

Regulating self-defensiveness: If–then plans prevent claiming and creating performance handicaps

J. Lukas Thürmer · Sean M. McCrea ·
Peter M. Gollwitzer

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Abstract Claiming or creating obstacles before performing important tasks (i.e., self-handicapping) is a costly strategy to protect the self from implications of poor outcomes. We predicted that forming an if–then plan (*implementation intention*) helps individuals overcome their performance-related worries and thus prevents self-handicapping behavior. In two experiments, all participants formed the goal to perform well on an upcoming task and learned the strategies to ignore worries and tell themselves “I can do it”, either in an if–then format (implementation intention) or not (control). The task was either described as an intelligence test (highly threatening) or as a perception style test (less threatening). Participants could then claim a self-handicap (report stress, Experiment 1) or behaviorally self-handicap (inadequately prepare, Experiment 2). As predicted, implementation intentions reduced claimed and behavioral self-handicapping to levels observed in the low-threat control conditions. Experiment 2 demonstrated these effects among chronic self-handicappers. Implications of these findings are discussed.

Keywords Self-handicapping · Implementation intentions · Self-defensiveness

J. L. Thürmer (✉) · P. M. Gollwitzer
Department of Psychology, University of Konstanz,
78457 Konstanz, Germany
e-mail: lukas.thuermer@uni-konstanz.de

S. M. McCrea
Department of Psychology, University of Wyoming,
Laramie, WY, USA

P. M. Gollwitzer
Department of Psychology, New York University,
New York, NY, USA

Introduction

Striving towards a goal requires adequate preparation, effort, and a willingness to confront negative feedback. At times however, the prospect of failing at a task can present a threat to positive views of the self. When the costs of failing at a task are high, the defense of one’s feelings of self-worth can take precedence over successful achievement of one’s goals (Crocker et al. 2006; Robins and Beer 2001; Sedikides and Strube 1997). As a result, individuals are more likely to engage in dysfunctional behaviors (Crocker and Park 2004). These defensive behaviors can take the form of biased cognitive processing (e.g., selective attention to feedback, external attributions for failure, Balcetis 2008; Malle 2006), biased social judgment and behavior (e.g., downward social comparison, aggression, or refusal to accept help, see Bushman and Baumeister 1998; Nadler 2002; Tesser 1988), or poor and ineffective task effort (e.g., procrastination or escalation of commitment, see Brockner 1992; Sedikides 2012). One of the most costly defensive behaviors is *self-handicapping*. Self-handicapping involves the strategic creation (i.e., *behavioral self-handicapping*) or reporting (i.e., *claimed self-handicapping*) of an obstacle to success prior to an upcoming performance in order to protect the self from the negative implications of failure (Berglas and Jones 1978). Although this strategy might shield self-worth from the negative impact of failure, it is associated with a number of negative outcomes (McCrea and Hirt 2001; Zuckerman and Tsai 2005). The present work sought to identify a self-regulatory strategy that can minimize this dysfunctional behavior. If–then plans (*implementation intentions*, Gollwitzer 1993, 1999) have been shown to be an effective tool for regulating a number of detrimental emotions and for increasing confidence (Bayer and Gollwitzer 2007;

Parks-Stamm et al. 2010; see Webb et al. 2012b, for meta-analysis). We therefore asked whether furnishing the goal to perform well with an implementation intention to ignore one's worries and tell oneself "I can do it!" might help individuals refrain from self-handicapping and thereby improve goal striving.

Self-handicapping

Past work has identified a broad range of self-handicapping behaviors across performance domains. For example, individuals have been shown to strategically report bad mood (Baumgardner et al. 1985), stress (Hirt et al. 1991), or test anxiety (Smith et al. 1982) prior to a threatening performance. Self-handicapping can also take more active, behavioral forms including inadequate preparation (Ferrari and Tice 2000; Hirt et al. 1991), ingesting drugs or alcohol (Berglas and Jones 1978; Jones and Berglas 1978), or placing oneself in a distracting environment (Shepperd and Arkin 1989). Moreover, self-handicapping behavior has been observed in academic (McCrea and Hirt 2001; Urdan and Midgley 2001), athletic (Elliot et al. 2006; Rhodewalt et al. 1984), and work domains (Crant and Bateman 1993).

Self-handicapping does appear to be effective in protecting self-esteem and self-conceptions of ability in the short-term (McCrea and Hirt 2001; Rhodewalt et al. 1991). In attribution terms, self-handicapping allows the individual to discount ability attributions following failure (Kelley 1973). However, the strategy proves quite costly in the long-term. Self-handicapping can undermine task performance (McCrea and Hirt 2001), subsequent motivation to improve (McCrea 2008), and is associated with poor health and well-being (Zuckerman and Tsai 2005). In addition, although observers may accept that the poor performance of a self-handicapper does not reflect low ability, they find such behavior irresponsible and are reluctant to associate with individuals who self-handicap (Hirt et al. 2003; Luginbuhl and Palmer 1991). In sum, self-handicapping appears to be a largely self-defeating behavior (Baumeister and Scher 1988).

Self-handicapping is motivated by feelings of doubt concerning one's ability to (re)produce a positive outcome and worry about the implications of failure for self-worth. Consistent with this view, self-handicapping is more prevalent when task performance is said to be diagnostic of one's ability or intelligence (Elliot et al. 2006; Shepperd and Arkin 1989) or when non-contingent success feedback (i.e., success feedback following a difficult or impossible task) is given (Berglas and Jones 1978). Hirt and colleagues have found that elevated feelings of uncertainty mediate the effects of public self-focus (i.e., observation via camera, Hirt et al. 2000) and prevention regulatory focus (Hendrix and Hirt 2009) on self-handicapping behavior. Finally, self-handicapping is associated with high

self-doubt (Oleson et al. 2000), uncertain self-esteem (Harris and Snyder 1986), and low explicit and implicit self-esteem (Spalding and Hardin 1999). Importantly, these feelings of doubt and worrying thoughts are likely to arise automatically upon encountering a threat to self-worth (Higgins and Berglas 1990). Thus, although the self-handicapping behavior (e.g., claiming bad mood or choosing to listen to distracting music) itself may be under conscious control, the processes motivating this behavior may not be (McCrea and Flamm 2012). Indeed, self-protection motivations are more generally thought to function automatically and outside of conscious awareness (Cramer 1998; Greenwald 1997).

