

# Put Your Imperfections Behind You: Temporal Landmarks Spur Goal Initiation When They Signal New Beginnings



Hengchen Dai<sup>1</sup>, Katherine L. Milkman<sup>2</sup>, and Jason Riis<sup>3</sup>

<sup>1</sup>Organizational Behavior Department, Olin Business School, Washington University in St. Louis; <sup>2</sup>Operations, Information and Decisions Department, The Wharton School, University of Pennsylvania; and <sup>3</sup>Marketing Department, The Wharton School, University of Pennsylvania

Psychological Science  
2015, Vol. 26(12) 1927–1936  
© The Author(s) 2015  
Reprints and permissions:  
sagepub.com/journalsPermissions.nav  
DOI: 10.1177/0956797615605818  
pss.sagepub.com  


## Abstract

People often fail to muster the motivation needed to initiate goal pursuit. Across five laboratory experiments, we explored occasions when people naturally experience enhanced motivation to take actions that facilitate goal pursuit and why certain dates are more likely to spur goal initiation than others. We present causal evidence that emphasizing a temporal landmark denoting the beginning of a new time period increases people's intentions to initiate goal pursuit. In addition, we propose and show that people's strengthened motivation to begin pursuing their aspirations following such temporal landmarks originates in part from the psychological disassociation these landmarks induce from a person's past, imperfect self.

## Keywords

temporal landmarks, multiple selves, new beginnings, mental accounting, motivation, goals, open data, open materials

Received 2/1/15; Revision accepted 8/24/15

Initiating goal pursuit is challenging: People often fail to muster the requisite motivation to begin a diet or initiate a new gym habit, for example. In this article, we consider *when* people naturally experience enhanced motivation to begin pursuing their goals and *why* that motivation is greater at certain times than at others. Addressing these questions can advance understanding of naturally arising points in time that spur goal initiation and suggest the most effective times to provide people with tools known to facilitate goal pursuit.

We propose that temporal landmarks spur goal initiation when they signal new beginnings or the start of new time periods. Temporal landmarks are dates that “stand in marked contrast to the seemingly unending stream of trivial and ordinary occurrences” (Shum, 1998, p. 423) in people's lives. They include transition points on social timetables (e.g., holidays or the start of a new week, month, year, or semester; Robinson, 1986) and personal life events, such as first experiences (e.g., a first date),

developmental milestones (e.g., a wedding), and recurring significant occasions (e.g., birthdays; Shum, 1998). Some temporal landmarks stand out more starkly than others on socially shared calendars or personal life timelines. The extent to which a temporal landmark is perceived as opening a new time period (or a new beginning) may depend on whether it resonates with people's cultural, occupational, or religious identities (Shum, 1998) and how meaningful the landmark feels. For example, 36th birthdays, which correspond to the start of a new 12-year Chinese zodiac cycle, should feel more like a new beginning to someone of Chinese descent than to someone from another background. In addition, first experiences (e.g., a

---

## Corresponding Author:

Hengchen Dai, Organizational Behavior Department, Olin Business School, Washington University in St. Louis, One Brookings Dr., Campus Box 1156, St. Louis, MO 63130  
E-mail: hdai@wustl.edu

first move to a new city) are viewed as more momentous (LeBoeuf, Williams, & Brenner, 2014) and should feel more like the beginning of a new cycle than similar later experiences (e.g., a ninth move to a new city; Shum, 1998).

Past research has shown that temporal landmarks stand out as dividers that separate people's past, current, and future selves, weakening the psychological connection between these temporal selves (Bartels & Rips, 2010; Peetz & Wilson, 2013, 2014). Objects separated into distinct mental categories are perceived as more distant from one another than objects in the same category (Burris & Branscombe, 2005; Mishra & Mishra, 2010). Thus, we expect that the more starkly a temporal landmark marks the beginning of a new time period, the more psychological distance it will create between past and current selves.

We theorize that salient temporal landmarks signaling new beginnings can open new "mental accounts" and alter self-evaluations. Specifically, people tend to attribute negative traits and failures to their past selves to maintain a positive image of their current selves; however, this tendency flatters the current self only when the past and current selves are not closely connected (Ross & Wilson, 2000; Wilson & Ross, 2001, 2003). We therefore postulate that by psychologically separating people from their past selves and failures, temporal landmarks that open new time periods can help people relegate their missteps to the past and elevate their self-image and confidence.

We argue that feeling separated from past imperfections should stimulate several psychological processes that promote goal initiation. First, feeling disconnected from past failures may boost people's self-efficacy (i.e., belief in one's ability to carry out plans and reach goals; Bandura, 1997; Libby & Eibach, 2002). When experiencing higher self-efficacy, people set more challenging goals and work more persistently in the face of obstacles (Bandura, 1977; Schmidt & DeShon, 2010). Increasing self-efficacy and relegating past failures to a preceding time period should motivate goal initiation. Second, people prefer to behave consistently with their self-perceptions (Cialdini, 2007; Festinger, 1962). Thus, feeling less tarnished by the specter of past failures may motivate people to behave consistently with a new, positive self-view (Cialdini, 2007; Festinger, 1962) and act on self-improvement goals. Finally, after a temporal landmark creates a clean slate, deviating from a goal (e.g., cheating on a diet) may feel, in prospect-theory terms, like a large, initial loss relative to a reset reference point (where the utility curve for losses is steepest) rather than like another small loss added to many others (where the utility curve for losses has flattened; Colby & Chapman, 2013; Heath, Larrick, & Wu, 1999; Soman & Cheema, 2004).

