

Too Much of a Good Thing: The Benefits of Implementation Intentions Depend on the Number of Goals

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Implementation intentions are specific plans regarding how, when, and where to pursue a goal (Gollwitzer). Forming implementation intentions for a single goal has been shown to facilitate goal achievement, but do such intentions benefit multiple goals? If so, people should form implementation intentions for all their goals, from eating healthily to tidying up. An investigation into this question suggests that the benefits of implemental planning for attaining a single goal do not typically extend to multiple goals. Instead, implemental planning draws attention to the difficulty of executing multiple goals, which undermines commitment to those goals relative to other desirable activities and thereby undermines goal success. Framing the execution of multiple goals as a manageable endeavor, however, reduces the perceived difficulty of multiple goal pursuit and helps consumers accomplish the various tasks they planned for. This research contributes to literature on goal management, goal specificity, the intention-behavior link, and planning.

Despite good intentions, most goals go unfulfilled (Webb and Sheeran 2006; Young, DeSarbo, and Morwitz 1998). People purchase gym memberships because they intend to exercise yet fail to ever show up. They purchase products because of mail-in rebates yet fail to follow through with the redemption. And they spend today intending to save tomorrow yet fail to reel in their spending. This puzzling discrepancy between what people intend to do and what they actually do has spurred considerable research into the process of goal pursuit (Bagozzi and Dholakia 1999;

Fishbein and Ajzen 1975) and the strategies that facilitate goal success (Gollwitzer and Sheeran 2009; Myrseth and Fishbach 2009). One program of research shows that people are more likely to follow through with a goal if they form *implementation intentions*: plans that specify the procedures by which a goal will be attained and the circumstances under which specific behaviors will be enacted (Gollwitzer 1999). In one study, college students took on a goal to eat an extra piece of fruit each day for a few weeks. While some students simply committed themselves to the goal, others supplemented their commitment with implementation intentions. That is, they planned in advance how, when, and where they would eat the extra fruit. Although the two groups of students reported equal commitment to the goal, students who formed specific plans were more likely to increase their fruit intake (Armitage 2007).

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Baba Shiv and Ann McGill served as editors and Pierre Chandon served as associate editor for this article.

Electronically published February XX, 2012

Implemental planning has proven useful for goals ranging from exercising (Prestwich, Lawton, and Conner 2003) and smoking cessation (Armitage and Arden 2008), to recycling (Holland, Aarts, and Langendam 2006) and academic achievement (Bayer and Gollwitzer 2007). Although a broad range of goals has been studied, each study has examined the benefits of implementation intentions for a *single* goal. Most of us, however, are juggling multiple goals in our lives and jobs, and it is in our complex daily lives where we may benefit most from strategies that promote goal success. This raises the question of whether implementation intentions can

help people successfully accomplish more of the activities they set out to do. The answer remains unclear because strategies that facilitate success at a single goal do not necessarily generalize to multiple goals (Austin and Vancouver 1996). Indeed, we theorize that implementation intentions are less beneficial when applied to multiple goals (e.g., an entire to-do list) versus a single goal (e.g., eating healthily). This effect occurs because forming implementation intentions for a set of goals draws attention to the difficulty of executing the planned actions. The anticipated difficulty of carrying out all the requisite activities undermines commitment and, in turn, goal success.

CONCEPTUAL DEVELOPMENT

Successful goal pursuit is a multistage process (Miller, Galanter, and Pribram 1960). People set and commit themselves to goals, defined as desired end states, and then plan how to achieve them. People then execute the planned actions in goal-relevant situations and ultimately achieve their goals. The present research examines how commitment is affected at the planning stage of goal pursuit, which affects behavior at the goal execution stage. Past implementation intentions research, in comparison, has focused primarily on goal execution. On the basis of that work, one might predict that implemental plans would remain effective regardless of the number of goals being planned for because such plans enable goal execution to operate automatically. That is, someone who establishes implementation intentions deliberately creates links between goal-relevant behaviors and a future context in memory. These links enable the person to recognize relevant contextual cues easily and perform planned actions automatically, even when distraction is present, goal-relevant cues are hidden, or goal execution is difficult (Brandstätter, Lengfelder, and Gollwitzer 2001; Einstein et al. 2005; Gollwitzer and Brandstätter 1997; Patalano and Seifert 1997). Because behavioral control is relegated to the environment and automatic processes, furnishing goals with implementation intentions frees up resources that can be preserved or applied elsewhere. The potential implication for multiple goal pursuit is clear: by enabling consumers to overcome capacity constraints—a key reason why multiple goal pursuit is difficult (Einstein and McDaniel 1996)—implementation intentions should presumably help consumers accomplish more of the tasks they set out to do.

This prediction, however, overlooks an important detail. The automatic execution of goals furnished with implementation intentions depends on goal commitment, unlike habits and other automatic behaviors that operate independently of commitment (Brandstätter et al. 2001; Sheeran, Webb, and Gollwitzer 2005). This dependency on commitment is typically described in positive terms because it enables people to disengage from automatic goals that they are no longer committed to. On the other hand, if the execution of these goals depends on commitment, then inadvertently undermining commitment would undermine goal execution and the potential benefits of planning for goal success would not be realized. In this article, we pro-

pose that one way to unintentionally weaken commitment is to form specific plans for multiple goals.

Perceived Difficulty, Commitment, and Goal Success

Thinking concretely about how, when, and where to pursue a goal can alert people to the difficulties that stand in the way of goal achievement (Lynch et al. 2010; Trope and Liberman 2003; Zauberaman and Lynch 2005). In the case of multiple goal pursuit, the difficulties are numerous. People must overcome obstacles and distractions, remember multiple tasks, and avoid procrastination. Moreover, completing one task often involves neglecting or postponing others, so conflict between goals is necessarily elevated and the expected likelihood of ever achieving all goals is reduced. Past research on the relation between goal difficulty and goal commitment suggests that difficult goals do not necessarily weaken commitment, but commitment is weakened by the particular conditions associated with executing multiple goals in a finite amount of time (Shah and Kruglanski 2008). That is, commitment falters when people perceive conflict between goals (Donahue et al. 1993) or when the expected likelihood of goal success is low (Feather 1982; Louro, Pieters, and Zeelenberg 2007; Schmidt and Dolis 2009). In light of this, any activity that draws attention to the conflicts and constraints (e.g., time, attention, energy) involved in executing multiple goals could potentially undermine commitment—including planning itself. Accordingly, because specific planning focuses people on constraints to goal execution, we theorize that people who form specific plans for multiple goals anticipate greater difficulty, become less committed, and ultimately fail to follow through with their planned actions.

One implication of this view is that implemental planning tends to benefit multiple goals less than a single goal because the difficulties of managing multiple goals are far greater than those associated with a single goal. It is, however, possible for implementation intentions to be successfully applied to multiple goals. The psychological process we propose attributes the effects of goal number to perceived difficulty. Specifically, the difficulty of goal execution increases with the number of goals being planned for, and concrete planning draws attention to this difficulty. This theorizing implies that implementation intentions have the potential to benefit multiple goals if, for example, people come to perceive these goals as easier to manage.

