

Boston University**OpenBU****<http://open.bu.edu>**

Questrom School of Business

BU Open Access Articles

2018-07

If you are going to pay within the next 24 hours, press 1: automatic planning prompt reduces cre...

This work was made openly accessible by BU Faculty. Please [share](#) how this access benefits you. Your story matters.

Version	
Citation (published version):	Nina Mazar, Daniel Mochon, Dan Ariely. 2018. "If You Are Going to Pay Within the Next 24 Hours, Press 1: Automatic Planning Prompt Reduces Credit Card Delinquency." <i>Journal of Consumer Psychology</i> , Volume 28, Issue 3, pp. 466 - 476. https://doi.org/10.1002/jcpy.1031

<https://hdl.handle.net/2144/40097>*Boston University*

If You Are Going to Pay Within the Next 24 Hours, Press 1: Automatic Planning Prompt Reduces Credit Card Delinquency

Nina Mazar 
Boston University

Daniel Mochon
Tulane University

Dan Ariely
Duke University

Accepted by Anirban Mukhopadhyay, Editor; Associate Editor, Simona Botti

People often form intentions but fail to follow through on them. Mounting evidence suggests that such intention-action gaps can be narrowed with prompts to make concrete plans about *when*, *where*, and *how* to act to achieve the intention. In this paper, we pushed the notion of plan-concreteness to test the efficacy of a prompt under a minimalist automated calling setting, where respondents were only prompted to indicate a narrower duration within which they intent to act. In a field experiment, this planning prompt significantly helped people to pay their past dues and get out of debt delinquency. These results suggest that minimalist automatic planning prompts are a scalable, cost-effective intervention.

Keywords Implementation intentions; Commitment; Goals; Financial decision making; Randomized controlled trial

Consumers commonly fail to act on their intentions, even in settings when it is beneficial for them to do so, such as improving their health or financial standing. Mounting evidence suggests that concrete action plans about *when*, *where*, and *how* to act can increase the likelihood that they will achieve their goals (Gollwitzer, 1993, 1999, 2014). Indeed, asking consumers to form concrete implementation intentions has been shown to help them have a healthier diet (Adriaanse, Vinkers, De Ridder, Hox, & De Wit, 2011), increase the frequency of physical activity (Bélanger-Gravel, Godin, & Amireault, 2013), engage in preventative health behaviors (Brown, Sheeran, & Reuber, 2009; Martin, Sheeran, Slade, Wright, & Dibble, 2009; Milkman, Beshears, Choi, Laibson, & Madrian, 2011; Sheeran & Orbell, 1999), complete assignments in a timely fashion (Gollwitzer & Brandstätter, 1997), engage in

environmentally friendly behaviors (Bamberg, 2002; Holland, Aarts, & Langendam, 2006), and increase the likelihood of voting (Nickerson & Rogers, 2010).

Overall, a meta-analysis found that implementation intention interventions have a medium to large effect on goal attainment (Gollwitzer & Sheeran, 2006). In addition, prior research has identified some of the boundaries for this effect. Planning prompts have been shown to be more effective when goal intentions are strong (Gollwitzer, 1999; Koestner, Lekes, Powers, & Chicoine, 2002; Orbell, Hodgkins, & Sheeran, 1997; Sheeran, Webb, & Gollwitzer, 2005), when there is a strong commitment to the implementation intentions (Achtziger, Bayer, & Gollwitzer, 2012; Gollwitzer, 1999), when goals are difficult to achieve (Gollwitzer & Brandstätter, 1997; Gollwitzer & Sheeran, 2006) and for populations who have problems with action control (Gollwitzer & Sheeran, 2006; Hall, Zehr, Ng, & Zanna, 2012).

Nonetheless, many questions remain about how minimal a planning prompt can be to be effective

Received 19 October 2016; accepted 12 January 2018

Available online 19 January 2018

We thank Uyen Thi Huang for statistical advice as well as help compiling the data file and executing earlier analyses. We thank the credit card company for allowing us to analyze and publish the results of our analyses of the provided data. This research was supported by a grant from the Michael Lee-Chin Family Institute for Corporate Citizenship at the Rotman School of Management, University of Toronto awarded to Nina Mazar.

Correspondence concerning this article should be addressed to Nina Mazar, Questrom School of Business, Boston University, 595 Commonwealth Avenue, Boston, MA 02215, USA. Electronic mail may be sent to nmazar@bu.edu.

© 2018 The Authors. *Journal of Consumer Psychology* published by Wiley Periodicals, Inc. on behalf of Society for Consumer Psychology.

This is an open access article under the terms of the Creative Commons Attribution-NonCommercial-NoDerivs License, which permits use and distribution in any medium, provided the original work is properly cited, the use is non-commercial and no modifications or adaptations are made.

1057-7408/2018/1532-7663/28(3)/466-476

DOI: 10.1002/jcpy.1031

in real world consumer decisions. This is an essential question since the majority of the demonstrations involving planning prompts have involved small laboratory-based studies, whose effects do not always generalize to real-world behaviors (Frederick, Lee, & Baskin, 2014; Lynch, 1999). Moreover, the few demonstrations involving large-scale field experiments (e.g., Milkman et al., 2011; Nickerson & Rogers, 2010) have involved costly manipulations for nonroutine actions (e.g., voting or attending a preventive screening), such as personalized calls that discuss how one would go about fulfilling one's plan or physical reminders with a specific date/time. Given that planning prompts can generate scalable interventions while preserving individual liberty, it is valuable to examine their generalizability and effectiveness in more routine consumer settings (Gollwitzer & Sheeran, 2009). In addition, understanding to what extent minimalist planning prompts can work is essential for firms, who are concerned about the cost-effectiveness of these interventions.