These theories lead to our central prediction that temporal landmarks signaling new beginnings will facilitate

goal initiation. To initially explore this hypothesis, we asked online respondents interested in dieting to reflect on 94 dates that might arise in their lives, ranging from the relatively mundane (e.g., a 23rd birthday) to the significant (e.g., a 30th birthday; see the complete list of dates at <https://osf.io/sbfzr/>). We found that people's self-reported likelihood of starting a diet on a given date was positively correlated with the extent to which that date felt like the beginning of a new time period (correlation coefficient = .53,  $p < .001$ ).

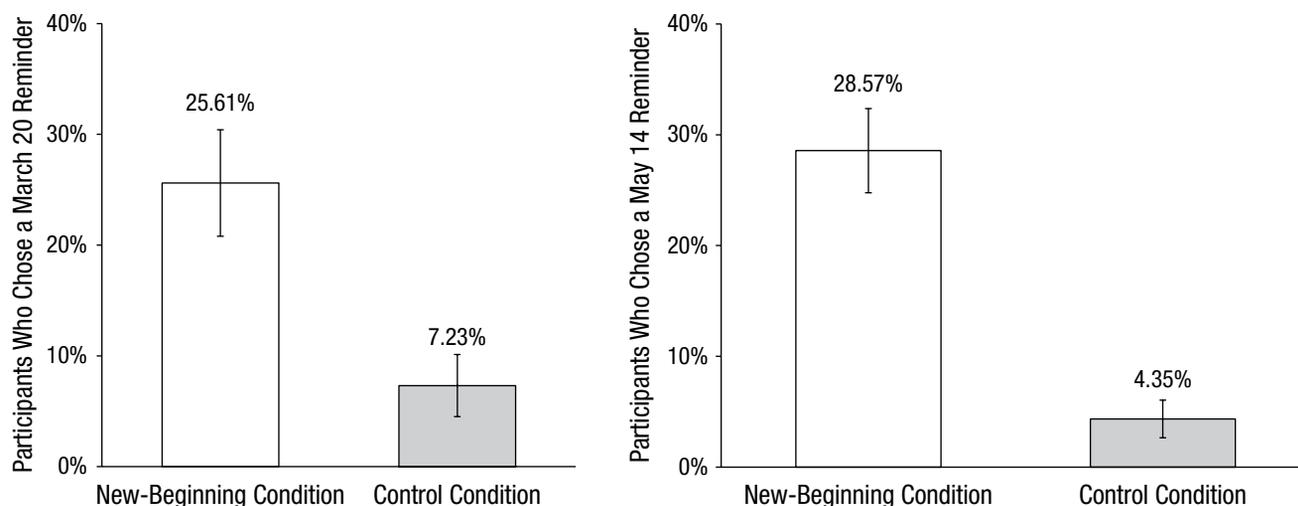
In five experiments, we examined how and why temporal landmarks affect goal initiation when they are highlighted as the beginning of a new time period. This research goes beyond past research in several important ways. First, it provides a critical first causal test of whether temporal landmarks spur goal initiation, building on recent research showing correlational evidence that goal-related activities (e.g., dieting, exercising) increase after temporal landmarks (Dai, Milkman, & Riis, 2014). Second, it is the first to explore which temporal landmarks motivate goal initiation. Finally, we hypothesized that psychological segregation between the present self and past imperfections contributes to the link between landmarks signaling new beginnings and goal initiation, and our results support this hypothesis. Complete stimuli for all the studies are available at <https://osf.io/sbfzr/>.

## Study 1

Across two experiments examining real decisions, we tested the hypothesis that temporal landmarks signaling the beginning of a new time period motivate people to engage in activities that facilitate goal pursuit. Receiving reminders about goals has been shown to facilitate goal achievement (Karlan, McConnell, Mullainathan, & Zinman, in press). In Study 1, we investigated whether people were more likely to choose to receive a goal reminder on a date associated with the beginning of a new calendar period than on another date not associated with such a beginning.

### Study 1a

**Method.** In early March 2014, participants interested in learning how to more effectively tackle their goals were recruited through Amazon's Mechanical Turk for a short survey. Participants were first instructed to describe a personal goal that they planned to begin pursuing in April 2014. They were then asked to list one thing that they planned to do to facilitate their pursuit of this goal. Next, we offered to send participants an e-mail reminder in late March that would describe the goal and the plan for accomplishing it and include a customizable motivating message. Only participants who signed up to receive a reminder were allowed to



**Fig. 1.** Results for Studies 1a (left) and 1b (right). The percentage of participants who chose to receive the reminder on the date that was highlighted as a new beginning in the new-beginning condition but framed as an ordinary day in the control condition, graphed for each of these conditions. Error bars represent  $\pm 1$  SE.

complete our survey and were included in our final study sample; participants who chose not to receive a reminder exited the survey right away and were excluded from our study sample. We aimed for a sample of 100 participants per experimental condition. On the basis of pretests, we estimated that approximately 50% of people who entered our survey would sign up for a reminder. Thus, we invited 400 people to participate. Data collection ceased when the total sample size reached our target number. Our final study sample included 165 participants (64 women, 100 men, with 1 person of unspecified gender; mean age = 32 years, with 1 person of unspecified age) who signed up for a reminder.

At this stage, participants were randomly assigned to one of two experimental conditions: the new-beginning condition or the control condition. In both conditions, participants chose when to receive their personalized reminder from a list of seven consecutive dates ranging from March 18, 2014 (Tuesday), to March 24, 2014 (Monday); the day of the week was indicated in parentheses as it is here. Our subtle manipulation in the new-beginning condition involved highlighting March 20, 2014, as the first day of spring: “March 20, 2014 (Thursday; The First Day of Spring 2014).” In the control condition, the description following March 20, 2014, framed it as an ordinary day: “March 20, 2014 (Thursday; The Third Thursday in March 2014).” After choosing a date from the list, participants could customize the text of the e-mail reminder. Finally, participants provided an e-mail address at which to receive the goal reminder.