Planning and Commitment within a Goal System

The present research contributes to the literature in several ways. Broadly speaking, it contributes to an emerging minority of work that demonstrates conditions where planning fails to benefit goal pursuit (Bayuk, Janiszewski, and LeBoeuf 2010; Cohen, Jaudas, and Gollwitzer 2008; DeWitte, Verguts, and Lens 2003; Ülkümen and Cheema 2011) and thereby contrasts with traditional approaches that demonstrate the benefits of planning (Locke and Latham

1990, 2002; Parks-Stamm and Gollwitzer 2009). The present studies also make specific contributions regarding the relation between planning and commitment. To elaborate, several prominent models of goal pursuit posit that a strong commitment to a goal leads to planning (Gollwitzer 1990; Locke and Latham 1990; Orbell and Sheeran 2000). On the basis of those models, empirical studies measure commitment to show that prior commitment moderates planning effects and/or that planning does not strengthen commitment (Gollwitzer and Sheeran 2006; Parks-Stamm and Gollwitzer 2009). In comparison, our argument suggests that an ironic effect of implemental planning is its potential to undermine the very commitment that prompts people to plan in the first place. By suggesting that planning can weaken goal commitment in the context of multiple goals, we build on extant theory and research in a few key ways.

First, we posit that commitment may be affected by planning for multiple goals even if it is not affected by planning for a single goal because goal planning and pursuit is a different process when a person is facing the difficulties that plague multiple goal pursuit. Second, by examining a system of goals, we can examine commitment in a relative, not absolute sense. This is important because research that finds no effect of planning on commitment has studied the absolute level of commitment to a single goal being planned for, rather than commitment to that goal relative to other, nonfocal goals. But even if planning for a single goal does not notably increase commitment to that goal, planning may reduce commitment to other desirable activities. This could still facilitate goal success if goal pursuit depended on the relative, not absolute, importance of goals (Fishbach, Friedman, and Kruglanski 2003; Trope and Fishbach 2000). Consider the phenomenon of goal shielding, a process whereby nonfocal goals are prevented from interfering with focal goals because the activation of nonfocal goals is inhibited, not because focal goals are further activated (Shah, Friedman, and Kruglanski 2002). According to goal shielding research, a focal goal's level of activation need not change for people to engage in goal-directed actions because goal pursuit depends on relative, not absolute, goal activation.

Implementation intentions may operate through a similar process, with planning exerting its behavioral effects by influencing relative goal commitment. Specifically, planning for a single goal may suppress commitment to nonfocal activities, independently of increasing commitment to the focal goal. This effect would result in a gain in commitment to a focal goal over competing activities and thereby facilitate goal success. We can extend this reasoning to make predictions about why implementation intentions may not benefit multiple goals. If planning for multiple goals undermines commitment, it may be because planning weakens commitment to those goals, and/or because planning for multiple goals leads to a failure to suppress commitment to nontarget goals. Only by studying implementation intentions in the context of a goal system can these ideas be tested. Moreover, by testing these ideas, we may gain insight into

why specific planning is unsuccessful for multiple goals, as well as why it is successful for a single goal.

OVERVIEW OF STUDIES

Three studies support the hypothesis that specific planning is less effective for multiple goals versus a single goal and provide process evidence for why this result occurs. Study 1 shows that planning for multiple goals reduces commitment to those goals in relation to other attractive activities, which eliminates the benefits otherwise afforded by planning. Study 2 tests our key hypothesis in a more conservative paradigm that uses fewer goals in the multiple goal condition and measures success on a simpler task. Study 3 shows that implementation intentions are effective when people are led to perceive less difficulty in executing multiple goals.

STUDY 1

Study 1 addressed whether implemental planning helps consumers accomplish goals they tend to pursue already but want to do better or more often, including exercising, eating healthily, and tidying up. People were assigned one or six such goals to carry out each day over a 5-day workweek. Some participants simply committed themselves to their assigned goal(s), while other participants supplemented their commitment with implementation intentions. We predicted that implementation intentions would benefit success at a single goal but not multiple goals. To explore the psychological process driving this effect, we considered the mediating role of commitment. We measured commitment to focal goals (i.e., the goal(s) assigned to participants) as well as commitment to nonfocal goals (i.e., other attractive activities not assigned in the study). We predicted that implementation (vs. goal) intentions boost commitment to a single focal goal relative to nonfocal goals but undermine commitment to multiple focal goals relative to nonfocal goals, and that this effect on commitment mediates the effect on success.

Method

Participants and Design. Sixty-eight business school staff members and MBA students at a small, private university in the United States were recruited via email to participate in a study about "everyday goals." One participant's data were incomplete due to sickness. Participants either received \$30 or donated these earnings to charity. No notable differences were found on the basis of staff/student status, compensation method, or gender, so data were pooled across these factors. We used a 2 (intention type: implementation intentions vs. goal intentions) \times 2 (goal number: one vs. six) \times 2 (goal type: target vs. nontarget) mixed design, where type of intention and goal number were between-subjects factors and goal type was a within-subjects factor.

Materials and Procedure. We begin with an overview of the procedure and then describe its specific details. Par-

ticipants came to the lab for a 30-minute session during which the manipulations took place. Participants then pursued each assigned goal every day for five consecutive days. Beginning on day 2 of goal pursuit, participants began reporting on their activities the previous day. Participants completed a report daily for five consecutive days, each day reporting the previous day's activities. Daily reports were used to calculate the number of goals a participant achieved per day. The following week, participants returned to the lab to be debriefed and paid.

In the first laboratory session, we informed participants that the purpose of the research is to help people do a better job at accomplishing everyday goals. They would carry out a to-do list every day for a period of 5 days and report daily on their activities. After consenting, participants were randomly assigned a to-do list containing either one or six goals. The six goals included: "read a book for pleasure," "eat an especially healthy meal," "call someone I haven't had a chance to call," "treat myself to something special," "organize or tidy up," and "start a conversation about a difficult to discuss personal issue." These goals were selected by using pretesting to be roughly equal in perceived difficulty. We counterbalanced the order of goal presentation in the six-goal condition, and the assigned goal in the one-goal condition. The particular goal assigned did not influence the results, so all analyses collapse across this factor.

After participants received a to-do list, half furnished their goal(s) with implementation intentions and the other half did not. The intention manipulation was described as an exercise to help participants accomplish their to-do list over the course of the study. For each assigned goal, participants completed and rehearsed a series of sentence stems (i.e., "I commit myself to . . .," "I want to . . .," and "I definitely want to achieve my goal to . . ."). Participants in the implementation intentions condition also answered prompts regarding when, where, and how they would act on the goal(s) (i.e., "When will you try to [target goal]?", "Where will you try to [target goal]?", "How will you try to [target goal]?). All participants rehearsed the statements until they felt that more rehearsal time would not further improve their willpower and then rated how much willpower they had mobilized on a 10-point scale. Time spent forming and rehearsing each implementation intention did not vary for one versus six goals.

After the mental exercise(s), participants rated commitment to each goal on a 7-point scale and responded to questions about their habits in the goal-relevant domains. Habit strength had no notable effects and was excluded from analyses. In addition to responding to commitment and habit questions for each target goal, participants completed these measures for each of five nontarget goals that they would also report on each day. The five nontargets included: "exercise," "check the next day's weather," "pay someone a compliment," "spend less money on a personal luxury I regularly buy," and "do something to conserve energy."