In this project, we tested the effectiveness of a minimal planning prompt in a setting where consumers fail to perform an otherwise routine action—paying one's monthly credit card dues. Specifically, the planning prompt encouraged delinquent credit card customers, who indicated that they would pay within the next 3 days, to follow through on this intention. This was done by requiring these customers to select a more specific time frame within which they would make their credit card payment (choice between paying within 24, 36, 48, and 72 hr). This was done within an interactive voice response (IVR) call with no live agent. In doing so, we examined whether a minimal and automatic planning prompt would be sufficient to affect consumer choices, and consequently whether such an intervention is a viable and scalable tool for firms to use to influence consumer behavior.

Field Experiment

Background

While credit cards confer many benefits, they can also be costly. In particular, for consumers who miss paying their monthly minimum dues (or "total due"), becoming delinquent oftentimes results in late fees (after being 1 month delinquent) and downgraded credit scores (typically after being delinquent for two consecutive months). The later makes it not only harder to access further credit but also increases the cost of subsequent borrowing due

to a higher interest rate. In addition, since a consumer's credit report can be requested by third parties, lower credit scores can create other, sometimes less obvious challenges such as making it harder to get a job, disqualifying oneself from getting insurance coverage, and decreasing the probability of getting a mortgage.

As a first means of communication, typically immediately after a credit card holder has missed 1 monthly minimum payment and therefore becomes delinquent, credit card companies make use of out-bound IVR calls to simply alert customers to their total due amount and elicit a response from them whether they have just paid, will be paying with the next 3 days, or want to speak to a live agent. Such IVR reminder calls have the advantage of being cheap, controlled (due to an automated script), and able to accommodate a large volume of transactions. The intent is to prompt payment to remove delinquency (the account becomes "current" if the customer pays at least the minimum amount due) and continue regular business with the customer.

If this first means of contact (i.e., IVR) fails and after a customer is delinquent for two or more consecutive months, credit card companies typically move to other means of communication: from live agent calls and letters all the way to involving collection agencies, lawyers, and closing accounts. Thus, to the extent that IVRs are effective, they can be an economical way to intervene early on in the delinquency process, and potentially eliminate some of

Table 1

Typical Three-Level Structure Design of an Interactive Voice Response (IVR) Message as First Means of Communication When a Customer is Delinquent by 1 month (Failed to Pay the Minimum Amount Due)

Interactive Level 1—Legal Requirement

The call recipient is asked to confirm they are the right party (They press "1" if they are the right person and press "2" they are not the right person).

Interactive Level 2—Total Due Reminder

If the call recipient indicated they are the right party, in this second and main interactive menu level they are informed about their total due and asked to indicate if they have already made that payment (Press "1"), will be making it within the next three days (Press "2"), or want to speak to an agent (Press "3").

Noninteractive Level 3^a—terminal message:

The call recipient's response from the last interactive menu level is acknowledged.

^aIf the call recipient indicates they are not the right party, the IVR moves straight to the terminal message, resulting in a two-level structure.

delinquency's negative downstream consequences for both customers and credit card companies.

The design of standard IVR messages as first means of communication when a customer becomes delinquent (has not paid her minimum amount due) is based primarily on the assumption that account holders simply forgot to pay. Therefore, if anything, account holders only need to be reminded of their total due amount and then they will act on it (if they have the means). Accordingly, they have a simple three-level structure (see Table 1).

Method

While repaying debt is generally desirable, this intention may not be sufficient to create a repayment action. Thus, to help account holders follow through on their payment intentions, we tested whether a minimal planning prompt could help reduce the intention-action gap. Specifically, we tested a condition with an added interactive menu level right after the total due reminder and before the terminal message, resulting in a four-level structure (legal requirement, total due reminder, planning prompt, and terminal message; see Table 2).

That is, only the call recipients who pressed 2 in IVR level 2 and therefore indicated that they would pay within the next 3 days were presented with the new planning prompt menu level, which asked them to select a more concrete time frame within which they would make their payment (e.g., "If you are going to pay within the next 24 hours, press 1"; see Table 2). Thus, the four-level structure pertains only to a subset of recipients. We expected this intervention to prompt deeper processing and attention that would help people remember. In addition, we expected it to strengthen people's sense of having made a decision and their goal setting.

To examine if we could strengthen this intervention, we tested another condition, in which we added an interactive menu level right after the new planning prompt. This additional menu was designed to further increase the motivation to act goal-consistently through an explicit, personalized commitment (see e.g., Cialdini & Goldstein, 2004; Shu, Mazar, Gino, Ariely, & Bazerman, 2012) to the concrete time frame indicated in the previous planning prompt (e.g., "Customer_Name, you have committed to pay \$TotalDue within the next 24 hr.