**Results.** We conducted a manipulation check with a nonoverlapping sample of participants ( $N = 141$ ) from our target study population. Participants rated the extent

to which either “the first day of spring” or “the third Thursday in March” felt like a new beginning to them (1 = *not at all*, 7 = *very much*). We confirmed that the first day of spring felt more like a new beginning to respondents ( $M = 3.40$ ,  $SD = 1.98$ ) than did the third Thursday in March ( $M = 1.55$ ,  $SD = 1.47$ ),  $t(139) = 6.33$ ,  $p < .0001$ .

In this study, our dependent measure was whether participants chose to receive a goal reminder on March 20, 2014. We predicted that when March 20, 2014, was described as a temporal landmark marking the beginning of a new period, as opposed to being described as an ordinary day, more participants would choose to receive a message reminding them to initiate goal pursuit on March 20. Indeed, participants in the new-beginning condition were significantly more likely than participants in the control condition to choose to receive a goal reminder on March 20, 2014 (25.61% vs. 7.23%, respectively; Fig. 1),  $\chi^2(1, N = 165) = 10.18$ ,  $p = .001$ .

This is a remarkably large response (3.54 times as many participants in the new-beginning condition as in the control condition chose March 20) to a very subtle intervention: relabeling a date that many would have already recognized as the first day of spring. Note that in both conditions, the last day on the list (March 24, 2014) was selected significantly more frequently than any other day ( $ps < .002$ ). In the control condition, the frequency with which March 20 was selected was not significantly lower than that for any other day except the last day. Thus, the finding that March 20 was selected more frequently in the new-beginning condition than in the control condition cannot simply be explained by a dislike for March 20 when it was labeled an ordinary day.

## Study 1b

**Method.** In Study 1b, we extended Study 1a by focusing on a different temporal landmark relevant to a different subject population. In December 2013, we invited people to engage in an online survey for a chance to win a \$50 Amazon gift card. These people (primarily students) were drawn from a pool of people who signed up to participate in studies at the behavioral lab at the University of Pennsylvania (Penn). Study 1b was similar to Study 1a, but there were a few key differences. First, participants were asked to describe a goal they planned to begin pursuing in summer 2014 (rather than April 2014) and were offered the opportunity to receive an e-mail reminder about the goal sometime in the spring. Second, participants who signed up to receive a future reminder were asked to choose from a list of 14 consecutive dates ranging from May 3, 2014 (Saturday), to May 16, 2014 (Friday). We manipulated our description of May 14, 2014, to read as either “Wednesday; The First Day of Penn’s Summer Break” (new-beginning condition) or “Wednesday; Penn’s Administrative Day” (control condition).

We aimed to recruit a sample of 100 participants per experimental condition and invited the entire population of the University of Pennsylvania’s research pool to participate, in the hopes of reaching our target sample size. In total, 582 participants responded. Our final study sample consisted of 278 participants (169 women, 106 men, and 3 people of unspecified gender; mean age = 23 years, 3 people of unspecified age) who signed up for a goal reminder and thus completed our survey. Three participants completed our survey twice; only their first responses were included in our analysis, but the results were virtually identical with and without the multiple responses.

**Results.** We conducted a manipulation check with a nonoverlapping group of participants ( $N = 248$ ) from our target study population. Participants were randomly assigned to rate the extent to which either the first day of Penn’s summer break or Penn’s Administrative Day felt like a new beginning to them (1 = *not at all*, 7 = *very much*). We confirmed that the first day of Penn’s summer break felt more like a new beginning ( $M = 5.35$ ,  $SD = 1.74$ ) than Penn’s Administrative Day ( $M = 1.37$ ,  $SD = 1.06$ ),  $t(246) = 21.80$ ,  $p < .0001$ .

As in Study 1a, participants in the new-beginning condition were significantly more likely than participants in the control condition to choose to receive a goal reminder on May 14, 2014 (28.57% vs. 4.35%, respectively; Fig. 1),  $\chi^2(1, N = 278) = 29.53$ ,  $p < .0001$ . This was again a remarkably large response (6.57 times as many participants in the new-beginning condition as in the control condition chose May 14) to a subtle relabeling intervention.

## Discussion

Study 1 provides causal evidence that when people facilitate their own goal initiation (i.e., by electing to receive a goal reminder), a temporal landmark associated with a new beginning is a more appealing choice than an ordinary date, whether the temporal landmark is framed as demarcating adjacent seasons (Study 1a) or academic periods (Study 1b). In an additional, similar study that offered participants an opportunity to receive a future goal reminder on one date from a list (see <https://osf.io/sbfzr/>), we described the same date (October 5) as either “the first day after Yom Kippur” (new-beginning condition) or “the 278th day of year” (control condition). In a separate manipulation-check survey, we asked participants to rate the extent to which the first day after Yom Kippur and the 278th day of the year felt like a new beginning to them (1 = *not at all*, 7 = *very much*). Jewish participants ( $n = 19$ ) confirmed that the first day after Yom Kippur felt significantly more like a new beginning than the 278th day of the year,  $p < .0001$ , whereas non-Jewish participants ( $n = 369$ ) reported the opposite,  $p = .06$ . As we hypothesized, goal initiation was more appealing on landmarks that more strongly signal new beginnings: October 5 was chosen 26.81% more frequently<sup>1</sup> by Jewish participants in our reminder-date-choice study ( $n = 86$ ) when it was labeled as the day after Yom Kippur, whereas our framing manipulation had the opposite effect on non-Jewish participants ( $n = 892$ ). The experimental conditions and religion had a significant interactive effect in predicting the choice to receive a reminder on October 5,  $p = .02$ .

## Study 2

In Study 2, we used a guided-writing task to manipulate the salience of New Year’s Day—a landmark demarcating adjacent years—and then examined participants’ engagement in activities that facilitate goal initiation.

