Making the Best Laid Plans Better:
How Plan-Making Increases Follow-Through

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ABSTRACT

Many intend to stay fit but fail to exercise or eat healthfully; students intend to earn good grades but study too little; citizens intend to vote but fail to turnout. How can policy-makers help people follow through on their intentions? Prompting people to make plans – an intervention based on research in behavioral science – leverages both the mechanical benefits of scheduling and people’s preference for consistency. We review laboratory and field experiments which reveal that forming specific, concrete plans increases follow-through across a range of domains – from vaccinations to voting. Plan-making prompts are a simple, inexpensive, and powerful tool for changing behavior while preserving the autonomy of decision-makers.
Introduction

How can policy-makers and managers help people follow through on their often-unfulfilled intentions to engage in desired behaviors? People intend to exercise and eat healthfully but often fail; many students intend to study regularly to succeed in school but do not make the time; many citizens intend to complete tax forms or submit applications for food stamps and student aid before deadlines, but neglect to do so; and new parents intend to formulate wills and purchase life insurance but never get around to either. Each of these follow-through failures can be costly for both individuals and society. In fact, previous research suggests that the failure to follow through is not especially uncommon: people fail to achieve the majority of their goals (Webb & Sheeran, 2006; Young, DeSarbo, & Morwitz, 1998).

Our objective in this review is to highlight a powerful, yet often overlooked, tool that – by leveraging the insights of behavioral science – can be employed to increase follow-through on a wide range of beneficial behaviors. The tool is simple, inexpensive, and effective across a wide range of domains, and protects the autonomy of decision makers. We view this tool as a new entry into behavioral scientists’ existing toolbox of “nudges,” those interventions that utilize insights about human behavior to guide individuals’ behavior in utility-maximizing directions without infringing on individual liberty (Thaler & Sunstein, 2008). The tool is grounded in one fundamental insight: making a concrete plan helps people follow through on their intentions. Specifically, this “plan-making” tool involves prompting decision makers to form concrete plans about when, where and how they will achieve their objectives.

In the first, classic study of this technique, a team of social psychologists conducted an experiment designed to increase Yale University seniors’ take-up of tetanus inoculations (Leventhal, Singer, & Jones, 1965). Those assigned to the control condition were informed
about the effectiveness of tetanus shots and their availability on campus. Those assigned to the *planning prompt* condition received were provided with a list of times when shots were available, a campus map highlighting the health center’s location, and prompts to review their weekly schedules and to select a time when it would be feasible to stop by the health center to receive an inoculation. 28% of those assigned to the *planning prompt* condition received tetanus inoculations compared with just 3% of those assigned to the *control* condition. Of course, the treatment in this experiment provided both a prompt to make a plan and additional information about the location of the health center – though it was presumed that participants already knew where it was located. Nonetheless, as we review in more detail below, subsequent studies have demonstrated the potency of simply adding planning prompts to increase goal follow-through (e.g., Nickerson & Rogers, 2010; Milkman et al., 2011; Milkman et al., 2013).

*The Psychology of Plan-Making*

Why would prompting people to make concrete plans about how they will achieve their goals increase follow-through? Past research suggests that there are a number of reasons this nudge is effective. First, merely asking people if they intend to engage in a beneficial behavior can increase their likelihood of following through on it (Fitzsimons & Morwitz, 1996; Greenwald, Carnet, Beach, & Young, 1987; Nelson & Norton, 2005). This mere measurement effect appears to be driven by an increase in the cognitive salience and accessibility of the intention that is primed by the question (Morwitz & Fitzsimons, 2004). For example, if a person not planning to join a gym is simply asked how likely she is to join a gym, the mere question may prompt her to consider joining a gym and to subsequently think more about the possibility
than she would have otherwise. This process would then make her more likely to sign up for a gym membership.