The purpose of measuring commitment and success at nontargets is twofold. The first reason is empirical. We asked

participants to report on irrelevant activities to capture demand effects. Participants might engage in certain behaviors more, or at least report engaging in the behaviors more, because of self-presentation concerns, social facilitation, or simply because we are asking about the behaviors (Fitzsimons, Nunes, and Williams 2007). Analyzing success and commitment to targets relative to fillers can correct for these demand effects, thereby providing more sensitive measures. The second reason to include nontargets is theoretical. Analyzing commitment to targets relative to nontargets tests the prediction that implemental planning produces relative, rather than absolute, changes in goal commitment. Moreover, separately analyzing commitment to targets and fillers provides information about why relative differences exist. Goal shielding is one reason why relative differences in commitment may be obtained.

After completing the questionnaires about nontarget goals, participants were done with the lab session. Participants then carried out their to-do list each day for 5 days. After each day of goal pursuit (i.e., beginning on day 2 and ending on day 6), participants received an early morning email that contained a link to a web survey. The daily emails instructed participants to complete the survey prior to 10 a.m. The survey listed 11 activities (i.e., the six targets and five nontargets), and participants indicated whether or not they performed each activity the previous day. Participants also reported when and where they completed each of the six targets. After the 5-day period, participants returned to the lab for debriefing and payment.

Results

Dependent Measures. Each day, participants could complete up to one target goal in the one-goal condition or up to six target goals in the six-goal condition, and all participants could complete up to five nontarget goals. We measured target (and nontarget) goal success by calculating the proportion of target- (nontarget-) related activities reportedly completed for each day. The day (1–5) factor did not affect success, so all analyses exclude this factor and calculate proportions collapsed across day. We then calculated success gain, the completion of target goals over nontarget goals. Success gain was calculated by subtracting the proportion of accomplished nontargets from the proportion of accomplished targets. Similarly, we used target and nontarget commitment data (collected in the first lab session) to calculate gains in commitment. Commitment gain was calculated by subtracting average commitment ratings for nontargets from average commitment ratings for the target goal(s).

Success Gain. Gains in success were analyzed in a 2 (intention type: implementation intentions vs. goal intentions) \times 2 (goal number: one vs. six) ANOVA. Only the predicted intention type \times goal number interaction was significant ($F(1, 63) = 6.20, p < .02$). Simple effects analyses at each level of goal number showed that gains in success were greater for implementation (vs. goal) intentions in the one-goal condition ($F(1, 63) = 5.93, p < .02$) but,

as predicted, not in the six-goal condition ($p > .25$). The data are depicted in Figure 1. Note that analyzing target goal success rather than success gain yields similar results. More detail about target goal success is provided in Table 1.

Commitment Gain. Gains in commitment (to targets over nontargets) were analyzed in a 2 (intention type: implementation intentions vs. goal intentions) \times 2 (goal number: one vs. six) ANOVA, which yielded a significant effect of goal number ($F(1, 63) = 6.46, p < .02$), and the predicted intentions \times goal number interaction ($F(1, 63) = 12.35, p < .01$). Simple effects analyses at each level of goal number showed that implementation (vs. goal) intentions resulted in larger commitment gains for one goal ($F(1, 63) = 8.67, p < .01$) but smaller commitment gains for six goals ($F(1, 63) = 4.13, p < .05$). The data are depicted in Figure 2.

Target and Nontarget Success and Commitment. To gain insights into how the manipulations affected commitment to targets relative to nontargets, additional analyses were performed on the raw commitment data to separate the effects on target and nontarget goals. A $2 \times 2 \times 2$ ANOVA on commitment with intention type and goal number as between-subject factors and goal type (target vs. nontarget goal) as a within-subject factor yielded a three-way interaction ($F(1, 63) = 12.35, p < .01$) and two key results. First, target goal commitment was lower in the implementation intentions/six-goal condition ($M = 4.70, SD = 1.03$) compared to the other three conditions ($M = 6.17, 5.80$, and 6.69 for goal intentions/one goal, goal intentions/six goals, and implementation intentions/one goal, respectively; all $p < .01$) and was nearly identical to nontarget commitment in the same condition ($M = 4.56; SD = .89$). In sum, implemental planning for multiple target goals reduced commitment to those goals.

Second, in the one-goal condition, target commitment did not differ for implementation intentions ($M = 6.69; SD = .60$) versus goal intentions ($M = 6.17; SD = 1.79; F(1, 63) = 1.63, p > .20$), but nontarget commitment was lower

FIGURE 1

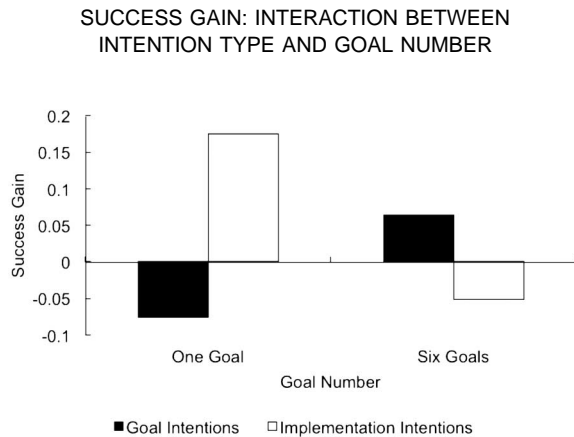
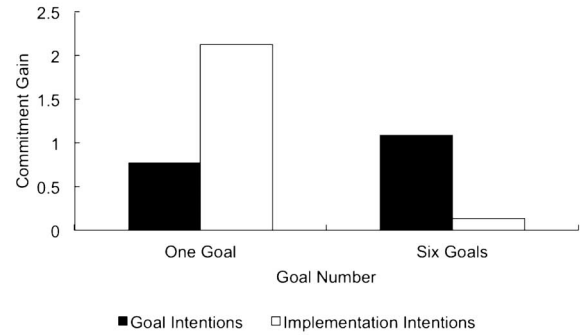


FIGURE 2

COMMITMENT GAIN: INTERACTION BETWEEN INTENTION TYPE AND GOAL NUMBER



for implementation intentions ($M = 4.56; SD = 1.34$) versus goal intentions ($M = 5.40; SD = 1.04; F(1, 63) = 5.94, p < .05$). Thus, specific planning for a single target goal did not strengthen commitment to that goal but did weaken commitment to nontargets. We did not, however, obtain a similar effect for six target goals.

These results document how implementation intentions affect commitment to target goals and nontarget activities. Specifically, implementation intentions do not boost commitment to a single target goal but do suppress commitment to nontarget goals, resulting in a gain in commitment to a target over nontargets. In the case of multiple goals, implementation intentions reduce target commitment and fail to suppress commitment to nontargets, resulting in no greater commitment to targets relative to nontargets. Table 1 presents statistics for target and nontarget success and commitment as a function of intention type and goal number.

Mediation of Success by Commitment. As noted above, the intention type \times goal number interaction predicted success gain and commitment gain. As expected, these measures were significantly associated as well ($B = .111, p < .01$). To test whether commitment gain mediated the effect of intention type \times goal number on success gain, 1,000 bootstrap resamples were performed using Preacher and Hayes's (2008) SPSS macro. Controlling for commitment gain, neither the main effects nor the interaction significantly affected success ($t < 1, p > .4$). Controlling for intention type, goal number, and their interaction, the relationship between gains in commitment and success remained significant ($B = .106, p < .01$). To test the indirect pathway (i.e., the path from intention type \times goal number to success via commitment), we considered the bias-corrected 95% confidence interval. Because this interval ($-.106$ to $-.027$) did not include 0 and the effect of the manipulation became nonsignificant, we can conclude that the intention type \times goal number effect on gains in success is fully mediated by gains in commitment.