## Method

In early 2014, participants were recruited from Amazon’s Mechanical Turk for a survey about goal pursuit. They were first asked to describe one goal that they had failed to achieve in 2013 and then to choose from a list the category that best captured their goal. Next, participants indicated whether they planned to pursue this goal again in 2014. Participants who did not plan to pursue the goal in 2014 exited our survey and were not included in our sample. Participants who planned to pursue their goal again in 2014 were included in our study sample and went on to engage in a directed-writing task. We aimed for a sample of 100 participants per experimental

condition and assumed that most participants would plan to pursue their personal goal again in 2014. Thus, we invited 250 participants to participate. Data collection ceased when the total sample size reached our target number. Our final sample included 216 participants (78 women, 138 men; mean age = 29 years).

In the directed-writing task, we told participants that we were interested in learning how different people view the start of a new year, and we randomly assigned them to one of two conditions. In the new-beginning condition, we enhanced the salience of New Year's Day as the beginning of a new time period by asking participants to list three to five reasons why the start of the new year felt meaningful to them. In the control condition, we decreased the salience of New Year's Day as the beginning of a new time period by asking participants to list three to five reasons why this new year felt ordinary to them. Across experimental conditions, New Year's Day marked the beginning of a new calendar period, but when its personal relevance was highlighted, it should have been perceived as a more salient new beginning.

Next, we presented participants with information about and links to six different Web sites that could help them achieve their personal goals, including (a) a Web site that would allow them to put money on the line that they would forfeit if they failed to follow through on their goal, (b) four popular goal-tracking Web sites, and (c) a *New York Times* article summarizing insights from recent behavioral science research about how people could increase their chances of achieving their goals. We tracked the number of Web sites participants visited (minimum = 0, maximum = 6) and the amount of time they spent reviewing the descriptions of the goal-related Web sites provided. We were unable to successfully record the amount of time 3 of the participants spent reviewing Web-site descriptions. We included these participants in our other analyses, but the results were virtually identical with and without these participants.

## Results

Having people reflect on the personal significance of a recent New Year's Day should amplify the salience of New Year's Day as a calendar landmark separating the past and present time periods. Indeed, in a manipulation check that relied on a nonoverlapping sample of participants from our study's target population ( $N = 141$ ), we asked participants to rate the extent to which the most recent new year felt like a new beginning to them (1 = *not at all*, 7 = *very much*) after they followed the same directed writing task instructions used in either the new-beginning condition or the control condition of Study 2. We confirmed the success of our treatment: New Year's Day felt more like a new beginning to participants

prompted to reflect on the personal significance of the start of the last new year ( $M = 5.10$ ,  $SD = 1.62$ ) than to participants prompted to reflect on its ordinary features ( $M = 2.41$ ,  $SD = 1.55$ ),  $t(139) = 10.08$ ,  $p < .0001$ .

We predicted that participants in our new-beginning condition would engage more in activities designed to facilitate goal initiation than would participants in our control condition. Although most participants (82% in the new-beginning condition and 90% in the control condition) did not visit a Web site, probably because of an eagerness to complete the task quickly and earn their pay, participants in the new-beginning condition visited 3 times as many goal-related Web sites ( $M = 0.62$ ,  $SD = 1.54$ ) as did participants in the control condition ( $M = 0.21$ ,  $SD = 0.75$ ),  $t(214) = 2.47$ ,  $p = .01$ , which is consistent with our prediction. Likewise, participants in the new-beginning condition spent 46% more time reading our descriptions of these Web sites ( $M = 41.37$  s,  $SD = 60.09$ ) than did participants in the control condition ( $M = 28.39$  s,  $SD = 29.62$ ),  $t(211) = 2.00$ ,  $p = .047$ .

## Discussion

Study 2 demonstrated that when the same landmark (New Year's Day) was made more salient, such that it felt more like a new beginning, it increased people's engagement in goal-related activities.

## Study 3

An alternative explanation for the findings in our previous studies is that people are inclined to start any new activity (congruent with their goal or not) when the outset of a new time period is highlighted. To address this possibility, we explored whether temporal landmarks marking the start of new cycles increased both new goal-congruent and goal-incongruent behaviors or, as we expected, only goal-congruent behaviors.

## Method

This study had a  $2 \times 2$  between-subjects design. Participants were recruited through Amazon's Mechanical Turk for a short survey and randomly assigned to one of four experimental conditions. We aimed for a sample of 100 participants per experimental condition. Data collection ceased when the total sample size reached our target number. A total of 399 participants (163 women, 234 men, 2 people of unspecified gender; mean age = 32 years) completed our survey.

In all conditions, participants read a scenario about a man named Chang who lived in China. They were asked to imagine that during Chang's recent visit to his primary-care doctor, he was told that he was at high risk of