Table 2
Overview of the Interactive Voice Response (IVR) Script Differences Between Our Three Conditions

	Control	Planning Prompt	Planning prompt + commitment
Interactive Level 1—legal requirement			
Interactive Level 2—total due reminder			
New interactive Level 3—planning prompt (duration)			
Only if call recipient pressed "2" in IVR Level 2:			
• If you are going to pay within the next 24 hr, press 1.			
• If you are going to pay within the next 36 hr, press 2.			
• If you are going to pay within the next 48 hr, press 3.			
• If you are going to pay within the next 72 hr, press 4.			
• To return to the previous menu, press 5.			
• To hear all options again, press 9.			
New Interactive Level 4—active commitment			
Only if call recipient pressed "1", "2", "3", or "4" in IVR Level 3:			
• Customer_Name, you have committed to pay \$TotalDue within the next 24/36/48/72 hr. Press 1/2/3/4 to confirm your commitment to this pledge.			
• To return to the previous menu, press 5.			
Terminal message			
Total number of IVR levels	3	4	5
Number of participants	17,977	17,737	17,361

Press 1 to confirm your commitment to this pledge;" resulting in a five-level structure: legal requirement, total due reminder, planning prompt, commitment, and terminal message; see Table 2). We thus tested whether the effect of the implementation intention could be strengthened through an additional simple step (Achtziger et al., 2012).

Note, that the more menu levels we add, the longer the entire IVR script is and thus, the more likely a call recipient is to not respond with a key-press in an interactive menu level and instead to abandon the call before reaching the terminal message. This time-trade-off works against the efficacy of added menu levels. Furthermore, our three conditions (control, planning prompt, planning prompt + commitment) were identical in the legal requirements level 1, the total due reminder level 2, and the terminal message. They only differed from each other after the IVR level 2 for the subset of call recipients who indicated that they would make a payment within 3 days (i.e., for recipients who pressed 2 in IVR level 2), (Note that our three conditions were based on a variation of the firm's original IVR script. The original experiment included three other conditions: the firm's original IVR script plus two more variations. These three conditions were conducted to test hypotheses that the firm was interested in, but which were not relevant for the current paper. Because they were not of theoretical interest, they were excluded from the analyses below. A detailed description and analyses of the complete six conditions can be found in the Methodological Detail Appendix (MDA), (Tables S1–S3). In a nutshell, the firm's original IVR script performed considerably worse than all of the other conditions in the study. The other two conditions, which were variants of our planning prompt condition where the firm manipulated the terminal message, performed similarly to our planning prompt condition.) For a full account of the differences see Table 2.

Data

Together with a large North American store credit card company that has a substantial share of higher risk, subprime customers (i.e., customers of lower credit quality), we tested the effects of IVR script variations on two dimensions: (a) customers' likelihood to make the necessary payments to cure their accounts and graduate from "delinquent (or "past due") to "current" by the end of the next statement date (when one's delinquency would escalate to the next, more severe level) and (b)

customers' speed (number of days) to cure their account.

The field experiment was conducted with a random subset of the company's credit card accounts that were delinquent and received an IVR call sometime during the 9-month period from October 1, 2011 to June 30, 2012. We focus on the first connected IVR call (someone picked up and therefore was at least partially exposed to the IVR message as opposed to no one picking up or the call going to the answering machine) that an account holder received during our experimental period ($N = 53,075$; the sample size and the duration needed to get the sample size were determined by the credit card company's data analytics team before the experiment was conducted; for descriptive data of our sample, see Table 3; for more detail, see the MDA provided online).

Results

Delinquency. As can be seen in Tables 4 and 5, the planning prompt reduced delinquency. In order to focus on the effects of the differences between our three scripts, that is, the differences after call recipients indicated they would pay within the next 3 days (pressed "2" in IVR level 2), we focus our analysis on the gray-shaded columns ($N = 15,502$). We present the other columns for transparency reasons but refrain from comparing their numbers because the effects there are contaminated by random differences in behavior before call recipients were exposed to the script variations. As can be seen in Table 4, adding an interactive menu level with a minimalist planning prompt significantly ($p < .001$) increased the likelihood to pay one's account current by 2.26 percentage points (from 84.76% to 87.02%). Adding both a minimalist planning prompt followed by an explicit, personalized commitment to it significantly ($p < .001$) increased the likelihood to pay one's account current by 2.54 percentage points (from 84.76% to 87.30%). There was no significant difference between the effectiveness of the planning prompt condition and the planning prompt + commitment condition ($p = .66$). These results hold when controlling for various account holder covariates such as total due amount, credit limit, or account tenure, as shown in Table 5. As exploratory analyses, we also examined whether this effect would be moderated by the size of the minimum payment due, the total balance, their credit limit, the number of years as customers with the firm, the total number of

Table 3
Descriptive Data for the Sample

	Mean	Median	SD	Min	Max	N
Total due (\$)	142.43	80	161.73	10	1,601.56	53,075
Balance (\$)	2,832.93	1,549.65	3,293.09	10.28	21,249.85	53,075
Delinquency level ^a (months)	1.03	1	0.20	1	3	53,075
Credit limit	5,189.54	3,500	4,725.98	200	25,000	53,074
Account tenure (Years)	7.37	5	8.22	0	51	53,075
Account holder age (Years)	49.11	49	13.72	18	99	52,877
Number of IVR call attempts within billing cycle	1.47	1	0.72	1	19	53,075
Percentage of nondelinquent months (previous 12 months)	0.90	1	.14	0	1	52,880

^aOf the sample, 96.8% was past due by 1 month. For a small subset of valued customers (in our sample 3.2%), credit card companies allow for a longer delinquency before they start with IVR calls and subsequently more severe collection actions. Excluding these, 3.2% does not change the results.