Developing effective interventions to reduce the motivation to self-handicap remains an important aim for research. One strategy that has been shown to effectively reduce defensive behavior, including self-handicapping, is affirming the overall integrity of the threatened self (Siegel et al. 2005). Unfortunately, these effects are limited in scope. Only affirmations that focus on intrinsic, non-contingent aspects of self-worth (Schimel et al. 2004) and that are unrelated to the threatened domain (McCrea and Hirt 2011) seem to be effective. Thus, self-affirmation may only serve to temporarily compensate for threat rather than directly reduce the feelings of doubt and worrying thoughts that motivate self-handicapping. Particularly if self-protection motivation functions outside of awareness, individuals may not be capable of spontaneously initiating compensatory strategies of this nature upon encountering a threat. Efforts to deliberately regulate doubt and worry, and thereby minimize defensive behavior, are unlikely to be effective. In other words, even if a person prone to self-handicapping deliberately intends to deal with his or her doubts and worries in more constructive ways than creating or claiming performance obstacles, this attempt is likely to be unsuccessful. Therefore, we propose that one needs a powerful self-regulation tool to control the feelings that lead to self-handicapping (i.e., uncertainty and worry about an upcoming performance).

Planning and action control

Action control by mere goal intentions (goals; e.g., "I want to achieve outcome X!") is considered effortful (e.g., Baumeister et al. 1998; Baumeister et al. 2009; Gollwitzer 1999): One has to deliberately spot an opportune situation in which to act and select a goal-directed response to perform. Because of the deliberative nature of this process, goal striving with mere goal intentions is difficult to start, is easily disrupted once it has been started, and may draw heavily on self-regulatory resources and thus overly ego-deplete us. The finding that we often fail to reach our goals is in line with this reasoning (Sheeran 2002). This is also

the case when a goal entails controlling one's emotions. For instance, a recent meta-analysis on emotion regulation strategies showed that intending to suppress an emotion had no effect on emotion experience (Webb et al. 2012b). This finding suggests that mere goals are not sufficient to deal with detrimental emotions such as performance-related doubts and worries. However, Gollwitzer (1993, 1999) proposed a second type of intention that supports goal intentions: implementation intentions.

Forming implementation intentions (e.g., “And if situation Y occurs, then I will show response Z!”; Gollwitzer 1999; see Gollwitzer and Oettingen 2011; Gollwitzer and Sheeran 2006, for review and meta-analysis) requires planning when, where, and how to strive for a certain goal. After committing to a desired endstate (forming a goal intention), one pre-plans when and where to pursue this goal and which goal directed response to show (forms an implementation intention). When it comes to acting on the specified opportune situation (if-part), if-then planners do not have to deliberate about what to do (as with mere goal intentions) but initiate the specified response (then part) swiftly. This is because of *psychological mechanisms* that pertain to the specified situation in the if-part and to the mental link forged between the if-part and the specified goal-directed response in the then-part of the plan (Gollwitzer 1993, 1999). Because forming an implementation intention entails the selection of a critical future situation, the mental representation of this situation becomes highly activated, more accessible, and is easily recognized (e.g., Aarts et al. 1999; Parks-Stamm et al. 2007; Webb and Sheeran 2007; Wieber and Sassenberg 2006; Achtziger et al. 2012). Moreover, implementation intentions forge a strong associative link between the mental representation of this situational cue and the mental representation of the specified response (then part). Once the critical cue is encountered, the goal-directed response is initiated immediately and efficiently (Brandstätter et al. 2001; Parks-Stamm et al. 2007, Study 2; Webb and Sheeran 2007) without requiring a further conscious intent (Bayer et al. 2009). Goal striving with implementation intentions thus carries features of automaticity (cf. Bargh and Chartrand 2000). As a consequence, having formed an implementation intention that specifies a goal-directed response (if-part) and an opportune situation (then-part) allows individuals to act in situ without having to deliberate on whether to act or not. Indeed, there is vast empirical evidence that if-then planners act more quickly (e.g., Parks-Stamm et al. 2007) and deal more effectively with cognitive demands (i.e., achieve their goal successfully despite high cognitive load; e.g., Brandstätter et al. 2001).

In line with this evidence, implementation intentions—but not mere goal intentions—have been shown to enable subjects to control overlearned emotional responses (see

Webb et al. 2012b, for meta-analysis). For instance, Schweiger Gallo et al. (2009) demonstrated that spider phobics who furnished their goal not to get frightened with the implementation intention “And if I see a spider, then I will ignore it!” reported significantly reduced negative affect after viewing spider pictures. Indeed, levels of negative affect reported by spider phobic participants with implementation intentions did not differ from non-phobic control participants (Schweiger Gallo et al. 2009, Study 2). Support for the assumption that this beneficial effect of implementation intentions was indeed due to strategic automaticity (i.e., less deliberation was required) comes from their third study: Even immediate electrocortical correlates of fear (P1 ERP positivity 120 ms after stimulus onset measured with dense-array EEG) were significantly reduced by implementation intentions but not mere goal intentions (Schweiger Gallo et al. 2009, Study 3). As deliberative action control is known to take longer than 120 ms (cf. Bargh and Chartrand 2000), this finding supports that assumption that implementation intentions allow for action control carrying features of automaticity. Moreover, if-then planning helps deal with performance-related worries and doubts. Implementation intentions have been shown to improve social-anxious participants' performance self-evaluations in a social task (i.e., giving a speech; Webb et al. 2010) and provide a buffer against distractions for test-anxious people who are known to have difficulties concentrating (i.e., ignore TV while studying; Parks-Stamm et al. 2010). Lastly, Bayer and Gollwitzer (2007) investigated female participants, who often have doubts about their math abilities. Furnishing the goal to perform well with the implementation intention “And when I start a new problem, then I will tell myself: I can solve this task!” almost doubled the number of math problems female participants solved.