TABLE 1
 STUDY 1: TARGET GOAL AND NONTARGET GOAL SUCCESS AND COMMITMENT AS A FUNCTION OF INTENTION TYPE (GOAL INTENTION VS. IMPLEMENTATION INTENTION) AND GOAL NUMBER (ONE GOAL VS. SIX GOALS)

Statistics	Condition		Target goal success	Nontarget goal success	Target goal commitment	Nontarget goal commitment
	One goal	Six goals				
Target goal success						
Goal intention condition	.40	.48				
Implementation intention condition	.61	.43				
Intention type	$F = 1.20$	$p < .28$				
Goal number	$F = .48$	$p < .49$				
Two-way interaction	$F = 3.35$	$p < .08$				
Nontarget goal success						
Goal intention condition	.48	.42				
Implementation intention condition	.44	.48				
Intention type	$F = .06$	$p < .80$				
Goal number	$F = .02$	$p < .88$				
Two-way interaction	$F = 1.18$	$p < .28$				
Target goal commitment						
Goal intention condition	6.17	5.80				
Implementation intention condition	6.69	4.70				
Intention type	$F = 1.01$	$p < .32$				
Goal number	$F = 16.37$	$p < .001$				
Two-way interaction	$F = 7.83$	$p < .007$				
Nontarget goal commitment						
Goal intention condition	5.40	4.72				
Implementation intention condition	4.56	4.56				
Intention type	$F = 3.25$	$p < .08$				
Goal number	$F = 1.54$	$p < .22$				
Two-way interaction	$F = 1.54$	$p < .22$				
Correlations						
Target goal success	1					
Nontarget goal success	.261*	1				
Target goal commitment	.444***	.147	1			
Nontarget goal commitment	.033	.531***	.309*	1		

NOTE.—Target (nontarget) goal success reflects the proportion of target (nontarget) goals that participants reportedly completed, averaged across days 1–5. Target (nontarget) goal commitment reflects the 1–7 rating (where higher values indicate greater commitment) reported by participants in the initial lab session. For more information about the calculation of these measures, see the “Dependent Measures” section in the results of study 1.

* $p < .05$.

** $p < .01$.

*** $p < .001$.

Posttest: Mediation of Commitment by Perceived Difficulty. To examine the role of perceived difficulty in reducing commitment to accomplishing the to-do list, we conducted a posttest with a sample of primarily staff and graduate students at a large, public university in the United States. We used the 2×2 design and procedures of the main study. Specifically, participants formed either goal intentions or implementation intentions for a to-do list that contained either one or six goals and committed themselves to completing the to-do list over each of the next five days. The posttest differed from the main study in two ways. First, participants completed measures of the difficulty of planning for the goal assignment and the difficulty of completing the goal assignment. We predicted that planning for multiple goals undermines commitment because planning highlights the difficulty of completing multiple goals, not because planning is itself difficult. Second, we did not conduct follow-

up surveys to measure goal completion, and participants were informed that we would not monitor their completion.

The posttest results indicated a significant interaction of intention type and number of goals on the anticipated difficulty of completing the to-do list, not the difficulty of planning the to-do list. In addition, the intention type \times goal number interaction was significant for commitment to completing the to-do list, and the anticipated difficulty of completing the to-do list fully mediated the intention type \times goal number interaction's effect on commitment. (More detailed results are available from the authors upon request.) These results support our hypothesis that planning for multiple goals undermines commitment by drawing attention to the difficulty of executing those goals.

Discussion

Study 1's results suggest that implementation intentions benefit a single target goal, but there is no benefit to forming implementation intentions for a set of target goals. This result was mediated by gains in commitment to target over nontarget goals. Specifically, implementation intentions increased commitment to a single target goal relative to nontarget goals but not commitment to multiple target goals relative to nontarget goals. A more fine-grained analysis showed why relative changes in commitment occurred. Consistent with prior work, implemental planning did not affect commitment to a single target goal. However, planning for multiple target goals reduced commitment to those goals, and planning for a single target goal reduced commitment to nontarget goals. These findings contribute to the literature in three key ways. First, the goal attainment results show that implementation intention effects depend on goal number, thereby establishing a critical boundary condition for the benefits of implemental planning. Second, the goal commitment results show that implemental planning affects commitment to focal goal(s) relative to other desirable activities, and what matters in predicting goal attainment is relative, not absolute, goal commitment. The commitment data also implicate goal shielding as the psychological process through which implementation intentions work for a single goal. In the case of multiple goals, the process of goal shielding broke down. The third contribution of this study is more conceptual than empirical. We replicate much prior work by showing that people fail to follow through with goals when they lack commitment, but we also build on this work by demonstrating that planning can be the reason why commitment is lacking.

STUDY 2

In study 2, we again tested the hypothesis that the benefits of implemental planning for goal success depend on the number of goals planned for. We sought to replicate study 1's results using a paradigm that is both well established in the implementation intentions literature and that provides a conservative test of our hypothesis. To this end, we adopted the procedure of Brandstätter et al. (2001, study 3), which relies on objective measures and a simple task to measure goal success. We also included a multiple goals condition that contained three goals.

Participants formed one or three goals to respond quickly to target number(s) appearing on a computer monitor. Implementation intentions involved focusing on what will be done (respond fast), when it will be done (when the target appears), and how it will be done (by pressing the spacebar). Such goals are simpler than those used in study 1 and create minimal response competition because all goals share a common response. We predicted that implementation intentions would be more beneficial than goal intentions among participants pursuing a single goal but not among those pursuing multiple goals.

Method

Participants and Design. Two hundred sixteen undergraduate psychology students at a small, private university in the United States participated in exchange for course credit or \$10. No notable differences were found on the basis of compensation method, so data are pooled across this factor. Data were collected in four waves over 16 months. Due to a computer malfunction, one participant's reaction time data (one of the dependent measures) are missing. We used a 2 (intention type: implementation intentions vs. goal intentions) \times 2 (goal number: one vs. three) \times 2 (goal type: target vs. nontarget) mixed design, where intention type and goal number were between-subjects factors and goal type was a within-subjects factor.

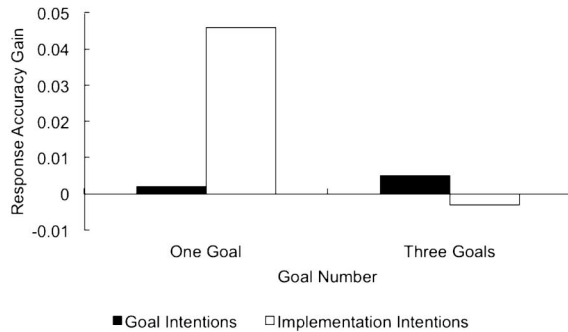
Materials and Procedure. The procedures and instructions were taken from Brandstätter et al. (2001, experiment 3) with three modifications. First, we included both one-goal and three-goal conditions. Second, they varied participants' primary task, which is a distracter task, whereas we dropped this factor and used only one level because this manipulation was not central to our predictions. Third, they presented the to-be-responded-to stimuli parafoveally, whereas we opted to facilitate responding by presenting these targets foveally.