While prompting people to make a plan harnesses the benefits of this mere measurement, it capitalizes on other psychological forces as well. Specifically, guiding people to “unpack” the when, where, and how of fulfilling their goals (i.e., prompting plans) can increase their likelihood of following through for three reasons (Gollwitzer, 1999). First, on a mechanical level, plan-making encourages people to develop strategies for overcoming logistical obstacles. This practical benefit is especially valuable given people’s general tendency to postpone engaging in beneficial behaviors that fail to provide instant gratification (Milkman, Rogers, & Bazerman, 2008; O’Donaghue & Rabin, 1999) and to be overly optimistic about how much time tasks will take to accomplish (Buehler, Griffin, & Ross, 1994). Imagine a person who intends to get a flu vaccination, which requires an hour of travel to and from his health clinic. Prompting him to make a plan for receiving a flu vaccination may compel him to block an hour off on his calendar and to coordinate with his colleagues to ensure that his responsibilities will be covered during the time while he is away. This logistical aspect of making a plan increases the probability that he will follow through on his good intentions. Moreover, by unpacking exactly what actions getting a flu shot requires, he will be less likely to underestimate the time needed to accomplish his goal – a particularly common problem for complex tasks (Kruger & Evans, 2004).

Second, on a cognitive level, plan-making helps people to both remember their goals at appropriate times and to activate pre-determined strategies for overcoming challenges they anticipate facing while pursuing their goals. Forgetfulness is a crucial obstacle to following through on good intentions (Einstein, McDaniel, Williford, Pagan, & Dismukes, 2003; Schacter,
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1999). For example, 70% of women in a study who intended to perform a breast self-examination but failed to do so offered forgetting as an explanation (Orbell, Hodgkins, & Sheeran, 1997). Plan-making tackles forgetfulness by creating links in memory between anticipated future moments (e.g., a specific time of day, the moment when a certain event occurs, or when a specific feeling or thought arises) and the behaviors required to achieve goals. These moment-behavior pairs often take the following form: “if situation Y arises, then engage in behavior X” (Gollwitzer, Bayer, & McCulloch, 2005; Gollwitzer & Sheeran, 2006a). Imagine someone who makes an initial plan to receive his flu shot next Tuesday after dropping his son at daycare as well as a contingency plan in case his “plan A” becomes infeasible (i.e., alert his colleagues at work that he will arrive late). Having unpacked the logistics of his “plan A” increases the likelihood that he would spontaneously remember to get his flu shot as he drives away from daycare on the appointed Tuesday. Having also unpacked the logistics of his contingency plan increases the likelihood that the plan would still be triggered if he found himself leaving his son’s daycare later than expected.

Finally, forming a plan of action induces in people a sense that they have made a commitment to themselves to engage in the behavior. Failing to follow through on the behavior, as a result, entails the aversive experience of not honoring an explicit commitment. Previous research shows that the inconsistency entailed in breaking such explicit commitments is uncomfortable (Cialdini, 1984), and this anticipated discomfort likely contributes to the power of planning prompts in increasing follow-through. Further, planning prompts that require people to make commitments to others (e.g., by reporting a plan to someone else) have the added benefit of combining social pressure to follow-through on a commitment with internal pressure to do so (e.g., Stone, Aronson, Crain, Winslow, & Fried, 1994). Returning to our flu shot example,
someone would feel worse about not getting a flu shot after having entered it on his calendar for Tuesday (rather than some abstract future date) because it would mean failing to honor an explicit commitment recorded on his calendar. Further, if he had told his spouse that he planned to get the shot on Tuesday, a failure to do so would induce added guilt and discomfort and possible embarrassment.

Despite the fact that making a plan helps people accomplish their goals, left to their own devices, people often fail to generate concrete plans. Ironically, this tendency to under-plan is especially common when people begin with strong intentions to achieve a goal. Recent research suggests that when people most staunchly intend to perform a behavior, they are most prone to undervalue factors like plan-making, which could help them translate their intentions into actions. This is because people mistakenly believe that the strength of their intentions is enough to propel them to perform the desired future behaviors, obviating strategies that could help translate their intentions into actions (Koehler, White, & John, 2011). Thus, paradoxically, people are prone to under-plan for the behaviors they would most like to accomplish, further underscoring the thesis that encouraging plan-making can improve social welfare.