In sum, implementation intentions to ignore a detrimental stimulus and to tell oneself “I can do it” have been shown to effectively support emotion regulation, including immediate affective responses to a stimulus, by promoting swift response initiation when the specified situational cue is encountered. If-then planners thus do not need to deliberate whether and how to counter a detrimental emotion, but can respond swiftly. In addition, performance-related worries and self-doubts were successfully reduced when planning out a goal to perform well with a respective implementation intention. This suggests that implementation intentions can also reduce self-doubts and worries that lead to self-defensive behavior, and thus furnishing the goal to perform well with such an if-then plan should effectively diminish self-defensive behaviors. Self-handicapping behavior is costly and difficult to control, and thus constitutes a conservative test of this hypothesis. Considering that the worry-related cognitions that lead to self-handicapping likely arise

immediately upon encountering a threatening task, deliberative goal striving with mere goal intentions should not suffice to control them; only the powerful if (situation)—then (response) link created by implementation intentions should diminish self-handicapping.

The present research

The present research tested the idea that implementation intentions can diminish self-handicapping by regulating performance-related worries and feelings of doubt. In two experiments, participants formed the goal to perform well and either furnished it with the implementation intention to ignore worries and to tell themselves “I can do it”, or received similar control instructions without an implementation intention. Thus, participants in both intention conditions learned the same strategies but in a different format (implementation intention vs. control). The upcoming task was then either described in a less threatening or a more threatening manner. To test whether implementation intentions can diminish self-handicapping, participants were then given the chance to claim (Experiment 1) or create (Experiment 2) an obstacle to their performance. We expected that participants would use this opportunity to self-handicap when they were about to perform a highly threatening task, but not when they were about to perform a less threatening task. However, we expected that implementation intentions should reduce self-handicapping in the face of a highly threatening task.

Experiment 1: Can implementation intentions reduce claimed self-handicapping?

Experiment 1 examined the effectiveness of implementation intentions in reducing claimed self-handicapping. Specifically, we examined the claimed self-handicap of reporting elevated levels of everyday stress prior to a performance (see also Hirt et al. 1991; McCrea and Hirt 2011). To demonstrate the strategic nature of these claims, threat was manipulated by informing participants either that the test was diagnostic of intelligence and future career success, or that it was a measure of aesthetic preference (see also Shepperd and Arkin 1989). We expected threat to increase stress reporting, but that this effect would be minimized by forming an implementation intention.

Method

Design and participants

One hundred and four German university students (76 female) with a mean age of 22.39 years ($SD = 4.41$) were

recruited based on 5 € compensation or course credit. Participants were randomly assigned to a 2 (threat: high vs. low) \times 2 (implementation intention: yes vs. no) design.

Procedure

Upon arrival, participants were welcomed and gave written informed consent. All other instructions were computerized. Participants learned that the study consisted of two separate parts and concerned a task called the KFIT. In Part 1, they would receive instructions and learn about the KFIT and in Part 2, they would complete the KFIT.

A screen appeared for 10 s that said “Part 1.” On subsequent screens, the background was blue and “Part 1” was written in the top right corner in bold face letters. Participants then received training for the upcoming task. The training constituted the implementation intention manipulation. All participants set the goal “I want to achieve my maximum result in the KFIT.” Half of the participants added the if–then plan “And when I start with Part 2 of the study, then I will ignore my worries and tell myself: I can do it!” To make sure that only the if–then format would cause the expected differences, control participants added “I will ignore my worries in Part 2 of the study and tell myself: I can do it!” This control plan contained the same task-relevant information as the implementation intention, but did not link the critical situation to the goal-directed response in an if (situation)—then (response) format. In other words, the if–then link of the implementation intention was the only difference between conditions. All participants learned their training instructions by heart, envisioned them in their mind’s eye, and typed them twice.

Next, participants learned about the purpose of the KFIT. Participants in the low-threat condition learned that we took the task from the “Koblenzer Formen und Interessen Test” (i.e., the “Koblenz figures and interests test”) and this task was used to determine the perception style (i.e., whether one prefers round or square shapes). They were told that we would like to find out whether this task could actually differentiate between these perception styles. Our findings could then help to develop riddles and games that are appealing to people with a certain perception style. Participants in the high-threat condition, on the other hand, learned that we took the task from the “Kulturfreien Intelligenz Test” (i.e., the “culture free intelligence test”), that this task was used to determine people’s intelligence, and that it was highly predictive of positive career- and life-outcomes. Our findings could then show whether the university’s admission policies were effective in selecting well-suited candidates that were likely to succeed in their studies.

Then, a grey screen appeared for 10 s that said “Part 2.” On subsequent screens, the background was grey and “Part 2” was written in the top right corner in bold face letters.

Participants learned that performance in the KFIT was strongly influenced by the amount of stress and daily hassles a person experiences: A person who experiences a lot of stress and hassles would achieve a lower score in the KFIT (see Hirt et al. 1991). We thus asked participants to complete a 45-item measure (cf. Kanner et al. 1981), indicating to what extent different daily hassles and stressors were affecting them (e.g., insomnia, trouble with the neighbors). Participants responded on a four-point scale (1 *not at all*, 2 *a little*, 3 *quite a bit*, 4 *a lot*). The sum-score of these stress items served as dependent measure. After answering the last stress item, participants completed ten exam items to maintain the cover story. Following this test, participants completed a manipulation check item concerning what the KFIT measured (“What does the KFIT measure?” with the response options *Intelligence* or *Perception Style*), an item whether stress had a negative impact on the test result (“How much do you think stress impacts on the performance in the KFIT?” with a scale response from 1 *not at all* to 5 *very much*), typed their respective plan (implementation intention or control) from memory, and completed a three-item measure to indicate their plan commitment (e.g., “I would like to fulfill my plan” with a scale response from 1 *not at all* to 5 *very much*). Lastly, participants provided demographic information, were thoroughly debriefed, thanked, and compensated.