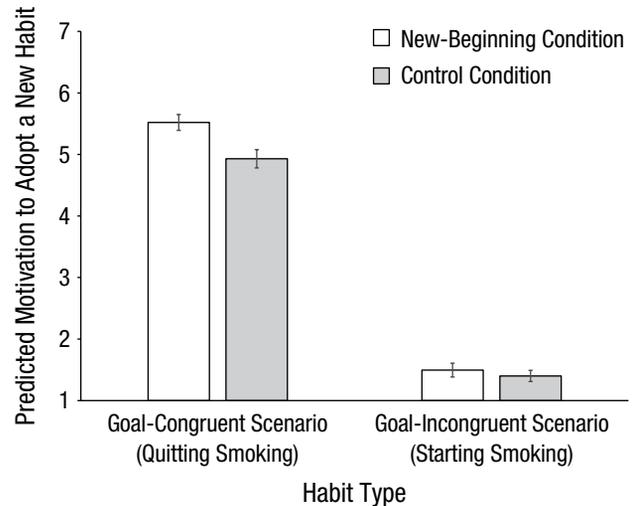
contracting lung cancer and should avoid smoking. Half the participants were assigned to read a goal-congruent scenario: They were told that Chang had wanted to quit smoking for a few years but had never succeeded. The other half were assigned to read a goal-incongruent scenario: They were told that Chang had been tempted to start smoking a few years ago but had never done so. All participants were then told that Chang had just celebrated his 36th birthday. Half the participants were assigned to the new-beginning condition; they were introduced to the concept of the 12-year Chinese zodiac cycle and were told that Chang's 36th birthday represented the beginning of a new zodiac cycle. The other half were assigned to the control condition and were not told about the Chinese zodiac cycle. Across experimental conditions, the 36th birthday marked the beginning of a new year for Chang, but when this birthday was associated with the start of a new zodiac cycle, it should have been a stronger signal that Chang was beginning a substantially new phase.

Participants rated how motivated Chang would be to quit smoking (in the goal-congruent scenario) or to start smoking (in the goal-incongruent scenario) on the day after his 36th birthday (1 = *not at all motivated*, 7 = *very motivated*).<sup>2</sup> Then they rated the extent to which Chang's 36th birthday would feel like a new beginning to him (1 = *not at all*, 7 = *very much*). At the conclusion of our study, to confirm that participants had paid attention to the scenario they read, we asked them to select the correct description of Chang's nationality and smoking status from a multiple-choice list. Twenty-five participants failed our comprehension check, but all of the results we report here were the same (in terms of statistical significance) whether we included or excluded these 25 participants. We report the more conservative results from the analysis of our full participant sample; even stronger results based only on participants who correctly answered our comprehension-check questions are available at <https://osf.io/sbfzr/>.

## Results

Our manipulation was effective: Participants in the new-beginning condition believed that Chang's 36th birthday would feel more like a new beginning to him than did participants in the control condition ( $M = 4.95$ ,  $SD = 1.73$ , vs.  $M = 3.87$ ,  $SD = 1.83$ , respectively),  $t(397) = 6.09$ ,  $p < .0001$ .

Our theory predicts that temporal landmarks signaling the beginning of a new period should increase the initiation of goal pursuit (e.g., the adoption of healthy habits) because they help people feel separated from their past imperfections. However, these landmarks should not stimulate engagement in any new activity indiscriminately and, in particular, should not stimulate new goal-incongruent



**Fig. 2.** Results from Study 3. Participants' rating of a Chinese man's motivation to adopt a new habit is graphed separately for each habit type (goal congruent or goal incongruent) and condition (new beginning or control). Error bars represent  $\pm 1$  SE.

activities (e.g., the adoption of bad habits). As our theory predicted, participants in the new-beginning condition believed Chang would be more motivated to quit smoking than did participants in the control condition ( $M = 5.52$ ,  $SD = 1.29$ , vs.  $M = 4.93$ ,  $SD = 1.48$ , respectively),  $t(198) = 3.01$ ,  $p = .003$ . Participants in the new-beginning and control conditions gave similar ratings for Chang's motivation to start smoking ( $M = 1.49$ ,  $SD = 1.12$ , vs.  $M = 1.40$ ,  $SD = 0.92$ , respectively),  $t(197)$ ,  $p = .51$ . A two-way analysis of variance with Chang's motivation to adopt a new habit as the dependent variable confirmed that the interaction between new activity's goal congruence (congruent: quitting smoking vs. incongruent: starting smoking) and condition (new beginning vs. control) was statistically significant,  $F(1, 395) = 4.10$ ,  $p = .044$ . Figure 2 depicts the results of this experiment.

## Discussion

When the same temporal landmark (a birthday) was associated with the start of a new zodiac cycle, people expected that the landmark would motivate the pursuit of a goal (quitting smoking) but not the adoption of a goal-incongruent unhealthy habit (starting smoking). These results alleviate the concern that our previous findings can be explained simply by people's inclination to start *any* new activity at the beginning of a new period.

## Study 4

We hypothesized that one mechanism underlying the motivating effect of landmarks marking new beginnings was that people feel more psychologically separated from their past imperfect selves following such landmarks, which

motivates goal initiation. We examined this mechanism in Study 4. Following previous research (e.g., Cryder, Loewenstein, & Scheines, 2013), we used mediation analysis to test our proposed underlying mechanism.

## Method

We recruited 300 participants (123 women, 176 men, 1 person of unspecified gender; mean age = 32 years) online through Amazon's Mechanical Turk and randomly assigned them to one of two experimental conditions. We aimed for a sample of 150 participants per experimental condition. Data collection ceased when the total sample size reached our target number.

Participants were first asked to think of and briefly describe one goal that they had not achieved and would like to pursue in the future. Participants were then asked to imagine that they had just moved to a new apartment and that the apartment's layout, rent, and commute to work were similar to those for their previous apartment. They were randomly assigned to imagine either that they had moved for the first time since coming to this city 9 years ago (new-beginning condition) or that they had moved every year of those 9 years since coming to this city (control condition). Participants then rated how motivated they would be after moving to this apartment to begin pursuing the personal goal they had described earlier (1 = *not at all motivated*, 7 = *very motivated*).

Next, participants were given the following prompt to think about the comparison between their current and past selves:

Most people agree that they have not behaved perfectly in the past (or that their past self has imperfections). There are always some aspects of ourselves and our lives that we would like to improve. Sometimes our imperfect, past self feels very far away, while at other times our past imperfections feel very close.