Table 4
Overall Likelihood to Pay One's Account Current by Condition and Menu Level

Condition	All Calls (intention to Treat = ITT)	Level 1, pressed "1" (person confirms identity; necessary to proceed to level 2)	Level 2, pressed "2" (person agrees to pay within 3 days; necessary to proceed to level 3)
Control	74.19%	80.38%	84.76%
Planning prompt	75.98%	82.31%	87.02%
Planning prompt + commitment	74.93%	81.75%	87.30%
N	53,075	29,967	15,502

calls and the percentage of their credit limit that they had used. None of these variables moderated the effect.

Speed to cure. As can be seen in Tables 6 and 7, focusing on call recipients that indicated they will pay within the next 3 days (pressed "2" in IVR level 2; gray-shaded columns; $N = 13,385$; note, this N is lower than in Tables 4 and 5 because not everyone who indicated they would pay cured their account), the planning prompt increased the speed to get out of delinquency. As can be seen in Table 6, adding an interactive menu level with a minimalist planning prompt significantly ($p < .05$) reduced the time to cure one's account by 0.23 days (from 3.98 to 3.75 days). Adding both a minimalist planning prompt followed by an explicit, personalized commitment to it significantly ($p < .001$) reduced the time to cure one's account by 0.51 days (from 3.98 to 3.47 days) and by 0.29 days relative to the planning prompt only condition ($p < .01$; from 3.75 to 3.46 days). These results hold when controlling for various account holder covariates such as total due amount, credit limit, or account tenure, as shown in Table 7.

Keeping one's self-imposed time frame to pay one's account current. In order to better understand

why the explicit, personalized commitment condition led to increased speed of payment, we examined the likelihood of meeting their self-imposed deadline among those who cured their account. Table 8 shows account holders' likelihood of meeting their self-imposed deadline (based on their response in the new planning prompt interactive menu level 3). That is, what percentage of account holders, who indicated they would pay within 24 (36/48/72) hr, actually made their payment within 24 (36/48/72) hr (rather than at some later time). As can be seen in the last column of Table 8, the explicit, personalized commitment overall significantly increased the likelihood to meet one's self-imposed time frame (61.03% vs. 64.76%, $p < .001$). Interestingly, there was a significant interaction between condition and deadline selected. While the explicit, personalized commitment condition did not change the likelihood of meeting the shorter 24-hr deadline, it did increase the likelihood of meeting the longer deadlines (see Table S4 in the MDA available online for formal regression analyses). These results suggest that nonbinding but explicit, personalized commitments can reinforce people's motivation to follow through on their intentions and meet their self-imposed goals.

Table 5
Logit Models of Likelihood to Pay One's Account Current by Menu Level

	All Calls (ITT)	Level 1, pressed "1"	Level 2, pressed "2"	All Calls (ITT)	Level 1, pressed "1"	Level 2, pressed "2"
Planning prompt	0.10*** (0.02)	0.13*** (0.04)	0.19*** (0.06)	0.09*** (0.03)	0.12*** (0.04)	0.18** (0.06)
Planning prompt + commitment	0.04 (0.02)	0.09* (0.04)	0.21*** (0.06)	0.03 (0.03)	0.09* (0.04)	0.21*** (0.06)
Log total due				-0.63*** (0.01)	-0.73*** (0.02)	-0.69*** (0.04)
Log credit limit				0.55*** (0.02)	0.55*** (0.02)	0.59*** (0.04)
Delinquency Level 2				-1.04*** (0.06)	0*** (0)	-0.9*** (0.13)
Delinquency Level 3				-2.09*** (0.18)	-1.19*** (0.08)	-1.91*** (0.45)
# Calls				-0.2*** (0.01)	-1.87*** (0.27)	0.12 (0.19)
Log account tenure				-0.03** (0.01)	-0.1** (0.03)	-0.01 (0.03)
Constant	1.06*** (0.02)	1.41*** (0.03)	1.72*** (0.04)	-0.16 (0.09)	0.38** (0.13)	0.02 (0.27)
N	53,075	29,967	15,502	53,074	29,966	15,501

Note. * $p < .05$; ** $p < .01$; *** $p < .001$. The credit limit for one of the customers was missing from the data. Therefore, the sample size of the analyses with this covariate has one fewer customer.

Table 6
Mean Number of Days (and Standard Errors) Until One's Account is Current by Condition and Menu Level

Condition	All calls (intention to treat = ITT)	Level 1, pressed "1" (person confirms identity)	Level 2, pressed "2" (person agrees to pay within 3 days)
Control	5.89 (.06)	4.58 (.07)	3.98 (.08)
Planning prompt	5.75 (.06)	4.47 (.07)	3.75 (.08)
Planning prompt + commitment	5.63 (.06)	4.31 (.06)	3.46 (.08)
N	39,822	24,416	13,385