Evidence for the Efficacy of Plan-Making

Plan-making has been shown to increase follow-through on a wide range of beneficial behaviors since the first research highlighting its efficacy for boosting tetanus shot inoculations was published in 1965 (Leventhal et al., 1965). For example, in one study, college students who committed to eating additional fruit each day over a two week period were more successful when this commitment was supplemented with a prompt to plan how, when and where they would eat additional fruit (Armitage, 2007). Other goals whose attainment has been demonstrably
increased via plan-making interventions include exercise (Milne, Orbell, & Sheeran, 2002; Prestwich, Lawton, & Conner, 2003), dieting (Achtziger, Gollwitzer, & Sheeran, 2008), academic success (Duckworth et al., 2011), smoking cessation (Armitage & Arden 2008), recycling (Holland, Aarts, & Langendam 2006), and test preparation (Bayer & Gollwitzer, 2007; see Gollwitzer, 1999, for an extended review of earlier work). To underscore and illustrate the power of planning prompts as a policy tool, below we summarize three, recent large-scale field experiments in detail that demonstrate the power of plan-making to influence socially important behaviors on a large scale. Each of these recent studies also highlights a set of conditions that increase the effectiveness of planning prompts.

**Voter Mobilization.** Consider the impact of plan-making as a tool for mobilizing citizens to vote. In the United States, hundreds of millions of dollars are spent encouraging citizens to vote each election cycle. Increasing participation affects who wins a given election contest, and it also affects which groups of citizens have the most influence over legislation (for review see Rogers, Gerber & Fox, 2011). Nickerson and Rogers (2010) randomly assigned 287,000 people during the 2008 Democratic Primary election in Pennsylvania to one of several experimental groups. Those in the control group were not contacted. Those in the standard group were called and were a) reminded of the upcoming election, b) encouraged to vote, and c) asked if they intended to vote. Finally, those in the plan-making group were called, run through the same script as those in the standard group, and asked three additional plan-making questions: when they would vote, how they would get to their polling place, and where would they be coming from when they went to vote. Because voting records are public, the researchers could assess actual voting in the election. Those who received the standard call were 2.0 percentage points more likely to vote relative to the control group, while those who received the plan-making call
were 4.1 percentage points more likely to vote relative to the control group. In short, adding three simple plan-making questions made the plan-making call more than twice as effective as the standard call. Further analyses suggested that plan-making was particularly effective because of its powerful impact on those citizens who had not already developed a plan for getting to their polling place; citizens who lived without other eligible voters were the least likely to have previously developed a voting plan and were therefore the most responsive to the plan-making intervention.

Motivating Flu Shot Take-Up. Plan-making has also been shown to alter important health behaviors. Consider two large-scale plan-making field experiments conducted in collaboration with Evive Health, a company that sends the employees of its client corporations reminder mailings when they are due to receive immunizations and medical exams. The first experiment involved encouraging employees to receive flu shots (Milkman, Beshears, Choi, Laibson, & Madrian, 2011). Seasonal influenza leads to more than 30,000 hospitalizations and more than 25,000 deaths in the United States each year (Thompson et al., 2004; Thompson et al., 2009). However, the frequency of these adverse incidents could be greatly reduced by increasing influenza vaccination rates – flu shots are widely available, inexpensive, and effective.

Thousands of employees from a Mid-western company received mailings encouraging them to receive free flu shots, which were offered at a variety of on-site work clinics. Each mailing provided details about the date(s), time(s) and location of the clinic relevant to the employee to whom it was addressed. Employees were randomly assigned to experimental conditions. Those in a control condition received a mailing with only the personalized clinic information described above; those in the plan-making condition also received a prompt to make a plan by (privately) writing down the date and time when they intended to attend a clinic in a box printed on the
mailing. Clinic attendance sheets and insurance claims were used to track the receipt of flu shots. This subtle plan-making prompt costlessly increased flu shot uptake from 33 percent of targets in the control condition to 37 percent in the plan-making condition. Further analysis revealed that the prompt was most effective for the subset of employees whose on-site flu shot clinics were only open for a single day, as opposed to three or five days. For this population there was little margin for error – the window of opportunity to receive a flu shot was fleeting, making failure to follow through especially costly. In this subpopulation, the planning prompt increased flu shot take-up from 30% to 38%, suggesting that plan-making interventions may be most potent when there is a narrow window of opportunity for achieving a given goal.