Results and discussion

Manipulation checks

One participant in the low-threat (no-implementation intention) condition indicated incorrectly that the KFIT measures intelligence (instead of perception style). All other participants answered this item correctly (i.e., intelligence for high-threat condition participants vs. perception style for low-threat condition participants). Contrary to the instructions, 11 participants (2 low-threat/no-implementation intention, 6 low-threat/implementation intention, 1 high-threat/no-implementation intention, 2 high-threat/implementation intention) did not believe that stress influences the KFIT (i.e., responded 1 *not at all* or 2). However, only if participants believe that stress hampers performance can reporting stress serve as an excuse for poor performance (i.e., as a claimed self-handicap). Thus, 92 participants (69 female) remained for analysis.¹ Most participants typed their respective plan correctly at the end of the experiment (95.65 % or 88 out of 92) and excluding those who did not type their plan correctly (2 participants in each planning condition) did not change the following results. The plan commitment items formed a reliable scale

(Cronbach’s $\alpha = .87$), reported plan commitment was high ($M = 3.87$, $SD = .83$), and did not differ between conditions, $F_s < 1$, $p_s > .30$. This indicates that participants across conditions indeed had formed their respective plan and wanted to act on it.

Main analysis

To test our hypotheses that participants would claim an obstacle to their performance before the threatening task (i.e., self-handicap) and that implementation intentions would prevent self-handicapping, we entered threat (high vs. low) and implementation intention (yes vs. no) into an ANOVA with the stress sum-score as the dependent variable. In line with our first prediction, participants who learned that the KFIT was an intelligence test (high-threat condition) reported significantly more stress, $M = 78.72$, $SD = 15.23$, than participants who learned that the KFIT was a perception test (low-threat condition), $M = 72.44$, $SD = 15.04$, $F(1,88) = 4.61$, $p = .04$, part. $\eta^2 = .05$ (see Fig. 1). This result supports the assumption that participants engaged in claimed self-handicapping when faced with a threatening task. In line with our second prediction, participants who formed an if–then plan (implementation intention) reported significantly less stress, $M = 72.50$, $SD = 10.90$, than participants who did not, $M = 78.54$, $SD = 18.20$, $F(1,88) = 4.31$, $p = .04$, part. $\eta^2 = .05$. There was no implementation intention \times threat interaction, $F(1,88) < .01$, $p = .96$. To investigate our hypotheses further, we computed planned contrasts between the threat/no implementation intention condition and the no threat conditions (with and without implementation intention) as well as the threat/implementation intention condition to the no threat conditions (with and without implementation intention). The first contrast showed that participants in the threat/no implementation intention condition reported more stress than participants in the no threat conditions, $t(88) = 2.57$, $p = .01$, indicating claimed self-handicapping. However, the second contrast comparing the threat/implementation intention condition to the no threat conditions (with and without implementation intention) revealed no effect, $t(88) = .94$, $p = .35$. This indicates that implementation intentions indeed prevented claimed self-handicapping.

The implementation intention main effect in the ANOVA suggests that if–then planning reduced reported stress across threat conditions. From a self-handicapping perspective, this might be surprising as participants in the low-threat condition were not expected to increase their stress reports strategically (i.e., self-handicap), and one might thus expect that participants with and without implementation intentions report equal levels of stress (i.e., their “true” stress level). However, the implementation intention to ignore worry and tell oneself “I can do it!” can be expected to

¹ Including all participants did not change the pattern of results.

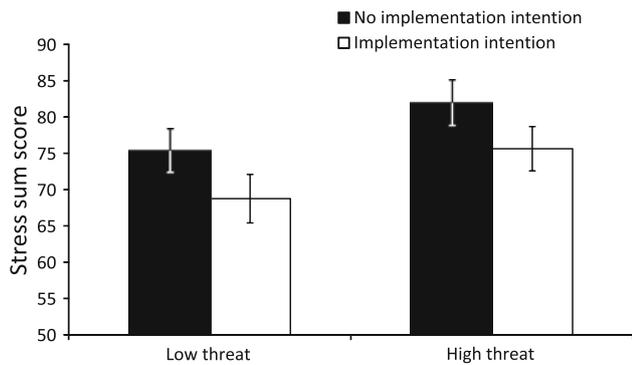


Fig. 1 Reported stress sum-score by threat and implementation intention (Experiment 1)

reduce performance-related as well as other worries and thus might diminish perceived (actual) stress. From this perspective, while participants in the high-threat condition without an implementation intention *inflated* their stress reports strategically (i.e., claimed a self-handicap), implementation intention participants in the low-threat condition might actually have *deflated* their stress reports because they worried less about actual daily hassles and problems (e.g., too much work to do). This explanation is in line with implementation intention research showing that if-then plans help regulate a number of negative emotions (e.g., fear of spiders, Schweiger Gallo et al. 2009; social anxiety, Webb et al. 2010; meta-analysis by Webb et al. 2012b).

Performance

In order to explore the effect of threat, implementation intentions, and claimed self-handicapping on performance, we calculated the number of items solved in the final exam for each participant. We regressed these scores on a model including threat condition ($-1 = \text{low threat}$, $1 = \text{high threat}$), implementation intention condition ($-1 = \text{no}$; $1 = \text{yes}$), and stress score in a first step, all two-way interactions of these terms in a second step, and the three-way interaction in a last step.² The only significant term in this analysis was the threat condition, $\beta = .244$, $t(87) = 2.29$, $p = .03$, $f^2 = .06$: Participants in the high-threat condition, $M = 4.49$, $SD = 1.46$, solved more items than participants in the low-threat condition, $M = 3.77$, $SD = 1.55$. There were no other main effects or interactions. This is in line with previous research showing that claimed self-handicapping has social costs (e.g., others like self-handicappers less or judge them to have lower ability, Rhodewalt et al. 1995) but, as opposed to behavioral self-handicapping, may not impair short-term performance (e.g., McCrea and Hirt 2001; Rhodewalt et al. 1984; but see

² One participant did not complete the performance test due to computer failure.