Table 7
Regression Models of Days to Current by Menu Level

	All calls (ITT)	Level 1, pressed "1"	Level 2, pressed "2"	All calls (ITT)	Level 1, pressed "1"	Level 2, pressed "2"
Planning prompt	-0.13 (0.08)	-0.11 (0.09)	-0.23* (0.11)	-0.09 (0.07)	-0.09 (0.09)	-0.20 [^] (0.11)
Planning prompt + commitment	-0.25** (0.08)	-0.27** (0.09)	-0.51*** (0.11)	-0.21** (0.07)	-0.29** (0.09)	-0.51*** (0.11)
Log total due				2.02*** (0.03)	1.76*** (0.04)	1.26*** (0.05)
Log credit limit				-1.26*** (0.04)	-1.13*** (0.05)	-1.03*** (0.06)
Delinquency Level 2				0.1 (0.2)	0.22 (0.22)	0.05 (0.28)
Delinquency Level 3				1.58* (0.78)	0.70 (0.89)	-0.51 (1.17)
# Calls				1.43*** (0.04)	0.51*** (0.08)	-0.04 (0.33)
Log account tenure				0.09* (0.03)	0.04 (0.04)	0.05 (0.05)
Constant	5.89*** (0.06)	4.58*** (0.07)	3.98*** (0.08)	5.06*** (0.27)	5.45*** (0.32)	6.84*** (0.5)
N	39,822	24,416	13,385	39,822	24,416	13,385

Note. * $p < .05$; ** $p < .01$; *** $p < .001$; [^]the p -value here is $p = .057$.

Table 8

Likelihood of Meeting Self-Imposed Duration to Follow Through on One's Payment Intentions With and Without Explicit Commitment

Condition	Pay within 24 hr	Pay within 36 hr	Pay within 48 hr	Pay within 72 hr	Overall
Planning prompt	73.64%	56.90%	49.65%	46.89%	61.03%
Planning prompt + commitment	72.80%	64.88%	55.29%	54.03%	64.76%
Difference	-0.84%	7.98%	5.64%	7.14%	3.73%
<i>p</i>	.58	.001	.05	.01	.001
<i>N</i>	3,459	2,035	1,161	1,570	8,216

Note. *N* = 8,216 here is smaller than *N* = 15,502 in Table 4 because this is excluding the control condition, and we only focus on cured account holders who selected a specific time frame during interactive level 3.

General Discussion

In this research, we showed that planning prompts can affect routine consumer behavior. We found that the simple act of asking delinquent consumers to specify a more concrete time frame for paying their credit card dues significantly increased their likelihood of following through on their intentions. Additionally, this intervention increased the likelihood that they would do so within the agreed upon time frame, an effect that was further strengthened by having consumers commit to their selected time frame. These results have important theoretical and practical implications for the implementation of planning prompts to consumer settings.

Our results show that even a minimal prompt delivered through automated IVR calls can reduce the intention-action gap that so often prevents people from completing beneficial behaviors and do so for routine actions. Prior demonstrations of implementation intentions, particularly in the field, typically involved much more elaborate interventions and nonroutine actions, which required much more extensive plans, often involving live agent calls (e.g., Nickerson & Rogers, 2010), physical mailers (e.g., Milkman et al., 2011), or even in person interactions (e.g., Orbell & Sheeran, 2000). In addition, they typically involved a concrete time/date/day cue as cognitive reminder (instead, we implement a more practical duration prompt with a choice between paying within 24, 36, 48, and 72 hr). While these interventions have shown to be effective, they are also costly, and may not scale up for firms trying to change the behavior of a large number of customers. The intervention presented in this article cost the firm virtually nothing, and thus could be easily scaled to its entire customer base. Moreover, this simple intervention could be used to influence other related behaviors where there is an intention-behavior gap, or it could be adopted by other firms to solve similar problems.

We additionally found that the strength of the planning prompt intervention was further enhanced by having consumers commit a second time to their selected time frame. Interestingly, since this commitment was done during an automated call with no human interaction, it is unlikely that this effect is due to others' expectations of consistency. Rather, this private commitment likely strengthened consumers' motivation to follow through on their goal. This is consistent with prior research showing that implementation intentions are moderated by the strength of commitment to one's plan (Achtziger et al., 2012). However, we also expand on this research by showing the effect of commitment on behavioral measures (the prior research focused on activation), and more importantly, on actual consumer behavior in the field.

We found that the commitment manipulation affected call recipients' likelihood of meeting their self-imposed deadline (and the overall time to cure their account), but not the overall likelihood of curing their account. One possible explanation for this is that, given the high levels of cure rates in the data, we were hitting a ceiling effect on that measure. Another intriguing possibility is that since the commitment focused mainly on the self-imposed deadline, it had most of the effect on this measure. Indeed, it may be the case that if consumers had further committed to cure their account, that goal would have been more salient, and the effect would have been observed on that behavior.

It is also interesting that this commitment had little effect on those who chose a self-imposed deadline of 24 hr. Again, this null effect might be due to ceiling effects, since this was the group who had the highest success rate overall. It is also possible that consumers who chose the nearest possible deadline were those who were most committed to their plan, and consequently, those who benefitted the least from an intervention designed to strengthen this commitment. Future research could

continue to examine the interplay between planning prompts and commitment to specific aspects of them.

