATA COLLECTION INFORMATION

For study 1, the second author was involved in a financial literacy program in rural India in the summer of 2010. He and a research assistant administered the study and collected the data. Both authors jointly analyzed these data. For the replication of study 1, the second author supervised the collection of data by research assistants at the University of Toronto in the winter of 2010. Both authors were responsible for study design, preparation of protocols/instructions to re-

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search assistants, and data analysis. For study 2, the first author supervised the collection of data by research assistants at the University of Chicago in the spring of 2012. The first author analyzed these data. For study 3, the second author supervised the collection of data by research assistants at the University of Toronto in the spring of 2011. The first author analyzed these data. For study 4, the first author supervised the collection of data by research assistants at the University of Chicago in the spring of 2011. The first author analyzed these data. For study 5, the first author managed the collection of data using the Mechanical Turk in the winter of 2013. The first author analyzed these data. For the study reported in "General Discussion," the second author supervised the collection of data by research assistants at the University of Toronto in the summer of 2012. The first author analyzed the data.

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