**Motivating the Receipt of Colonoscopies.** In the second experiment with planning prompts conducted using Evive Health reminder mailings, thousands of employees overdue for a colonoscopy received a mailing encouraging them to receive this procedure (Milkman, Beshears, Choi, Laibson, & Madrian, 2013). Colon cancer is the second leading cause of cancer death in the United States, resulting in approximately 50,000 fatalities per year, and 38% of these deaths could be prevented each year if all those advised to receive colonoscopies complied. The mailings provided personalized details about the cost of a colonoscopy and how to schedule an appointment. They also included a yellow sticky note affixed to the top right-hand corner, which recipients were prompted to use as a reminder to schedule and keep their colonoscopy appointment. For those randomly assigned to the plan-making condition, this yellow note also included a plan-making prompt with blank lines on which employees could write down when and with whom their colonoscopy appointment would take place. For those randomly assigned to a control condition, the yellow note was blank. Approximately seven months after these reminders were mailed, 6.2% of employees who received the control mailing had received a
colonoscopy, while 7.2% of employees who received the *plan-making* mailing had received a colonoscopy. Increasing colonoscopy take-up from 6.2% to 7.2% would be expected to save 271 life-years for every 100,000 people who national guidelines indicate should receive a colonoscopy (Zauber et al., 2008). Further, the *plan-making* mailer’s impact was most potent among the sub-populations predicted to be the most at risk of forgetfulness, populations like older adults, adults with children and those who did not comply with previous reminders. This finding highlights the value of planning prompts as a means of overcoming forgetfulness.

*Making the Best-Laid Plans Better*

The research discussed above shows that plan-making can dramatically increase people’s follow-through on important, policy-relevant behaviors. Thus far, however, we have only briefly touched upon the factors that cause plan-making to be most likely to increase follow-through: how can plan-making be made even better? Previous research offers a number of insights into the factors likely to increase efficacy.

First, it is crucial that people have (or are persuaded to form) an intention to pursue the goal for which they are prompted to generate a plan. Without an intention to follow-through, spelling out the when, where and how of goal pursuit will not increase engagement rates in a given behavior (Sheeran, Milne, Webb, & Gollwitzer, 2005). Along these lines, when planning prompts are accompanied by motivation to pursue a goal that is founded on an individual’s personal values, these nudges are more effective than when their accompanying motivation is driven by external pressure (Koestner, Lekes, Powers, & Chicoine, 2002). Similarly, strategies for increasing people’s commitments to their goals through strategies like thinking about the
desired consequences of following through on people’s goals can increase plan-making’s impact (Adriaanse et al., 2010).

On the other hand, previous research has shown that when goal achievement is straightforward, when people have strong goal intentions (Gollwitzer & Brandstätter, 1997; Sheeran & Orbell, 1999), or when people have already naturally formed plans (Nickerson & Rogers, 2010), planning prompts can be unnecessary. Planning prompts add the most value when people face obstacles to achieving their goals (Gollwitzer & Sheeran, 2006a) such as forgetfulness (Milkman et al., 2013), limited windows of opportunity (Milkman et al., 2011), complexity, and self-control challenges (Brandstätter et al., 2001; Lengfelder & Gollwitzer, 2001).

For planning prompts to change behavior, they must guide people to develop concrete and precise if-then mappings. Vague plans to “eat more healthily tomorrow” are far less likely to be effective than precise plans to “pick up a spinach salad for dinner from the deli next door at 6 pm tomorrow”. This is because precise plans provide enhanced accessibility benefits, a stronger commitment, and a greater chance of generating a spontaneous remembering when in the presence of a cue cognitively linked with the beneficial behavior (Gollwitzer & Sheeran, 2006b).

Another key insight is that plan-making can actually be harmful when applied to multiple goals concurrently rather than a single goal. Specifically, by highlighting the many challenges associated with completing a set of goals, unpacking the where, when and how of fulfilling multiple goals can undermine goal commitment and therefore success in achieving the goals (Dalton & Spiller, 2012). Thus, planning prompts are best for nudging people to achieve specific goals rather than multiple goals.
Finally, as highlighted above, research suggests that planning prompts can be particularly effective when they help people think through strategies for overcoming obstacles to accomplishing their goals (Kruger & Evans, 2004). This allows complex tasks to be mapped out in advance so that obstacles can be anticipated and managed. Also as discussed above, prompting people not only to form plans but to state them publicly can enhance their impact by layering on the added benefits of social pressure and accountability (Cialdini, 1984).

Table 1 summarizes the key set of takeaways from past studies described above exploring when and how the power of plan-making can be maximized (for additional reviews, see Dai et al., 2012; Gollwitzer, 1999; Gollwitzer & Sheeran, 2006b).