Rhodewalt and Fairfield 1991). Moreover, this result indicates that participants put more effort forth when they were believed the task was an intelligence test (high-threat condition) instead of a perception style test (low-threat condition). This finding supports our assumption that performance in an intelligence test is highly ego-relevant (and thus potentially threatening) for students but that a perception style test is somewhat less ego-relevant and threatening.

In sum, Experiment 1 demonstrates that implementation intentions can reduce claimed self-handicapping. Importantly, forming the if-then plan did not change the task, the task description, or any other instructions participants received. Indeed, participants without an implementation intention also learned the strategies to ignore their worries and to tell themselves “I can do it” during the second part of the study including the critical task. The differences in reported stress are thus likely to be due to the strong situation-response link forged by the if-then format of the implementation intention. A question that warrants further investigation is whether implementation intentions to ignore worry and tell oneself “I can do it” are also effective in reducing behavioral self-handicapping (i.e., creating an obstacle to one’s performance).

Experiment 2: Can implementation intentions reduce behavioral self-handicapping?

Experiment 2 had two aims. First, we sought to replicate our findings with a more active, behavioral form of self-handicapping. We therefore examined whether implementation intentions could be used to improve preparation for a threatening exam. Rather than measuring stress, participants were given the opportunity to choose whether to examine instructions concerning how to solve each of four types of items. Adequate preparation was indicated by balanced examination of the critical instructions concerning how to solve each type of item. A second aim of the study was to determine whether individual differences in the tendency to self-handicap would moderate the effects of implementation intentions. We therefore administered the Self-Handicapping Scale (SHS) as part of a separate prescreening. Prior work has shown that the behavioral subscale of the SHS is most predictive of self-handicapping by inadequately preparing for a performance (McCrea et al. 2006; McCrea et al. 2008a). Our predictions were as follows:

When given a goal intention with control instructions, individuals high on the behavioral self-handicapping subscale of the SHS would inadequately prepare for a threatening exam, relative to a non-threatening task. In contrast, no differences should be observed among those low on this measure. However, when individuals furnish their goal

with an implementation intention, the effects of threat should be eliminated, even among individuals high in the tendency to behaviorally self-handicap.

Method

Participants and design

One hundred and thirty American university students (78 female) with a mean age of 20.15 years ($SD = 4.11$) were recruited in return for course credit. Participants were randomly assigned to conditions in a 2 (threat: high vs. low) \times 2 (implementation intention: yes vs. no) between-subjects design.

Prescreening

Participants completed the 8-item behavioral subscale of the self-handicapping scale (Jones and Rhodewalt 1982; McCrea et al. 2008a) as part of a larger online survey administered at the beginning of the semester. Only those who completed the prescreening measure were eligible to participate in the laboratory study.

Procedure

The procedure was largely the same as that of Experiment 1, with the following changes. Participants were told the study involved the opportunity to practice the items prior to completing the CFIT (see also Hirt et al. 1991; McCrea et al. 2008b). The implementation intention manipulation was identical to Experiment 1, again with the difference being the if (situation)—then (response) format of the implementation intention but not the control instructions. Due to the English-speaking sample, the task was described as the “Culture Free Intelligence Test” in the high-threat condition or the “Chicago Forms and Interests Task” in the low-threat condition.

When participants reached Part 2 of the study, the screen color changed and the “Part 2” label was presented on the screen. The practice instructions were then introduced. Participants were told that practice strongly influences performance on the task, and so they would have the opportunity to learn about and attempt examples from each of four types of items. They were told they would be given enough time to understand the principle behind each type of item, but not enough time to complete all of the practice items. For each item type, participants could examine three critical instruction items containing an explanation of how to solve the type of item, and ten additional practice items. They were provided 6 min to freely choose which items to examine. They were told that the computer would measure their choices.

Next, a menu screen appeared. There were four columns corresponding to each item type. The item types were taken from the series, classifications, matrices, and conditions subtests of the CFIT (Cattell and Cattell 1961). In each column, there were hyperlinks to three critical instruction items, and an additional ten practice items. When participants clicked on an instruction item, they were presented with the instructions for that type of item, an example item, and the solution for that example. When they clicked on a practice item, the item appeared with no further instructions or feedback. Thus, participants could only learn how to solve the items by examining the critical instruction items. A clock showing the time remaining was displayed on the bottom of the screen so that participants could pace themselves.

Participants next completed a 12 min exam following the practice session. Following this test, participants answered several manipulation check items. They first completed two ratings concerning how committed they had been to the goal to get the best possible score (i.e., “I feel committed to reaching this goal,” “I think that this is a goal that I can pursue”) using a five-point scale (1 *not at all true* to 5 *very true*). Next, they answered two open-ended items concerning practice (“What information about the practice tasks did you receive?”, “What influence do the practice tasks have on your performance in the study?”) and the three-item plan commitment measure (see Experiment 1).

Results and discussion

Overview of analyses

One participant from the implementation intention/no threat condition was excluded from the analyses as an outlier (>3 SDs) on the behavioral subscale of the SHS prescreening measure. Another participant in the no implementation intention/no threat condition answered “strongly disagree” for all items in the prescreening questionnaire, including the behavioral SHS, suggesting he or she had not taken the task seriously. An additional nine participants were excluded for both reporting low goal commitment (i.e., scoring on average below the mid-point on these items) and indicating on the open-ended items that they did not understand or believe that practice was helpful for performance (e.g., “I do not think the practice tests had any significant influence on my performance,” “not very much,” “made me think I was missing out on some instruction I was supposed to have”). These participants tended to be in the no threat conditions (5 no threat/no implementation intention condition; 3 no threat/implementation intention condition; 1 threat/implementation intention condition), suggesting that they did not believe that practice would be helpful for a test of aesthetic

preference or simply did not care about doing well on such a task.³ Nonetheless, it was important to ensure that participants in all conditions were equally committed to doing well, lest any reduction in effort reflect a lack of motivation rather than self-handicapping behavior. Thus, 119 (73 female) participants remained in the analysis. The plan commitment items formed a reliable scale (Cronbach’s $\alpha = .81$), reported plan commitment was high ($M = 3.20$, $SD = .86$), and did not differ between conditions, $F_s < 1$, $p_s > .35$. This indicates that participants indeed formed their respective plan and wanted to act on it. Regression analyses were conducted due the continuous nature of the behavioral self-handicapping subscale of the SHS. Following the recommendation of Aiken and West (1991), the behavioral self-handicapping scale was standardized and centered, and effect coding was employed for the condition variables as follows: 1 = high-threat, -1 = low-threat; 1 = implementation intention, -1 = no implementation intention.