They were then asked to rate the psychological dissociation between their present selves (after the apartment move) and their imperfect past selves (before the apartment move) using three different measures. First, participants were presented with six pairs of Euler circles; each pair overlapped to a different degree. Within each pair, one circle represented the imperfect past self from 1 year ago (before the move) and the other represented the current self (after the move). Participants were instructed to select whichever pair of circles best reflected their opinion of how far away they would feel today from their imperfect past self (no overlap between circles = *extremely far away*, complete overlap = *extremely close*; adapted from Bartels & Rips, 2010). Second, we asked

participants to predict the extent to which they would feel distant from their imperfect past self from 1 year ago (1 = *extremely close*, 7 = *extremely far away*; adapted from Wilson & Ross, 2001). Finally, we asked participants to predict the extent to which they would feel different from their imperfect past self from 1 year ago (1 = *exactly the same*, 7 = *completely different*; adapted from Bartels & Rips, 2010).

## Results

We conducted a manipulation check with a nonoverlapping group of participants ( $N = 141$ ) from our target study population. These participants were randomly assigned to rate the extent to which either the day after moving to a new apartment for the first time or the day after moving to a new apartment for the ninth time in 9 years would feel like a new beginning to them (1 = *not at all*, 7 = *very much*). We confirmed that moving to a different apartment for the first time in 9 years felt more like a new beginning ( $M = 5.36$ ,  $SD = 1.81$ ) than moving for the ninth time in 9 years ( $M = 2.54$ ,  $SD = 1.79$ ),  $t(139) = 9.29$ ,  $p < .0001$ .

In Study 4, participants in the new-beginning condition reported that they would be more motivated to start tackling their personal goal after a move than did participants in the control condition ( $M = 5.05$ ,  $SD = 1.73$ , vs.  $M = 4.42$ ,  $SD = 1.89$ , respectively),  $t(298) = 2.98$ ,  $p < .01$ . We next standardized each of our three psychological dissociation ratings and averaged them (with the first rating reverse-coded) to create an index of psychological dissociation (Cronbach's  $\alpha = .87$ ) for mediation analyses. We followed standard procedures to test whether psychological dissociation mediated the relationship between landmarks signaling a new beginning and goal motivation (Preacher & Hayes, 2008). Results were consistent with our hypothesized mechanism; participants in the new-beginning condition expected to feel more disconnected from their imperfect past selves than did participants in the control condition ( $M = 0.15$ ,  $SD = 0.79$ , vs.  $M = -0.15$ ,  $SD = 0.96$ , respectively),  $t(298) = 3.00$ ,  $p < .01$ . The composite psychological-dissociation score was a significant positive predictor,  $\beta = 0.24$ ,  $p = .042$ , when we included this measure and a new-beginning-condition indicator variable in an ordinary least squares regression to predict participants' motivation to pursue their goals after an apartment move. A 5,000-sample bootstrap analysis showed a significant, positive indirect effect of the new-beginning condition (relative to the control condition) through the psychological-dissociation measure; specifically, the 95% bias-corrected confidence interval for the size of the indirect effect excluded zero,  $b = 0.07$ ,  $SE = 0.05$ , 95% confidence interval = [0.003, 0.22].

We replicated this mediation result in another scenario study (see <https://osf.io/sbfzr/>). As in Study 3, participants

( $N = 200$ ) predicted a Chinese man's motivation to quit smoking and his perceived separation from his past imperfections following his 36th birthday. We found that when this birthday was described as corresponding to the start of a new 12-year zodiac cycle, participants predicted Chang would be more motivated to pursue his goal of quitting smoking ( $p < .0001$ ), an effect mediated by psychological dissociation from past imperfections; specifically, the 95% bias-corrected confidence interval for the size of the indirect effect excluded zero,  $b = 0.12$ ,  $SE = 0.07$ , 95% confidence interval = [0.01, 0.29].

## Discussion

Study 4 shows that when the same landmark (a move) was made to feel more like the beginning of a new period, it boosted goal-pursuit motivation in part by increasing the subjective distance separating the current self from the imperfect past self.

## General Discussion

People's motivation to begin pursuing their aspirations fluctuates and can fail them entirely. The present research addresses major gaps in understanding of the times at which people feel motivated to initiate goal pursuit. First, we have demonstrated that temporal landmarks strongly associated with the beginning of a new period cause people (a) to engage in activities designed to facilitate goal initiation and (b) to predict that their own and other people's motivation to tackle goals will be higher. Only correlational evidence had previously linked temporal landmarks with goal initiation (Dai et al., 2014). Further, we have shown that temporal landmarks marking new beginnings inspired goal initiation, in part by creating a psychological disconnect between a person's current self and his or her past inferior self. Thus, we have elucidated why landmark-induced discontinuities in individuals' perceptions of time promote goal initiation.

Our investigation suggests opportunities for future research. First, future research should explore additional psychological processes that may contribute to our documented effect, which is likely to have multiple underlying mechanisms. For example, landmarks associated with a new beginning (e.g., a 40th birthday, a graduation) may disrupt individuals' attention to day-to-day minutiae (Smith, 2014) and stimulate big-picture thinking (Alter & Hershfield, 2014; Liu, 2008); past research has shown that such thinking promotes a focus on goals (Trope & Liberman, 2003). Second, landmarks that signal new beginnings may feel more meaningful to individuals than other landmarks, and there may be a more general relationship between the perceived meaningfulness of a landmark and its motivating effect on goal pursuit. Future

research could explore whether making a landmark event feel more meaningful without signaling that it represents a new beginning (e.g., by having people counterfactually simulate why the event might not have happened; Kray et al., 2010) might still spur goal initiation. In addition, some landmarks may trigger new beginnings by relegating a painful episode to the past (e.g., a divorce, a loved one's death; Schultz, Price, & Coulter, 2014). Future research could explore how landmarks associated with distressing closure change people's perspectives on life and intentions to take on new challenges.