The study was described as an investigation of attention and performance under stressful, dual-task conditions. Participants performed two computer-based tasks followed by a memory test. The so-called primary task involved memorizing meaningless syllables. On the left side of the computer screen, consonant-vowel-consonant syllables (e.g., *taw*, *gik*) were presented for 3 seconds each and in a fixed order. Participants were instructed to repeat the syllables aloud and memorize them for an upcoming test. In reality, this was a distracter task. The so-called secondary task, which actually was our dependent measure, was a response-time task. On the right side of the screen, numbers (i.e., 1, 3, 5, 7, or 9) and letters (i.e., a, e, n, v, or x) were presented for 1 second each and in a random order. The time between item presentations varied from 2 to 7 seconds, also at random. The participants' task was to press the spacebar as quickly as possible in response to numbers but not letters. Participants practiced the syllables task for 15 seconds, the numbers task for 30 seconds, and then practiced the tasks concurrently for 2 minutes to establish baseline performance. For concurrent practice, 10 syllables were presented four times each while five numbers and five letters were presented twice each. Participants were instructed to focus attention on the syllables task but to also perform the numbers task. For test trials, 25 syllables, five numbers, and five letters were presented.

Before the test trials began, participants were randomly assigned to one of the four conditions. The intention manipulation was described as a mental exercise to help participants respond particularly fast to one number (or three numbers) on the numbers task. The computer presented a deck of seven cards, and participants were instructed to draw

FIGURE 3

RESPONSE ACCURACY GAIN: INTERACTION BETWEEN INTENTION TYPE AND GOAL NUMBER



one (three) cards to be their special number(s). In fact, all participants selected the same one (three) number(s). The mental exercise began with all participants committing to respond particularly fast to their chosen number(s). Participants then completed either one or three forms, depending on the number of goals assigned. The form for the goal intentions condition asked participants to write their special number 25 times. This activity familiarized participants with the goal but did not focus them on enacting it. The form for the implementation intentions condition asked participants to complete prompts regarding how and when they would enact the goal (i.e., “I will respond to number _____ particularly fast”; “As soon as number _____ appears, I will press the spacebar as quickly as possible”). Participants rehearsed those statements until they felt that more rehearsal time would not further improve their willpower and then rated their willpower on a 10-point scale. Next, participants completed the test trials, followed by a computer-based free-recall memory test for the syllables task. Finally, participants were fully debriefed.

Results

Dependent Measures. Goal performance was assessed using two measures: response accuracy and reaction time. Response accuracy is a measure of automatic stimulus detection; it refers to whether or not the spacebar was pressed after a number appeared. Reaction time is a measure of automatic behavioral enactment; it refers to the time (in milliseconds) that lapsed until the spacebar was pressed after a number appeared. We calculated these measures for target and nontarget numbers. Target response accuracy and reaction time in the one-goal (vs. three-goals) condition indicate the average of five responses to one target (vs. 15 responses to three targets). Nontarget response accuracy and reaction time in the one-goal (vs. three-goals) condition indicate the average of 30 responses to six nontargets (vs. 20 responses to four nontargets). These measures were used to calculate gain scores—the extent to which participants re-

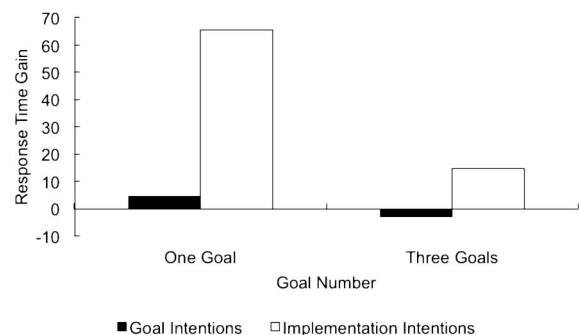
sponded with greater accuracy and speed to target over nontarget numbers. We calculated gains in response accuracy by subtracting the proportion of hits for nontargets from the proportion of hits for targets. We calculated gains in response time by subtracting the mean response time for target hits from the mean response time for nontarget hits.

Response Accuracy. The response accuracy gain data were analyzed in a 2 (intention type: implementation intentions vs. goal intentions) \times 2 (goal number: one vs. three) \times 4 (wave: 1, 2, 3, or 4) ANOVA. The wave factor and its interactions were not significant. The marginally significant main effect of intention type ($F(1, 200) = 2.97, p < .10$) and significant main effect of goal number ($F(1, 200) = 4.83, p < .03$) were qualified by the predicted intention type \times goal number interaction ($F(1, 200) = 6.20, p < .02$). See Figure 3 for the data. Analyses of the simple effects at each level of goal number showed that implementation (vs. goal) intentions caused greater gains in response accuracy for one goal ($F(1, 200) = 9.2, p < .01$); however, as predicted, the benefit of implementation intentions attenuated for three goals ($F(1, 200) = .40, p > .40$).

Response Time. The response time gain data were analyzed in a 2 (intention type: implementation intentions vs. goal intentions) \times 2 (goal number: one vs. three) \times 4 (wave: 1, 2, 3, or 4) ANOVA. Again, the wave factor and its interactions were not significant. Significant main effects obtained for intention type ($F(1, 199) = 8.87, p < .01$) and goal number ($F(1, 199) = 4.87, p < .03$) were qualified by a marginally significant intention type \times goal number interaction ($F(1, 199) = 2.75, p < .10$). The data are depicted in Figure 4. Analyses of the simple effects at each level of goal number showed that implementation (vs. goal) intentions resulted in faster response times for one goal ($F(1, 199) = 6.64, p < .01$); however, as predicted, the benefit of implementation intentions attenuated for three goals ($F(1, 199) = 1.74, p > .15$).

FIGURE 4

RESPONSE TIME GAIN: INTERACTION BETWEEN INTENTION TYPE AND GOAL NUMBER



Discussion

In study 2, we adopted the procedures of Brandstätter et al. (2001, experiment 3) and replicated the finding that implementation intentions are more beneficial than goal intentions when applied to a single goal. Specifically, we found that implementation intentions facilitated correct responses and speedy response times in a goal-relevant task. We also extended Brandstätter et al.'s results by showing that the benefits of implementation intentions over goal intentions were attenuated for multiple goals. In addition, study 2 used a conservative paradigm for testing the effectiveness of implemental plans for multiple goals. Only three goals were assigned in the multiple goals condition, compared to the six goals assigned in study 1. The goals were simple and concrete (i.e., "respond fast to a number"), compared to the more complex goals assigned in study 1. Finally, all three goals shared a common response (i.e., pressing a button), thereby eliminating response competition because the behavior required to achieve each goal was shared. Even in this conservative context, we supported our key prediction for multiple goals.