Goal commitment

Participants indicated strong commitment to the goal (“feel committed” $M = 3.14$, $SD = 1.12$; “can pursue” $M = 3.76$, $SD = 1.05$). Regression analyses conducted on the goal commitment items revealed no significant effects of condition or individual differences in behavioral self-handicapping tendency, $p_s > .09$. This is in line with previous research showing that implementation intentions do not lead to increased goal commitment but are effective because they allow for strategic automaticity in goal striving by creating an if (situation)—then (response) link (Gollwitzer and Sheeran 2006). Moreover, this supports the assumption that self-handicappers are as motivated and willing to succeed as non-self-handicappers. Inadequate preparation can thus not be attributed to poor motivation or laziness.

Preparation index

Adequate preparation on the task required a balanced examination of the critical explanatory items. The sum or average number of items examined would not distinguish whether participants had indeed examined each category of items carefully. For instance, one could achieve the same average score by examining all items in a few categories (inadequate preparation) or a few items in all categories (more adequate preparation). Thus, we created an index

³ Consistent with this interpretation, those excluded from the main analyses ($M = 71.11$) tended to practice less than did those retained in the analysis ($M = 113.49$), despite the fact that they largely were found in the no threat condition. As a result, including these participants in the analysis rendered the three-way interaction nonsignificant, $p = .19$.

Table 1 Regression analysis of practice behavior (Experiment 2)

Term	β	t	p	f^2
Threat	-.123	1.33	.19	.02
Intention	.011	<1	.90	.00
Behavioral SHS	.014	<1	.88	.00
Threat \times intention	.038	<1	.41	.00
Threat \times behavioral SHS	-.134	1.41	.16	.02
Intention \times behavioral SHS	.113	1.19	.24	.01
Threat \times intention \times behavioral SHS	.194	2.04	<.05	.04

using the sequential product of the number of items examined in each category k , as follows:

$$\prod_{k=1}^4 (1 + \text{Items examined}_k)$$

High scores on this measure represent examining more items across all categories in a balanced manner, and therefore this measure best reflects what participants were told was the optimal preparation. That is, the preparation index reflected well-distributed practice (which was portrayed to participants as being optimal) rather than massed practice on only certain types of items. For these reasons, the sequential product is a better measure to test our hypotheses than a simple sum score. The preparation index scores were submitted to a regression analysis. Standardized behavioral self-handicapping scores, threat condition, and implementation intention condition were entered in the first step, all two-way interactions of these variables were entered in the second-step, and the three-way interaction was entered in a final step. The results of this analysis can be seen in Table 1. Only the three-way interaction of threat \times intention \times behavioral self-handicapping score was significant, see Fig. 2.

This interaction was probed using simple-slope tests of the threat effect at ± 1 SD from the mean of the continuous measure.⁴ There were no effects of the threat manipulation among low behavioral self-handicapping individuals in either the no implementation intention condition, $B = 16.32$, $t(111) < 1$, $p = .40$, 95 % CI -22.23 to 54.87, or the implementation intention condition, $B = -14.07$, $t(111) < 1$, $p = .40$, 95 % CI -47.34 to 19.20. As predicted, the threat effect was significant within the no implementation intention condition among individuals high on the behavioral self-handicapping measure, $B = -47.56$, $t(111) = 2.60$, $p = .01$, 95 % CI -83.87 to -11.24. That is, individuals who chronically behaviorally self-handicap were less likely to practice adequately when threatened by an intelligence test, relative to the low-threat condition.

⁴ The threat \times intention interaction was marginally significant among high ($\beta = .234$, $t = 1.75$, $p = .08$) but not low ($\beta = -.157$, $t = 1.18$, $p = .24$) behavioral self-handicappers.

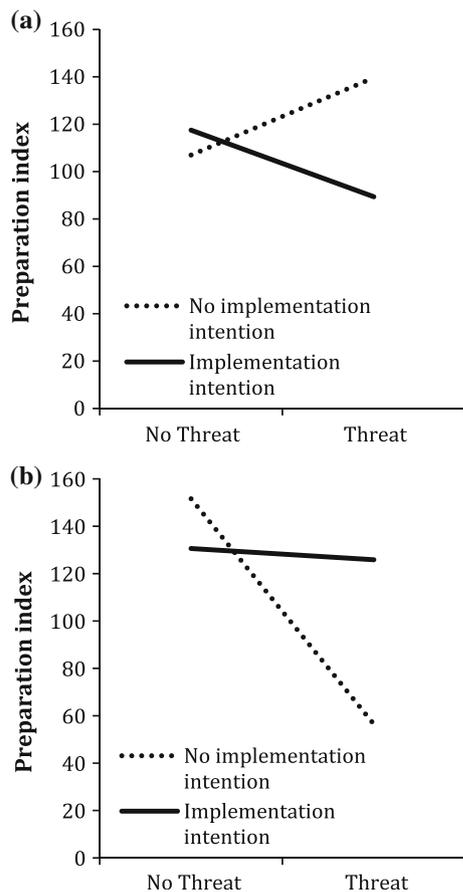


Fig. 2 Predicted practice index scores for **a** low behavioral self-handicapping individuals and **b** high behavioral self-handicapping individuals

This pattern is consistent with prior studies of self-handicapping behavior (Hirt et al. 1991; McCrea and Hirt 2011). However, this effect was eliminated within the implementation intention condition, $B = -2.36$, $t(111) < 1$, $p = .90$, 95 % CI -38.44 to 33.71 .