Our findings have important practical implications. First, for individuals who hope to curtail bad behaviors but struggle with initiating goal pursuit, temporal landmarks that open new time periods may prevent vicious cycles of impulsive behavior stimulated by "what the hell" rationalizations (Cochran & Tesser, 1996). For managers and policymakers, tools and interventions designed to facilitate the pursuit of long-term goals (e.g., social comparisons, commitment devices; Chapman, Colby, Convery, & Coups, 2014; Schwartz et al., 2014) may be better received if they are provided following landmarks at the beginning of a new cycle. Further, our work suggests that highlighting temporal landmarks that signal new beginnings may be a "nudge" (Thaler & Sunstein, 2008) capable of bolstering people's interest in engaging in goal-directed behaviors.

## Author Contributions

All authors contributed to the development of the study concept and design. Testing, data collection, and analyses were performed by H. Dai. H. Dai drafted the original manuscript, and K. L. Milkman and J. Riis provided critical revisions. All of the authors approved the final version of the manuscript for submission.

## Acknowledgments

For insightful feedback on the manuscript, we thank Maurice Schweitzer, Katherine Klein, Dave Hofmann, Richard Larrick, and Katie Shonk, as well as members of the Wharton Decision Processes lab, Wharton Marketing Department, and Wharton Management Department. We thank the participants at the 2012 Google PiLab Summit, the Penn-Carnegie Mellon University 2014 Roybal Center Retreat, the 2014 annual meeting of the Academy of Management, and the 2015 Association for Psychological Science annual convention. We thank the seminar participants at Columbia University, Cornell University, Duke University, Georgia Institute of Technology, Harvard University, London Business School, Massachusetts Institute of Technology, Princeton University, Washington University in St. Louis, the University of California at Los Angeles, the University of Chicago, the University of Delaware, the University of Lausanne, the University of North Carolina at Chapel Hill, the University of Toronto, the University of Utah, and the University

of Zurich. We also thank the Wharton Behavioral Lab, Sargent Shriver, and our research assistants (in particular, Gregory Stulpin and Ola Abou-khsaiwan) for their help collecting data.

### Declaration of Conflicting Interests

The authors declared that they had no conflicts of interest with respect to their authorship or the publication of this article.

### Funding

This work was funded by National Institute on Aging Grant 1P30-AG034546-01 (to the Penn-Carnegie Mellon University Roybal Center on Behavioral Economics and Health), the Wharton Dean's Research Fund, the Patient Engagement and Communication Working Group at the University of Pennsylvania, the Wharton Behavioral Lab, and the Wharton Risk Management and Decision Processes Center.

### Open Practices



All data and materials have been made publicly available via Open Science Framework and can be accessed at <https://osf.io/sbfzr/>. The complete Open Practices Disclosure for this article can be found at <http://pss.sagepub.com/content/by/supplemental-data>. This article has received badges for Open Data and Open Materials. More information about the Open Practices badges can be found at <https://osf.io/tvyxz/wiki/1.%20View%20the%20Badges/> and <http://pss.sagepub.com/content/25/1/3.full>.

### Notes

1. We started collecting data on September 9, 2014 (exactly two weeks before Rosh Hashanah—the Jewish New Year). By September 23, 2014 (one day before Rosh Hashanah), we still had not been able to recruit our target number of Jewish participants ( $n = 160$ ). We decided in advance that our data collection should not persist during or after the Jewish New Year because our experimental manipulation involved a reference to a closely related Jewish holiday, Yom Kippur. Our manipulation, in which October 5, 2014, was framed as the first day after Yom Kippur, increased reminder take-up on October 5 by 26.81% among Jewish participants, but our sample was too small for this main effect to reach statistical significance; however, the well-powered interaction effect was significant.
2. Note that starting to smoke is not a neutral act but in fact a goal-incongruent one. Had we instead described an activity that was not incongruent with Chang's goals, in the context of a scenario, it would probably have been perceived as aspirational for Chang. Any neutral activity would naturally be viewed as goal-congruent if described as something an individual had intended to do but had not yet begun—that is, essentially, the definition of a goal (Fishbach & Ferguson, 2007). Thus, to rule out the possibility that people are inclined to start any new activity at the outset of a new time period (rather than solely activities related to goal initiation, as we hypothesized), the critical test was to find an activity that was clearly goal misaligned, hence our decision to study the choice to start smoking.