STUDY 3

The purpose of study 3 was twofold. First, this study was designed to provide additional insight into the psychological reason why implementation intentions do not benefit multiple goals. Second, study 3 tested conditions in which implementation intentions can be successfully applied to multiple goals. Our theory is that implemental planning makes the difficulty of executing multiple goals more salient, which causes people's commitment to falter and they fail to follow-through with their planned actions. Supporting this theorizing, the posttest to study 1 established that forming implementation intentions versus goal intentions for a set of goals causes people to perceive that executing the set of goals will be more difficult, which negatively affects commitment. In study 3, rather than measuring the perceived difficulty of multiple goal pursuit, we manipulated it. Specifically, we led some participants to perceive that managing multiple goals would be easier. Our theorizing implies that the effectiveness of implemental planning for attaining multiple goals depends on the perceived difficulty of executing those goals. If this view is correct, then making multiple goals seem easier to manage should make planning more effective.

We tested this argument in the context of a photography assignment. Participants were asked to take a set of photographs using their cellular phone's camera. All participants were assigned six photographs, but half were told that other participants were assigned 10. This instruction was intended to manipulate the perceived difficulty of goal execution while holding constant the actual difficulty of execution and the difficulty of planning (because all participants planned for and executed the same six goals). Before we conducted the main study, we sought to establish that juggling multiple goals seems less difficult when people believe others are juggling more goals than they are. Therefore, we tested

whether this framing manipulation reduces the perceived difficulty of goal execution and increases goal commitment. Thirty-six participants drawn from the same population as those in the main study imagined either taking six photographs (six-goal condition) or taking six photographs while other students take 10 (reframed goals condition). Participants then rated on 4-point scales the difficulty of completing the photography assignment and their commitment to it. Perceived difficulty was lower for reframed goals ($M = 1.83$; $SD = .71$) than for six goals ($M = 2.44$; $SD = .70$; $t(34) = 6.74$, $p < .02$), and commitment was higher for reframed goals ($M = 3.06$; $SD = .64$) than for six goals ($M = 2.44$; $SD = .98$; $t(34) = 2.21$, $p < .04$). In addition, difficulty and commitment were negatively correlated (Pearson's $r = -.38$, $p < .03$). These results suggest that the goal framing manipulation reduced the perceived difficulty of completing multiple goals while controlling for the actual difficulty of planning and execution.

In the main study, we predicted an intention type \times goal framing interaction: participants who form implementation intentions versus goal intentions should submit a greater number of assigned photographs in the reframed goals condition but not in the six-goal condition.

Method

Participants and Design. One hundred and seven undergraduate business school students at a small, public university in Hong Kong participated in a 2-day study in exchange for course credit. Data were collected in two waves, 6 months apart. We used a 2 (intention type: implementation intentions vs. goal intentions) \times 2 (goal frame: six goals vs. reframed goals) between-subjects design.

Materials and Procedure. Students were told that their university's marketing department was designing a promotional campaign for a cellular phone company. Students who owned a cellular phone equipped with a camera were invited to sign up online to participate. At the lab, they were informed that the marketing department is designing a storyboard depicting the campaign's theme, "A day in the life of . . ." and is seeking photo documentation of the daily routines of university students. In accordance with university policy, participation was voluntary. Participants would receive credit for participating in the lab session whether or not they followed through with the assignment, and no additional credit would be earned if they followed through.

After consenting to complete the assignment the next day, participants were randomly informed either "Your task is to take six different photos," or "Your task is to take six different photos. Some other students are being assigned 10 photos." The six photographs included: "bedroom in the morning—just waking up in your pajamas!" "arriving at your first class of the day," "ordering lunch in the canteen," "walking to the dorm or bus stop at the end of the school day," "sitting down to dinner," and "working or surfing the internet on your computer at night."

After participants received an assignment, half furnished

their photo-taking goals with implementation intentions and the other half did not. The intention manipulation was described as an exercise to help participants remember to take the photographs (similar to study 1's description). Participants in the goal intentions condition completed and rehearsed sentence stems committing themselves to take the assigned photographs the next day. Those in the implementation intentions condition also indicated and rehearsed when and where they would take each of the photographs. Time spent planning and rehearsing did not vary by goal frame condition. Before leaving the lab, participants were provided with contact information so they could email the photographs to the experimenter. The next day, the experimenter recorded the number of photographs submitted by each participant.

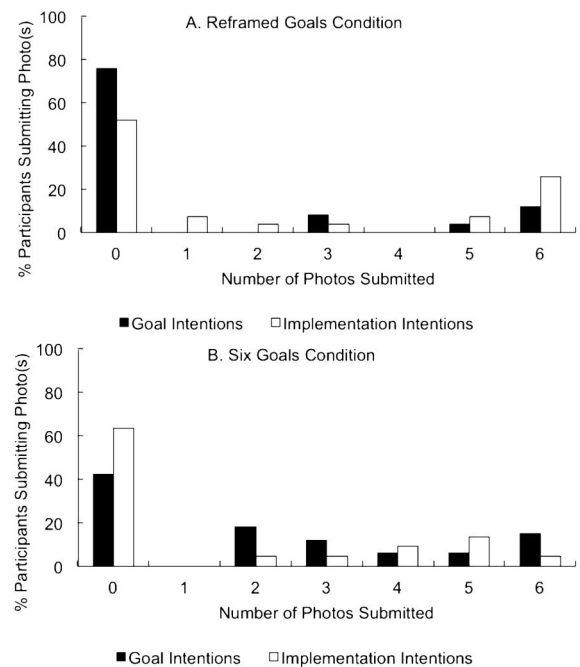
Results

Dependent Measures. Our theory is about the effect of planning on the number of goals people complete, but planning may also influence the number of goals completed once a person starts completing goals, and/or the decision to complete any goals or none at all. Either (or both) of these effects could potentially provide more detail about how our manipulations affect the process of multiple goal pursuit, so although we formulated predictions only for the number of goals completed, we analyzed three dependent measures in this study. The key dependent measure, the count measure, counted the number of photographs a participant submitted, from 0 to 6. The second measure, a conditional measure, counted the number of photographs a participant submitted conditional on submitting one. The third measure, a binary measure, coded whether or not a participant submitted any photograph(s).

Count Measure. The number of photographs submitted ranged from 0 to 6. A large number of participants submitted 0 photographs, so the assumptions underlying ANOVA were violated. We report the results of an ordinal logistic regression, but similar results are obtained when the data are analyzed using ANOVA. Our model regressed the number of photographs submitted on the independent variables intention type (implementation intentions vs. goal intentions), goal frame (six goals vs. reframed goals), intention type \times goal frame, and wave (wave 1 vs. 2). The wave factor was not significant. Significant effects were found for intention type ($\chi^2(1) = 4.49, p < .04$), goal frame ($\chi^2(1) = 6.39, p < .02$), and the intention type \times goal frame interaction ($\chi^2(1) = 5.18, p < .03$). The results support the prediction that implementation intentions increased the number of goals completed in the reframed goals condition but not in the six-goal condition. Figure 5 depicts distributions for the percentage of participants in each experimental condition who submitted each number of photographs, from 0 to 6.

Conditional Measure. We analyzed the number of photographs participants submitted conditional on submitting one in an ANOVA that included intention type, goal frame,

FIGURE 5
DISTRIBUTION OF NUMBER OF GOALS ACHIEVED:
INTERACTION BETWEEN INTENTION TYPE
AND GOAL FRAME



their interaction, and wave. None of the effects reached statistical significance ($N = 46$, all $p > .25$).