Thus, even when facing a threatening intelligence test, those most prone to behaviorally self-handicap practiced adequately when they formed an implementation intention to ignore worry and address their doubts. Consistent with our initial study, implementation intentions seem uniquely capable of reducing costly self-handicapping behavior. All participants received the same instructions concerning the strategy to ignore worry and address doubt, and so the benefits of implementation intentions were likely due to the strong situation—response link that they forge. By reducing the doubts and worries that cause self-handicapping, implementation intentions allowed participants to more effectively pursue their goal to achieve a maximum score on the task. It is of note that these effects were limited to those items most critical to understanding the task. Repeating these analyses with an index of the non-critical

items practiced revealed no significant effects, all $t_s < 1.67$, $p_s > .09$. Thus, inadequate preparation among high behavioral self-handicappers under threat (and without the benefit of an implementation intention) appeared to be strategic, rather than reflecting low task motivation.

Performance

We next conducted exploratory analyses on the performance measure to determine whether inadequate preparation actually undermined performance on the CFIT. Although the literature on the performance consequences of self-handicapping is decidedly mixed (McCrea and Hirt 2001; Rhodewalt and Fairfield 1991), we would expect poor preparation on the critical items to relate to poor actual performance. We therefore calculated the average percentage correct across the four item types ($M = 59\%$, $SD = 11\%$). We regressed these scores on a model including threat condition, implementation intention condition, behavioral self-handicapping score, preparation index, and all interactions of these terms. The only significant term in this analysis was the preparation index, $\beta = .302$, $t(103) = 3.19$, $p < .01$, $f^2 = .09$. Individuals who more adequately prepared performed better on the subsequent exam, and this effect was not moderated by any of the other variables in the model, all $p_s > .09$. This finding supports the view that this preparation index captured dysfunctional self-handicapping behavior and, by extension, that implementation intentions minimized a potentially costly behavior.

Parallel analyses using an index of non-critical items practiced revealed only a significant negative correlation with performance, $\beta = -.241$, $t(103) = 2.42$, $p < .02$, $f^2 = .05$, all other $p_s > .08$. This finding further supports our use of the critical item index (rather than all items practiced) as a measure of self-handicapping behavior. That is, individuals prone to behaviorally self-handicap, when placed under threat and without the benefit of an implementation intention, withdrew effort only on those items that actually predicted improved performance.

One noteworthy difference between Experiment 1 and Experiment 2 is: While implementation intentions reduced reported stress across threat conditions in Experiment 1, in Experiment 2 only chronic self-handicappers under threat (i.e., who received high-threat task descriptions) practiced more with an implementation intention than without an implementation intention. This is not surprising when looking at the costs of these two different forms of self-handicapping. Claiming a self-handicap (Experiment 1) is costly in social terms but it is less clear whether it hampers performance. Creating a performance obstacle (behavioral self-handicapping, Experiment 2), on the other hand, clearly hampers performance. It thus comes as no surprise that only those who are most prone to self-handicapping (i.e., chronic

self-handicappers who experience a high threat to the self) engage in such highly self-defeating behavior. In line with this argument, all other participants (i.e., low on the behavioral SHS measure and/or in the low-threat condition) practiced thoroughly (more than 2 out of 3 items per category on average) even without implementation intentions.

General discussion

Both Experiment 1 and Experiment 2 used the same highly conservative implementation intention manipulation. While participants across conditions learned the strategy to ignore worries and tell themselves “I can do it”, only implementation intention participants included this strategy in a useful if–then plan. If–then planning has been shown to create a situation–response link that allows for action control carrying features of automaticity (Parks-Stamm et al. 2007; Webb and Sheeran 2007): As soon as the specified situation presents itself, an if–then planner responds without requiring a further conscious intent. Indeed, past research consistently demonstrates that this if–then automaticity allows controlling immediate emotional responses, including those that otherwise are beyond willful control (Webb et al. 2012b). Given that the doubts and worries that motivate self-handicapping behavior likely arise outside of conscious awareness (Higgins and Berglas 1990), the present finding that implementation intentions reduce self-handicapping is in line with this assumption of strategic automaticity.

An alternative explanation could be that learning the strategy to tell oneself “I can do it” served as self-affirmation, which has been shown to reduce self-handicapping (McCrea and Hirt 2011; Schimel et al. 2004). Although the present research was not designed to test self-affirmation, it is unlikely to cause the present effects: Participants across conditions learned the strategy to tell themselves “I can do it” and plan-commitment measures indicate that they equally intended to apply it. The knowledge of this strategy should thus have self-affirmed all participants and reduced self-handicapping across planning conditions. We observed reduced self-handicapping only in the implementation intention condition, which indicates that if–then planning was beneficial beyond self-affirmation.

Across both experiments, we observed that an implementation intention to address feelings of doubt and ignore worry reduced subsequent self-handicapping. This was true for both claimed and behavioral forms of self-handicapping. Moreover, these effects held even among individuals who chronically engage in this self-defeating behavior. In addition to identifying an effective intervention for reducing self-handicapping behavior, these results have important implications for implementation intention research and the reduction of defensive behavior more generally.

Implications for implementation intention research

Recent research has shown that implementation intentions can improve emotion regulation (Schweiger Gallo et al. 2009; Webb et al. 2010). However, past research has focused on controlling unwanted emotional reactions to external stimuli (e.g., spiders, Schweiger Gallo et al. 2009) or overcoming emotions that were disruptive to performance (e.g., test-anxiety, Parks-Stamm et al. 2010; social anxiety, Webb et al. 2010). To our knowledge, the present research is the first to show that implementation intentions can prevent self-defeating defensiveness. That is, implementation intentions helped individuals to overcome their feelings of doubt and worry and enabled them to pursue the task goal of achieving well in a more functional manner. This research therefore adds to the literature on the types of emotions (i.e., not just fear or disgust, but also such specific emotions as self-doubts) and behavioral consequences (i.e., not just intensity of emotional reaction or performance but also defensive behavior) that can be effectively regulated with implementation intentions.