### References

- Alter, A. L., & Hershfield, H. E. (2014). People search for meaning when they approach a new decade in chronological age. *Proceedings of the National Academy of Sciences, USA*, *111*, 17066–17070. doi:10.1073/pnas.1415086111
- Bandura, A. (1977). Self-efficacy: Toward a unifying theory of behavior change. *Psychological Review*, *84*, 191–215.
- Bandura, A. (1997). *Self-efficacy: The exercise of control*. New York, NY: W. H. Freeman.
- Bartels, D. M., & Rips, L. J. (2010). Psychological connectedness and intertemporal choice. *Journal of Experimental Psychology: General*, *139*, 49–69. doi:10.1037/a0018062
- Burris, C. T., & Branscombe, N. R. (2005). Distorted distance estimation induced by a self-relevant national boundary. *Journal of Experimental Social Psychology*, *41*, 305–312. doi:10.1016/j.jesp.2004.06.012
- Chapman, G. B., Colby, H. A., Convery, K., & Coups, E. J. (2014). Goals and social comparisons promote walking behavior. *Medical Decision Making*. Advance online publication. doi:10.1177/0272989X15592156
- Cialdini, R. B. (2007). *Influence: The psychology of persuasion*. New York, NY: HarperCollins.
- Cochran, W., & Tesser, A. (1996). The “what the hell” effect: Some effects of goal proximity and goal framing on performance. In L. L. Martin & A. Tesser (Eds.), *Striving and feeling: Interactions among goals, affect, and self-regulation* (pp. 99–120). Hillsdale, NJ: Psychology Press.
- Colby, H., & Chapman, G. B. (2013). Savings, subgoals, and reference points. *Judgment and Decision Making*, *8*, 16–24.
- Cryder, C. E., Loewenstein, G., & Scheines, R. (2013). The donor is in the details. *Organizational Behavior and Human Decision Processes*, *120*, 15–23.
- Dai, H., Milkman, K. L., & Riis, J. (2014). The fresh start effect: Temporal landmarks motivate aspirational behavior. *Management Science*, *10*, 2563–2582.
- Festinger, L. (1962). *A theory of cognitive dissonance* (Vol. 2). Stanford, CA: Stanford University Press.
- Fishbach, A., & Ferguson, M. J. (2007). The goal construct in social psychology. In A. W. Kruglanski & E. T. Higgins (Eds.), *Social psychology: Handbook of basic principles* (2nd ed., pp. 490–515). New York, NY: Guilford Press.
- Heath, C., Larrick, R. P., & Wu, G. (1999). Goals as reference points. *Cognitive Psychology*, *38*, 79–109.
- Karlan, D., McConnell, M., Mullainathan, S., & Zinman, J. (in press). Getting to the top of mind: How reminders increase saving. *Management Science*.
- Kray, L. J., George, L. G., Liljenquist, K. A., Galinsky, A. D., Tetlock, P. E., & Roese, N. J. (2010). From what might have been to what must have been: Counterfactual thinking creates meaning. *Journal of Personality and Social Psychology*, *98*, 106–118.
- LeBoeuf, R. A., Williams, E. F., & Brenner, L. A. (2014). Forceful phantom firsts: Framing experiences as firsts amplifies their influence on judgment. *Journal of Marketing Research*, *51*, 420–432.
- Libby, L. K., & Eibach, R. P. (2002). Looking back in time: Self-concept change affects visual perspective in autobiographical memory. *Journal of Personality and Social Psychology*, *82*, 167–179. doi:10.1037/0022-3514.82.2.167

- Liu, W. (2008). Focusing on desirability: The effect of decision interruption and suspension on preferences. *Journal of Consumer Research*, *35*, 640–652.
- Mishra, A., & Mishra, H. (2010). Border bias: The belief that state borders can protect against disasters. *Psychological Science*, *21*, 1582–1586. doi:10.1177/0956797610385950
- Peetz, J., & Wilson, A. E. (2013). The post-birthday world: Consequences of temporal landmarks for temporal self-appraisal and motivation. *Journal of Personality and Social Psychology*, *104*, 249–266. doi:10.1037/A0030477
- Peetz, J., & Wilson, A. E. (2014). Marking time: Selective use of temporal landmarks as barriers between current and future selves. *Personality and Social Psychology Bulletin*, *40*, 44–56. doi:10.1177/0146167213501559
- Preacher, K. J., & Hayes, A. F. (2008). Asymptotic and resampling strategies for assessing and comparing indirect effects in multiple mediator models. *Behavior Research Methods*, *40*, 879–891. doi:10.3758/BRM.40.3.879
- Robinson, J. A. (1986). Temporal reference systems and autobiographical memory. In D. C. Rubin (Ed.), *Autobiographical memory* (pp. 159–188). Cambridge, England: Cambridge University Press.
- Ross, M., & Wilson, A. E. (2000). Constructing and appraising past selves. In D. L. Schacter & E. Scarry (Eds.), *Memory, brain, and belief* (pp. 231–258). Cambridge, MA: Harvard University Press.
- Schmidt, A. M., & DeShon, R. P. (2010). The moderating effects of performance ambiguity on the relationship between self-efficacy and performance. *Journal of Applied Psychology*, *95*, 572–581.
- Schultz, A., Price, L., & Coulter, R. (2014). Embracing a “fresh start”: How consumers engage to change their lives. In *23<sup>rd</sup> Annual Robert Mittelstaedt Doctoral Symposium Proceedings* (pp. 221–246). Retrieved from [http://cba.unl.edu/academic-programs/departments/marketing/about/robert-mittelstaedt-doctoral-symposium/docs/2014\\_SymposiumProceedings.pdf](http://cba.unl.edu/academic-programs/departments/marketing/about/robert-mittelstaedt-doctoral-symposium/docs/2014_SymposiumProceedings.pdf)
- Schwartz, J., Mochon, D., Wyper, L., Maroba, J., Patel, D., & Ariely, D. (2014). Healthier by precommitment. *Psychological Science*, *25*, 538–546. doi:10.1177/0956797613510950
- Shum, M. S. (1998). The role of temporal landmarks in autobiographical memory processes. *Psychological Bulletin*, *124*, 423–442. doi:10.1037/0033-2909.124.3.423
- Smith, I. H. (2014). *The disruption model of inspiration: Toward a general model of “being inspired to act”* (Unpublished doctoral dissertation). University of Utah, Salt Lake City.
- Soman, D., & Cheema, A. (2004). When goals are counterproductive: The effects of violation of a behavioral goal on subsequent performance. *Journal of Consumer Research*, *31*, 52–62.
- Thaler, R. H., & Sunstein, C. R. (2008). *Nudge*. New Haven, CT: Yale University Press.
- Trope, Y., & Liberman, N. (2003). Temporal construal. *Psychological Review*, *110*, 403–421.
- Wilson, A. E., & Ross, M. (2001). From chump to champ: People’s appraisals of their earlier and present selves. *Journal of Personality and Social Psychology*, *80*, 572–584. doi:10.1037/0022-3514.80.4.572
- Wilson, A. E., & Ross, M. (2003). The identity function of autobiographical memory: Time is on our side. *Memory*, *11*, 137–149. doi:10.1080/09658210244000324