In addition, our results may shed some light on the pathways that lead to behavioral change. Four pathways have been posited for the effect of planning prompts (Beshears, Milkman, & Schwartzstein, 2016; Rogers, Milkman, John, & Norton, 2015): Our intervention did not involve asking explicitly *how* the problem would be solved, suggesting that (a) the mechanical pathway played a small role in the observed effect. Additionally, our participants did not receive any kind of physical reminder (e.g., a card they could display on their refrigerators reminding them to follow through on their intentions), suggesting that (b) the physical pathway also played a small role. Therefore, our results support the notion that the (c) cognitive (deeper processing and attention) and (d) motivational pathways (goal setting) may be sufficient to affect behavior. Indeed, to further support the hypothesis that our planning prompt did not likely operate via the mechanical pathway, we re-ran our analyses without account holders who paid in-store (the most difficult/complex way with the most obstacles to overcome). Excluding these observations did not change the results: the planning prompt continued to be effective (see MDA Table S5 for formal regression analyses). Thus, while the mechanical and physical pathways may help strengthen the effect, our results suggest that they are not necessary for it to occur. This is an important finding for firms interested in using this tool to influence consumer behavior, since physical reminders and personalized live agent calls designed to help consumers develop more concrete plans tend to be costlier interventions that are more difficult to scale up.

Our intervention has some similarities with the well-established mere-measurement (Morwitz & Fitzsimons, 2004; Morwitz, Johnson, & Schmittlein, 1993) and question-behavior effects (Spangenberg, Greenwald, & Sprott, 2008; Spangenberg, Kareklas, Devezer, & Sprott, 2016), which show that asking consumers questions about a particular behavior affects their likelihood of performing that behavior. Nonetheless, the focus of this intervention was on the effect of forming a more concrete action plan (i.e., instead of only confirming a standard 3-day action window, concretizing an hours-window), rather than on the effect of a single question about a particular behavior. Indeed, participants in all conditions were asked about their intentions to pay off their debt. Thus, while participants in this study likely benefited from the question-behavior effect,

its effect was constant across the conditions and not the focus of this project.

In addition to generalizing the effects of implementation intentions to novel settings, this manuscript makes a contribution to the growing body of research in consumer behavior focusing on how to help consumers better manage their debt to reduce the costs from credit card loans. This is an important problem, in 2013, 38% of all households in the United States carried some sort of credit card debt (Federal Reserve, 2014) and the total outstanding credit card debt in the United States was set to hit \$1 trillion in 2016 (Andriotis & Sidel, 2016). Additionally, a 2012 national survey (Traub & Ruetschlin, 2012) found that 28% of low- and moderate-income households reported accruing late fees in the past year due to delinquency, and about 29% of those who were delinquent reported that their interest rate increased as a consequence.

It is true that credit card companies benefit from customers carrying debt. However, the tipping point of this gamble is when customers become delinquent, at which point they switch from being an asset to the firm to being a cost to the firm. Prior research has focused in particular on helping consumers prioritize which debt to pay off first (see e.g., Amar, Ariely, Ayal, Cryder, & Rick, 2011; Brown & Lahey, 2015; Kettle, Trudel, Blanchard, & Häubl, 2016) and how to get credit card customers pay off more of their statement balance (Hershfield & Roese, 2015) to reduce monthly interest charges. We extend this body of research by focusing on delinquency, that is, how to help consumers, who missed paying their minimum dues, to become “current” again and potentially to also improve other aspects of their financial health. More broadly, this research illustrates a path to help consumers make better choices and credit card companies to reduce their costs, by closing the implementation intentions gap.

In sum, our results suggest that small changes to an automated IVR script can significantly alter behavior in a context that is typically assumed to not offer much room for nudging interventions. Specifically, our results show that in comparison to the traditional approach of reminding customers of their outstanding debt and prompting an action to pay within 3 days, adding a minimal planning prompt for an otherwise routine transaction is enough to significantly reduce delinquency and increase the average speed by which delinquent account holders set their accounts in order. As such this intervention was quite beneficial for the firm we collaborated with and its customers. Given that

the planning prompt increased the percentage of customers who cured their account by 1.79 percentage points in the intention-to-treat analyses (Table 4), and the entire experiment population (a fraction of the firm's overall client population) was 223,574, we can infer that roughly 4002 more customers would have cured their account if this intervention had been applied to the entire experiment population (and substantially more than that number if the intervention had been applied to the firm's entire client population). Moreover, this still does not take into account that every day new customers become delinquent, so the long-term benefit would be much larger than this. It is also important to keep in mind that with customers who fail to cure their account, the credit card company then resorts to live agent calls (which are costly), and eventually sends the accounts to collection agencies, where they can expect to only recover a fraction of the debt. The value of this intervention is further augmented by the fact that it costs the firm virtually nothing to implement. Thus, for our partnering credit card company our intervention translated into the immediate collection of additional total dues and a reduction in further collection efforts and costs. Meanwhile, the consumers involved in the intervention benefitted from avoiding the costs associating with being delinquent on one's debt.

Finally, it is worthwhile pointing out that sometimes even simple "intuitive" improvements can already dramatically affect behavior. For example, our control condition had three key improvements over the firm's original message: we increased the sense of urgency in the interactive menu 1 to break through the marketing clutter, added more information in the interactive menu 2 to improve debt literacy, and, to improve the customer relationship, created a friendly and more human terminal message (see MDA for more details). These intuitive changes increased the likelihood to pay one's account to a comparable degree as the theoretically grounded implementation intentions-intervention that we describe in this paper (see Table S3). This suggests that when applying behavioral insights to real-world problems, there may be much "low hanging fruit."

While it is possible that the improvement in repayment to the focal credit card came at the expense of other debts, our results suggest that delinquency is not simply an outcome of either forgetting or sheer inability to make a payment. Instead, delinquency might also be due to nonspecific plans to follow through on one's payment intentions, in particular a lack of cognition and

motivation. More generally, the randomized control trial reported in this paper demonstrates the power of relevant psychological interventions for increasing economic and individual well-being in a relatively costless manner.