A second important conclusion from this research is that self-protection concerns need not present a limiting condition to the effectiveness of implementation intentions. One could imagine, for example, that the motivation to self-handicap would cause individuals to abandon a previously formed implementation intention. Our observation that if–then plans reduced self-handicapping under threat, even among those who more chronically self-handicap, speaks against this but supports the idea that implementation intentions allow individuals to control their doubts and worries before they can lead to self-defeating behavior. Lastly, our research extends past work by Parks-Stamm et al. (2007) showing that an implementation intention to ignore distractions was effective in increasing task performance. Consistent with this work, we found that an ignore-implementation intention can not only be used to avoid external distractions (e.g., TV), but can also help to avoid internal distractions (i.e., worrying thoughts). This finding is quite promising, as being freed of one’s worries could unleash memory and attention-related resources that can then be better used on the task at hand.

The implementation intention used in the present research was aimed at reducing doubt and worry. Given that implementation intentions are a general self-regulatory tool (Gollwitzer 1999), this type of plan might also be able to trigger other responses that prevent self-handicapping. For instance, reminding oneself of one’s core values (e.g., through self-speech such as “When I start with the important task, then I will remind myself: I am a valuable family member!”) could affirm the threatened self and thereby prevent self-handicapping. This idea is in line with implementation intention research showing that different

strategies can be supported by if–then planning (Gollwitzer and Sheeran 2006). Conversely, only if the strategy included in an implementation intention is goal directed (i.e., useful) can an implementation intention support goal achievement. In order to prevent self-handicapping, an implementation intention thus needs to include a useful strategy (i.e., the situation—response link needs to specify a goal-directed response in an opportune situation). Although an implementation intention could also trigger a useless strategy, applying the useless strategy would not have a beneficial effect (e.g., not prevent self-handicapping). In line with this reasoning Parks-Stamm et al. (2010) found that a task-focusing implementation intention was ill-suited to overcome test-anxiety; only ignore-implementation intentions had a positive effect. Future self-handicapping research should therefore identify which strategies are most effective in dealing with the doubts and worries that motivate self-handicapping. The present research demonstrates that implementation intentions are an easily applicable tool to put these strategies into effect.

Implications for self-handicapping and defensive behavior

The present results demonstrate that it is possible to overcome defensive behavior and thus promote more effective goal striving. Even those who more chronically engage in self-handicapping behavior were shown to prepare adequately for a threatening test when they could overcome their self-doubt and worries with implementation intentions. Thus, it is not the case that these individuals are unwilling to commit to a goal or lack the capacity to self-regulate effectively. Rather, self-protection concerns represent a barrier to goal striving that adequate planning can overcome.

These findings are particularly important given the potential costs of self-handicapping behavior in terms of performance (McCrea 2008; McCrea and Hirt 2001), social relationships (Hirt et al. 2003; Luginbuhl and Palmer 1991), and well-being (Zuckerman and Tsai 2005). Despite this evidence, there is very little research concerning how to minimize self-handicapping behavior. As discussed earlier, the majority of research on this topic has focused on framing tasks in a less threatening manner (Elliot et al. 2006; Shepperd and Arkin 1989) or momentarily compensating for threat by affirming other aspects of the self (Siegel et al. 2005). However, these techniques may be of limited practical value. Individuals seldom have control over how a particular task is framed, and the range of self-affirmations shown to be effective in reducing self-handicapping is relatively circumscribed (McCrea and Hirt 2011; Schimel et al. 2004). In fact, self-affirmations that directly address a threat are less likely to be effective than

those that shift attention toward other positive aspects of the self (McCrea and Hirt 2011). In contrast, implementation intentions are formed by the individual him- or herself and can deal directly with the feelings of doubt and worry that lead to self-handicapping. Indeed, participants took only about 5 min to form their implementation intention and no other meta-knowledge about the task or one's self-esteem was required.

The unique capability of implementation intentions to address the worries that lead to self-handicapping also has implications for theories of self-handicapping. Implementation intentions promote action control with features of automaticity. That is, the response in the then-part of the implementation intention is deployed without an additional conscious act of will (Bayer et al. 2009; Parks-Stamm et al. 2007; Webb and Sheeran 2007). The finding that self-handicapping is reduced only with this strategic automaticity (and not by merely intending to apply the strategies to ignore worry and address self-doubt) suggests that the feelings of uncertainty and worry that motivate this behavior arise automatically (Higgins and Berglas 1990). As a result, individuals may be unaware of the reasons that they self-handicap (Baumeister 1993; Higgins and Berglas 1990; Snyder and Higgins 1988) or find that they lack the resources to overcome these worries. The few studies that have utilized implicit measures (e.g., Lupien et al. 2010; Spalding and Hardin 1999) have found that low implicit self-esteem (independently or in combination with high explicit self-esteem) predicts self-handicapping behavior, suggesting a role for non-conscious processes. More conscious, effortful strategies to regulate these feelings are therefore likely to be ineffective. An important direction of future research is therefore to examine whether implementation intentions have consequences for these processes.

Future directions

Future research should examine the effectiveness of implementation intentions in reducing self-handicapping in more applied settings (e.g., academic or athletic contexts) and include other types of defensive behaviors. Implementation intentions to overcome self-doubt could be used, for example, to reduce selective attention to feedback or self-serving attributions for failure. Indeed, past research has found that benefits of implementation intentions observed in the laboratory generalize to more applied settings (e.g., athletes, Achtziger et al. 2008; school kids, Wieber et al. 2011). Findings of this nature would suggest an additional, indirect manner by which implementation intentions can improve performance. That is, in addition to directly facilitating goal-directed behavior, if–then planning may also be capable of minimizing the defensive motivations and behaviors that impair goal striving.

In sum, the present research demonstrates that even those most prone to self-handicap can deal with their performance-related doubts and worries more productively by adequately planning their goal pursuit. Being freed of these worries allows focusing on the task at hand instead of self-protection. Given that successful goal striving often requires adequate preparation, effort, and the willingness to confront negative feedback, this is good news for those striving for ego-relevant goals.

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