Binary Measure. We analyzed the measure of whether or not participants submitted any photographs in a binary logistic regression that included intention type, goal frame, their interaction, and wave. Significant effects were found for intention type ($\chi^2(1) = 5.31, p < .03$) and the intention type \times goal frame interaction ($\chi^2(1) = 5.65, p < .02$). Simple effects tests suggested that participants who formed implementation (vs. goal) intentions were marginally more likely to submit at least one photograph in the reframed goals condition ($M = 58\%$ vs. $M = 24\%$; $\chi^2(1) = 3.37, p < .07$) but not in the six-goal condition (where the data trended in the opposite direction; $M = 36\%$ vs. $M = 48\%$; $\chi^2(1) = 2.30, p < .13$).

Posttest: Perceived Difficulty. We conducted a posttest that used the 2×2 design of the main study but measured perceived goal difficulty. Our theory is that planning for a set of goals makes executing those goals seem more difficult unless people frame the goals as easy to execute. Accordingly, we predicted an intention type \times goal frame interaction, such that forming implementation intentions versus goal intentions makes the set of six goals seem more difficult to complete in the six-goal condition, but not in the reframed goals condition. Although we formulated this prediction for

the perceived difficulty of executing the set of goals, it may also be the case that our manipulations make each individual goal seem more difficult to execute and/or make planning itself seem more difficult. To address these possibilities, we also measured the perceived difficulty of completing the individual goals and the perceived difficulty of planning.

Fifty-four participants drawn from the same population as those in the main study received course credit in exchange for their participation. To keep the posttest as similar as possible to the main study (with the exception of the dependent measures), participants were asked to complete the assignment the next day but also knew that their course credit did not depend on it. At the end of the lab session, however, we told participants not to send in photographs the next day because a sufficient number of students had already volunteered to do so. Therefore, all measures were collected in a single session.

As in the main study, participants were asked to take a set of photographs using the camera on their cellular phone. All participants were assigned six photographs, but half were told that others were assigned 10. After randomly receiving an assignment, participants committed themselves to their goals, and half supplemented this commitment with implementation intentions (i.e., they specified when, where, and how they would take each photograph the next day). From here, the posttest methods diverged from the main study. For each photograph, participants indicated how difficult it would be to take that photograph on a 7-point scale. From these ratings, we calculated the average perceived difficulty of completing an individual goal. Participants then indicated how difficult it would be to complete the entire six-photograph assignment on a 7-point scale. This provided us with a measure of the perceived difficulty of completing the set of six goals. Finally, participants indicated the difficulty of planning for the six-photograph assignment on a 7-point scale. This provided us with a measure of the perceived difficulty of planning.

We analyzed the perceived difficulty of completing the set of six goals in a 2×2 ANOVA. We found a significant effect of intention type, such that the set of goals was perceived to be more difficult if people formed implementation intentions compared with goal intentions ($F(1, 50) = 6.86, p < .02$). Consistent with our theorizing, the intention type \times goal frame interaction effect was marginally significant ($F(1, 50) = 3.70, p < .06$). Simple effects analyses at each level of goal frame showed that the set of goals was perceived to be significantly more difficult to execute if people formed implementation (vs. goal) intentions in the six-goal condition ($M = 3.91$ vs. $M = 2.0$; $F(1, 50) = 9.86, p < .01$), but this difference was not significant in the reframed goals condition ($M = 2.69$ vs. $M = 2.4$; $F < 1$). In the analyses of the other dependent measures—the average difficulty of an individual goal and the difficulty of planning—the intention type \times goal frame interaction was not significant ($F < 1$); however, the pattern of results for the average difficulty of executing an individual goal closely resembled the pattern for executing the set of goals. The results

suggest that participants who form implementation intentions compared to goal intentions perceive greater difficulty in executing a set of goals, but this effect attenuates if participants reframe their goals as easier to execute.

Discussion

In study 3, all participants were assigned the same set of six goals. We manipulated the perceived difficulty of goal completion, with the set of goals being framed as relatively easy to execute for half the participants. The results showed that participants led to frame their goals as relatively easy to execute completed more of those goals if they formed implementation intentions compared to goal intentions. However, when the goals were not framed as easier to execute, implementation intentions did not significantly increase the number of goals completed. Follow-up analyses revealed a similar pattern of results for the number of participants who completed any goal(s) versus no goals at all (i.e., the binary measure). These findings could suggest that planning affects the number of goals people complete by primarily affecting whether people initiate pursuit of their goals. We are somewhat cautious, however, about concluding that the results for the binary measure can either reveal the qualitative process driving goal completion or can be generalized across studies. Study 3 was unlike studies 1 and 2 in that many study 3 participants failed to complete any goals (perhaps because compensation did not depend on goal completion in study 3), although the pattern of results for the average number of goals completed is similar across studies. Because completion rates were lower, with most of the data points falling at the low end of the scale, the low end of the scale is where the statistical test is most powerful. Although we hesitate to draw firm conclusions with these findings, they do raise the interesting possibility that implementation intentions affect not only the number of goals completed but also the trajectory of goal completion in the context of multiple goals.

In sum, the results of study 3's main experiment and posttest suggest that framing the execution of multiple goals as a manageable undertaking reduces the perceived difficulty of multiple goal pursuit and helps consumers accomplish the various tasks they planned for. These findings are both theoretically and practically important. These results are theoretically important because they suggest that an underlying reason why implemental plans can be ineffective is because these plans make salient the difficulty of managing multiple goals. These results are practically important because they show that people can benefit from specific planning if they frame multiple goal pursuit as more manageable. Thus, implementation intentions can in fact help people overcome the difficulty of attaining multiple goals.

GENERAL DISCUSSION

This article addresses whether supplementing goal intentions with implementation intentions can help people do a better job at accomplishing more of the goals they decide to pursue.

In study 1, implementation intentions were applied to everyday goals, such as eating healthily and tidying up, and we followed participants' goal success over a 5-day workweek. Study 2 was a laboratory experiment in which implemental planning was applied to simple, computer-based goals. These two experiments used vastly different goals, procedures, and measures of goal success, but pointed to the same conclusion: the benefits of implementation intentions for a single goal do not extend to multiple goals. To address why implemental planning is unsuccessful for multiple goals, we theorized that planning draws attention to the difficulty of executing those goals, which reduces commitment to those goals relative to other attractive pursuits. By compromising commitment at the planning stage, forming implementation intentions compromises success at the execution stage. Supporting this view, study 1 established mediation by relative goal commitment, and study 3 showed that planning affects the perceived difficulty of executing multiple goals. Study 3 also demonstrated conditions where implemental planning can be effective for multiple goals. In this study, students formed implemental plans for a six-goal photography assignment they would carry out the next day. Students benefited from implemental plans if they were led to frame their photo-taking goals as relatively easy to execute.