Conflict of Interest

The underlying data supporting this research paper were received in cooperation with parties to a commercial consulting agreement (a credit card company and the consulting company BEworks, Inc.; two of the authors, Nina Mazar and Dan Ariely, are founders and shareholders of BEworks, Inc.). Terms of this agreement restrict the disclosure of confidential client data beyond what is required to support the publishing of the research findings. Any further disclosure would require written consent from the affected parties.

Author Contribution

NM and DA designed and directed the experiment; DM did the analyses; NM, DA, and DM interpreted the results and drafted and revised the manuscript.

References

- Achtziger, A., Bayer, U. C., & Gollwitzer, P. M. (2012). Committing to implementation intentions: Attention and memory effects for selected situational cues. *Motivation and Emotion, 36*, 287–300. <https://doi.org/10.1007/s11031-011-9261-6>
- Adriaanse, M. A., Vinkers, C. D., De Ridder, D. T., Hox, J. J., & De Wit, J. B. (2011). Do implementation intentions help to eat a healthy diet? A systematic review and meta-analysis of the empirical evidence. *Appetite, 56*, 183–193. <https://doi.org/10.1016/j.appet.2010.10.012>
- Amar, M., Ariely, D., Ayal, S., Cryder, C. E., & Rick, S. I. (2011). Winning the battle but losing the war: The psychology of debt management. *Journal of Marketing Research, 48*, S38–S50. <https://doi.org/10.1509/jmkr.48.SPL.S38>
- Andriotis, A., & Sidel, R. (2016). Balance due: Credit-card debt nears \$1 trillion as banks push plastic. *The Wall Street Journal*, May 20, <http://www.wsj.com/articles/balance-due-credit-card-debt-nears-1-trillion-as-banks-push-plastic-1463736600> Accessed: 18 October 2016.
- Bamberg, S. (2002). Effects of implementation intentions on the actual performance of new environmentally friendly behaviours—Results of two field experiments. *Journal of Environmental Psychology, 22*, 399–411. <https://doi.org/10.1006/jevpe.2002.0278>