**[INSERT TABLE 1 HERE]**

**Conclusion**

Taken together, the research reviewed above suggests that prompting plan-making can increase the impact of policies designed to bolster individuals’ follow-through on beneficial, but under-performed, behaviors. An extra benefit of plan-making prompts is that they can often be added to existing messaging aimed at changing behavior at zero marginal cost. Plan-making is just one of many tools in behavioral scientists’ toolbox for facilitating behavior change, but we argue it is an often overlooked and cost effective one. In light of its widely-documented effectiveness, it is somewhat puzzling that plan-making has not been more broadly adopted by policy-makers. While there are doubtless many reasons for this underutilization, two seem particularly likely.

First, much of the discussion about “nudges” has occurred between policy-makers and economists, while research on plan-making has been conducted predominantly by cognitive and
social psychologists. A lack of cross-discipline communication likely slowed the spread of knowledge about this powerful behavioral lever. This is unfortunate, as evidenced by the promise of the plan-making interventions described above. It is also indicative of a larger problem to which *Behavioral Science and Policy* offers a promising solution: many disciplines within behavioral science produce research with significant implications for policy, but not all disciplines are equally effective at disseminating this knowledge to those who shape policy.

The second reason we suspect plan-making has not been on the radar of those who influence policy is that most plan-making research published prior to 2010 suffered from one or more of the following limitations with regard to external validity: (a) using only undergraduate college students as participants; (b) including very small samples of participants; and (c) examining outcomes that are not of specific policy relevance. While these features are not threats to the validity or rigor of past plan-making research, they likely limit its perceived credibility and applicability in the eyes of those who shape policy.

Large-scale, natural field experiments studying the impact of psychologically-informed interventions – such as plan-making – on behavior can help psychology influence policy (Carpenter, Harrison & List, 2004). From the perspective of basic behavioral science, such research can help establish the robustness of behavioral phenomena and has the potential to unearth important moderators that might be difficult to explore in laboratory settings. For those interested in societal change, this type of research can deepen our understanding of the causes of social problems, while also generating scalable, cost-effective interventions with the ability to help people make better choices.
Table 1. When and why plan-making interventions are most effective.

<table>
<thead>
<tr>
<th>Plan-making will be most potent when…</th>
<th>Because plan-making…</th>
</tr>
</thead>
<tbody>
<tr>
<td>…the target already intends to accomplish the goal.</td>
<td>…facilitates follow-through on pre-existing intentions.</td>
</tr>
<tr>
<td>…the plan is stated concretely.</td>
<td>…embeds the plan in memory so that when a concrete cue (e.g., where, when) arises, it triggers a recollection of the goal intention.</td>
</tr>
<tr>
<td>…the plan is stated publicly.</td>
<td>…enhances commitment when declared to others.</td>
</tr>
<tr>
<td>…the planning involves thinking in detail about how to overcome specific obstacles.</td>
<td>…fosters the development of strategies to overcome obstacles and makes those strategies accessible when they are most needed.</td>
</tr>
<tr>
<td>…the target has not <em>already</em> made a plan.</td>
<td>…is redundant for people who have already formed plans.</td>
</tr>
<tr>
<td>…fulfilling the goal is relatively complicated, with at least a few obstacles.</td>
<td>…helps people follow through on intentions that they otherwise would struggle to fulfill.</td>
</tr>
<tr>
<td>…there are precise, unique moments when the implementation behaviors must be initiated.</td>
<td>…works best when the initiation of the plan is cognitively linked to a specific situation or moment.</td>
</tr>
<tr>
<td>…there is a single goal involved.</td>
<td>…can highlight the difficulty of achieving a long list of goals, thereby undermining goal commitment and success.</td>
</tr>
<tr>
<td>…the target has thought about the positive consequences of achieving the goal.</td>
<td>…works best when a target is strongly committed to the goal.</td>
</tr>
<tr>
<td>…there are limited time windows in which to perform the implementation behaviors.</td>
<td>…increases the likelihood of initiating specific behaviors when they are cognitively linked to specific times.</td>
</tr>
<tr>
<td>…the target is at high risk of forgetfulness.</td>
<td>…is most valuable to individuals who are most in need of follow-through aids (e.g., the elderly and those who have been non-responsive to previous reminders).</td>
</tr>
</tbody>
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REFERENCES