This research contributes to the literature in several ways. First, the data show that commitment can be undermined by planning, a point that has been neglected in the literature on goal pursuit and planning. Indeed, it is not intuitive that planning can undermine commitment, as commitment is what typically prompts people to plan in the first place. Moreover, we demonstrated the effect of planning on commitment and success (i.e., mediation) not by examining absolute goal commitment, but by examining relative goal commitment. That is, whereas prior implementation intentions research has examined absolute commitment to a focal goal and has suggested that the benefits of implementation intentions are not mediated by an increase in commitment, we examine commitment to a focal goal relative to other attractive pursuits and show that commitment does indeed mediate the effect of implementation intentions on goal success. This result underscores the importance of examining goals as a system rather than examining goals in isolation. The commitment data also suggest that the reason planning facilitated success at a single target goal was because it reduced commitment to nontarget goals. In the case of multiple target goals, however, planning failed to reduce nontarget commitment and it reduced target commitment. The result was that people were no more committed to their target goals than they were to other desirable goals, and this explained why implementation intentions had no benefit in the multiple goals condition. These results implicate a process akin to goal shielding (Shah et al. 2002) as the reason why specific planning is effective for a single goal and ineffective for multiple goals. The key difference is that Shah and colleagues demonstrated goal shielding via changes in goal

activation, whereas the present research suggests that goal shielding can occur based on changes in goal commitment.

Another key contribution of this research is that it identifies goal number as a boundary condition for the well-established findings on implementation intentions. In doing so, the present findings (1) highlight that strategies that facilitate success at a single goal do not necessarily generalize to multiple goals and (2) contribute to emerging research suggesting that planning is fallible. Prior research has found, for example, that people are less able to form if-then plans as the number of cues increases (Cohen et al. 2008), suggesting that limits on ability can spoil the benefits otherwise afforded by planning. Even if people are able to form specific plans, the benefits associated with automatic responding may be offset by costs to response flexibility (Bayuk et al. 2010; Patalano and Seifert 1997). Thus, planning is not always useful and further research is needed to understand (1) when planning can benefit multiple goals and (2) whether the results of our own investigation would generalize to other settings where goal pursuit is complex. In the remainder of this article, we discuss these important questions.

Planning Effectively within a Goal System

A critical task for researchers is to identify how people can plan effectively for multiple goals. The present studies suggest that one important piece of this puzzle is to identify factors that allow people to maintain commitment in the face of conflict and constraints. Specifically, study 3 showed that by manipulating the perceived difficulty of executing multiple goals, implementation intentions can be successfully applied to multiple goals. Thus, if people frame their goals as more manageable, commitment is maintained and planning for multiple goals can be effective. Similarly, other researchers have suggested that people with multiple goals are more successful if they think their goals are working together to help fulfill a common purpose, rather than thinking about them as distinct goals (Shah and Kruglanski 2008; Soman and Zhao 2011). According to Soman and Zhao, this effect can occur because focusing on a single goal causes people to think more implementally about the means to goal attainment. Based on that research, another way for people to maintain commitment to multiple goals might be for them to think about the synergies among their goals rather than the conflicts between them.

Goal concreteness versus abstractness is a second factor that may determine the benefits of planning for multiple goals. It is plausible that forming multiple plans results in plans that are less concrete and less beneficial to goal attainment, which could predict the interaction between intentions and goal number found here. We do have data that speak to the role of concreteness. First, we observed the key interaction between intentions and goal number using abstract goals (i.e., goals with ample room for interpretation, as in study 1) and using extremely concrete goals (i.e., goals synonymous with their means to achievement, as in study 2). More importantly, two judges, blind to study 1's experimental conditions and hypotheses, coded the concrete-

ness of participants' plans. We found no difference in concreteness as a function of goal number. Because plans were equally concrete for single goals and multiple goals, it was not the lack of plan specificity that undermined commitment and success. Of course, further research could clarify when and how goal specificity influences the effectiveness of planning for multiple goals.

A third factor that could influence whether planning benefits multiple goals is resource constraints and interference (we thank an anonymous reviewer for suggesting this possibility). Because participants in our studies formed several plans at the same time, it is possible that each plan interfered with the successful encoding of the previous plan, and/or that plans formed early on imposed cognitive load that degraded the quality of subsequent plans. Our data did not suggest that goal number affected either the specificity of plans or the duration of time spent forming and rehearsing plans. Nevertheless, the effectiveness of implemental plans formed over an extended period of time is an interesting topic for future research.

A fourth factor that could determine the benefits of planning for multiple goals is the type of plans that are formed. Although specific planning was ineffective here, other types of planning might facilitate goal attainment in complex settings. For instance, compared to specific plans, loose plans afford greater flexibility (Bayuk et al. 2010). Loose plans might facilitate success if these plans are truer representations of how consumers typically think about multiple goals (Vallacher and Wegner 1989) and might not reduce commitment to multiple goals (just as forming goal intentions did not reduce commitment here). On the other hand, some research suggests that specific plans are more effective than loose plans. Specific plans allow consumers to simulate how activities will proceed and hopefully hedge against potential problems (Austin and Vancouver 1996), and consumers facing the greatest constraints tend to plan the most (Lynch et al. 2010). It remains unclear how the specificity of planning affects goal success.

Planning in Complex Environments

Another critical question raised by this research is whether planning is useful in other complex settings, when preexisting habits must be overcome, plans are concrete, or goals are difficult. Existing evidence is mixed. First, in terms of preexisting habits, habit strength played a negligible role in study 1 (and therefore was not measured in subsequent studies), and prior research has found that implementation intentions do not break unhealthy eating habits (Verplanken and Faes 1999); however, implementation intentions have been shown to break other bad habits (Holland et al. 2006). Second, in terms of concrete planning, Ülkümen and Cheema (2011) have shown that focusing on "how" versus "why" to pursue a goal to save a specific amount of money reduces commitment and saving. These findings, like ours, suggest that commitment can be undermined by thinking about the details of goal pursuit. However, Ülkümen and Cheema studied only a single goal (compared to the multiple

goals studied here) and the benefits of planning still broke down. Third, in terms of difficulty, we suggest that implemental planning fails when people attend to the difficulty of executing multiple goals. Yet it has been suggested elsewhere that planning is useful in difficult situations (Gollwitzer and Brandstätter 1997; Parks-Stamm and Gollwitzer 2009); difficult goals may actually boost motivation, rather than reduce it (Locke and Latham 1990); and detailed planning is vital for success at difficult goals (DeWitte et al. 2003). For instance, DeWitte et al. suggested that plans for difficult goals must include "how" a behavior will be performed, not simply "when and where." "How" plans are less critical for easy goals.

How might we reconcile these seemingly discrepant findings with our own, particularly the findings related to commitment and difficulty? One simple explanation is quantitative. Perceived difficulty exists on a continuum and the perceived difficulty of multiple goal pursuit is generally greater than that of a single goal (but need not be). Once perceived difficulty reaches a critical level, it begins to undermine commitment. A second and perhaps more likely explanation is qualitative. Perceived difficulty can be based on diverse factors. A goal can seem inherently difficult because it requires effort and self-control to execute, while another goal can be difficult because obstacles and constraints stand in its way. The present research is not studying goals that are inherently difficult; instead, the difficulty studied here arises mainly from resource and time constraints. When people juggle multiple goals, completing one task means neglecting or postponing others, which reduces the expected likelihood of ever achieving all goals. This sort of difficulty is hard to overcome and tends to undermine commitment. In fact, the difficulty associated with managing multiple goals may be particularly detrimental to commitment because constraints cannot be managed by effort and willpower alone. Future research might address different sources of difficulty to better understand planning in complex settings.

As it stands, the benefits of planning for multiple goals and in complex settings remain equivocal. Indeed, the present findings suggest that when people form specific plans for multiple goals, the difficulty of goal execution becomes more salient, commitment falters, and people fail to follow through on their good intentions.

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