- Bélanger-Gravel, A., Godin, G., & Amireault, S. (2013). A meta-analytic review of the effect of implementation intentions on physical activity. *Health psychology review*, 7, 23–54. <https://doi.org/10.1080/17437199.2011.560095>
- Beshears, J., Milkman, K. L., & Schwartzstein, J. (2016). Beyond beta-delta: The emerging economics of personal plans. *The American Economic Review*, 106, 430–434. <https://doi.org/10.1257/aer.p20161100>
- Brown, A. L., & Lahey, J. N. (2015). Small victories: Creating intrinsic motivation in task completion and debt repayment. *Journal of Marketing Research*, 52, 768–783.
- Brown, L., Sheeran, P., & Reuber, M. (2009). Enhancing antiepileptic drug adherence: A randomized controlled trial. *Epilepsy & Behavior*, 16, 634–639. <https://doi.org/10.1016/j.yebeh.2009.09.014>
- Cialdini, R. B., & Goldstein, N. J. (2004). Social influence: Compliance and conformity. *Annual Review of Psychology*, 55, 591–621. <https://doi.org/10.1146/annurev.psych.55.090902.142015>
- Federal Reserve. (2014). Bulletin, 100(4), <http://www.federalreserve.gov/pubs/bulletin/2014/pdf/scf14.pdf>. Accessed 18 October 2016.
- Frederick, S., Lee, L., & Baskin, E. (2014). The limits of attraction. *Journal of Marketing Research*, 51, 487–507. <https://doi.org/10.1509/jmr.12.0061>
- Gollwitzer, P. M. (1993). Goal achievement: The role of intentions. *European review of social psychology*, 4, 141–185. <https://doi.org/10.1080/14792779343000059>
- Gollwitzer, P. M. (1999). Implementation intentions: Strong effects of simple plans. *American Psychologist*, 54, 493. <https://doi.org/10.1037/0003-066X.54.7.493>
- Gollwitzer, P. M. (2014). Weakness of the will: Is a quick fix possible? *Motivation and Emotion*, 38, 305–322. <https://doi.org/10.1007/s11031-014-9416-3>
- Gollwitzer, P. M., & Brandstätter, V. (1997). Implementation intentions and effective goal pursuit. *Journal of Personality and Social Psychology*, 73, 186. <https://doi.org/10.1037/0022-3514.73.1.186>
- Gollwitzer, P. M., & Sheeran, P. (2006). Implementation intentions and goal achievement: A meta-analysis of effects and processes. *Advances in Experimental Social Psychology*, 38, 69–119. [https://doi.org/10.1016/S0065-2601\(06\)38002-1](https://doi.org/10.1016/S0065-2601(06)38002-1)
- Gollwitzer, P. M., & Sheeran, P. (2009). Self-regulation of consumer decision making and behavior: The role of implementation intentions. *Journal of Consumer Psychology*, 19, 593–607. <https://doi.org/10.1016/j.jcps.2009.08.004>
- Hall, P. A., Zehr, C. E., Ng, M., & Zanna, M. P. (2012). Implementation intentions for physical activity in supportive and unsupportive environmental conditions: An experimental examination of intention-behavior consistency. *Journal of Experimental Social Psychology*, 48, 432–436. <https://doi.org/10.1016/j.jesp.2011.09.004>
- Hershfield, H. E., & Roeser, N. J. (2015). Dual payoff scenario warnings on credit card statements elicit suboptimal payoff decisions. *Journal of Consumer Psychology*, 25, 15–27. <https://doi.org/10.1016/j.jcps.2014.06.005>
- Holland, R. W., Aarts, H., & Langendam, D. (2006). Breaking and creating habits on the working floor: A field-experiment on the power of implementation intentions. *Journal of Experimental Social Psychology*, 42, 776–783. <https://doi.org/10.1016/j.jesp.2005.11.006>
- Kettle, K. L., Trudel, R., Blanchard, S. J., & Häubl, G. (2016). Repayment concentration and consumer motivation to get out of debt. *Journal of Consumer Research*, 43, 460–477. <https://doi.org/10.1093/jcr/ucw037>
- Koestner, R., Lekes, N., Powers, T. A., & Chicoine, E. (2002). Attaining personal goals: Self-concordance plus implementation intentions equals success. *Journal of Personality and Social Psychology*, 83, 231–244. <https://doi.org/10.1037/0022-3514.83.1.231>
- Lynch, J. (1999). Theory and external validity. *Journal of the Academy of Marketing Science*, 27, 367–376. <https://doi.org/10.1177/0092070399273007>
- Martin, J., Sheeran, P., Slade, P., Wright, A., & Dibble, T. (2009). Implementation intention formation reduces consultations for emergency contraception and pregnancy testing among teenage women. *Health Psychology*, 28, 762. <https://doi.org/10.1037/a0016200>
- Milkman, K. L., Beshears, J., Choi, J. J., Laibson, D., & Madrian, B. C. (2011). Using implementation intentions prompts to enhance influenza vaccination rates. *Proceedings of the National Academy of Sciences*, 108, 10415–10420. <https://doi.org/10.1073/pnas.1103170108>
- Morwitz, V. G., & Fitzsimons, G. J. (2004). The mere-measurement effect: Why does measuring intentions change actual behavior? *Journal of Consumer Psychology*, 14, 64–74. https://doi.org/10.1207/s15327663jcp1401&a mp;2_8
- Morwitz, V. G., Johnson, E., & Schmittlein, D. (1993). Does measuring intent change behavior? *Journal of Consumer Research*, 20, 46–61. <https://doi.org/10.1086/209332>
- Nickerson, D. W., & Rogers, T. (2010). Do you have a voting plan? Implementation intentions, voter turnout, and organic plan making. *Psychological Science*, 21, 194–199. <https://doi.org/10.1177/0956797609359326>
- Orbell, S., Hodgkins, S., & Sheeran, P. (1997). Implementation intentions and the theory of planned behavior. *Personality and Social Psychology Bulletin*, 23, 945–954. <https://doi.org/10.1177/0146167297239004>
- Orbell, S., & Sheeran, P. (2000). Motivational and volitional processes in action initiation: A field study of the role of implementation intentions. *Journal of Applied Social Psychology*, 30, 780–797. <https://doi.org/10.1111/j.1559-1816.2000.tb02823.x>
- Rogers, T., Milkman, K. L., John, L. K., & Norton, M. I. (2015). Beyond good intentions: Prompting people to make plans improves follow-through on important tasks. *Behavioral Science & Policy*, 1, 33–41. <https://doi.org/10.1353/bsp.2015.0011>

- Sheeran, P., & Orbell, S. (1999). Implementation intentions and repeated behaviour: Augmenting the predictive validity of the theory of planned behaviour. *European Journal of Social Psychology, 29*, 349–369. [https://doi.org/10.1002/\(ISSN\)1099-0992](https://doi.org/10.1002/(ISSN)1099-0992)
- Sheeran, P., Webb, T. L., & Gollwitzer, P. M. (2005). The interplay between goal intentions and implementation intentions. *Personality and Social Psychology Bulletin, 31*, 87–98. <https://doi.org/10.1177/0146167204271308>
- Shu, L. L., Mazar, N., Gino, F., Ariely, D., & Bazerman, M. H. (2012). Signing at the beginning makes ethics salient and decreases dishonest self-reports in comparison to signing at the end. *Proceedings of the National Academy of Sciences, 109*, 15197–15200. <https://doi.org/10.1073/pnas.1209746109>
- Spangenberg, E. R., Greenwald, A. G., & Sprott, D. E. (2008). Will you read this article's abstract? Theories of the question-behavior effect. *Journal of Consumer Psychology, 18*, 102–106. <https://doi.org/10.1016/j.jcps.2008.02.002>
- Spangenberg, E. R., Kareklas, I., Devezer, B., & Sprott, D. (2016). A meta-analytic synthesis of the question-behavior effect. *Journal of Consumer Psychology, 26*, 441–458. <https://doi.org/10.1016/j.jcps.2015.12.004>
- Traub, A., & Ruetschlin, C. (2012). *The plastic safety net: Findings from the 2012 National Survey on Credit Card Debt of low- and middle-income households (Demos)*. Retrieved from <http://www.demos.org/sites/default/files/publications/PlasticSafetyNet-Demos.pdf>. Accessed 7 July 2014.

Supporting Information

Additional supporting information may be found in the online version of this article at the publisher's website:

Appendix S1. Methodological Detail Appendix (MDA).