2015

Plans as Emotion Regulation Tools? Examining the Consequences of Planning on Affect

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PLANS AS EMOTION REGULATION TOOLS? EXAMINING THE CONSEQUENCES OF PLANNING ON AFFECT

by

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Bachelor of Arts, University of Western Ontario, 2013

THESIS

Submitted to the Department of Psychology in partial fulfillment of requirements for

Master of Arts, Social Psychology

Wilfrid Laurier University

Abstract

Psychologists have studied extensively the consequences of planning for motivation and task performance, but little work has examined whether plan-making serves another function, that of helping us feel better about the yet-to-be completed task. In the present research, we examined whether making plans for completing a future task positively impacts feelings related to that task. In three studies, we tested the possibility that planning decreases negative emotions about the task planned for, and whether some types of planning are more beneficial for this than others. In Studies 1 and 2, participants were asked to nominate an important task they had yet to complete and that they had felt concerned about completing lately, and then instructed to either make a plan to complete the task using one of the specified planning types, or were not asked to make a plan. Participants then rated their feelings about the task on twenty emotions adjectives (PANAS; Watson, Clark, & Tellegen, 1988). In Study 3, participants were prompted to think about an upcoming exam, and then either (1) made a specific plan to prepare for it followed by giving affect ratings (experimental condition), or (2) rated their affect first and then made a specific plan (control condition). The results of Study 1 (N = 144) supported our hypothesis – following planning, mental simulation planners reported lower levels of negative affect than implementation intention planners and no plan controls. No differences were found for positive affect. These results were not replicated in Study 2 (N = 133) or Study 3 (N = 147), where feelings about the task did not differ depending on whether participants planned or not, or planning type. Overall, our findings did not yield consistent evidence that planning for an important future task has immediate affective benefits.

Keywords: planning, affect, emotions, mental simulation, implementation intentions

Acknowledgments

First and foremost, I would like to express my sincerest gratitude to my supervisor, Dr. Roger Buehler, for his invaluable insights, guidance, and support regarding every aspect of this research. I feel privileged to have the opportunity to work with him, and without his dedicated involvement this Thesis would not have been possible.

I would like to thank my lab mates, Monica El Gamal, Jessica Wiese, and Bianca Dreyer, and all of the graduate students in the social psychology department at Wilfrid Laurier, for always taking the time to help with any questions I had throughout this process. Thank you also to all the members of my Thesis committee, for time they spent reading, thinking about, and critiquing this document. Additionally, I wish to acknowledge the Social Sciences and Humanities Research Council of Canada (SSHRC) for their financial support of this project.

Last but not least, I would like to thank my family and loved ones for their all of their patience and encouragement during this time.

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It seems that almost everyone gets stressed out about future tasks (e.g., work projects, school assignments, personal endeavors) with upcoming deadlines sometimes. Approaching deadlines often lead to negative feelings of worry, anxiety, or distress. Many people use planning to help keep them on track, to organize their thoughts and time, and perhaps to feel more in control about future tasks. Psychologists have studied extensively the consequences of planning for motivation and task performance, but little work has examined whether plan-making serves another function, that of helping us feel better about the yet-to-be completed task. In the present research, we examine whether making plans for how one will complete a future task positively impacts feelings related to that task. More specifically, we test the possibility that planning for a yet-to-be completed task decreases negative emotions related to the task. The present research builds upon previous work which has identified techniques that help increase coping with negative experiences and research which has examined the positive impact of planning on motivation, effort, and task performance.

In the sections that follow, we review previous research examining the influence of active coping strategies on affect, the influence of planning on affect, discuss two different planning techniques and their expected relationship with affect, and introduce our rationale for why and under what conditions planning should be an effective emotion regulation tool. Then, we present our hypotheses and three experiments that test these hypotheses.

Coping with Stressful Situations

People cope with stressors in a variety of ways, and researchers have drawn a number of important distinctions to help us understand how they do so. An early example is Folkman and Lazarus (1980), who distinguished between problem-focused and emotion-focused coping.

Problem-focused coping refers to coping which involves problem-solving, or altering the source of the stress, and predominates when something constructive can be done, whereas emotion-focused coping involves managing the emotional distress and predominates when the stressor must be endured. Carver, Scheier, and Weintraub (1989) acknowledged the importance of this distinction, but argued that it is ultimately too simple, and that ways of coping should be categorized using a larger number of dimensions, to capture its many different facets. In their 1989 paper, they developed the COPE Inventory, a series of scales that measure how people cope with stressors on 14 dimensions - active coping, planning, suppression of competing activities, restraint coping, seeking social support – instrumental (these first five are traditionally considered active coping strategies), seeking social support – emotional, positive reinterpretation and growth, acceptance, turning to religion, focus on and venting of emotions, denial, behavioral disengagement, mental disengagement, and alcohol-drug disengagement (these latter nine are traditionally considered emotion-focused coping strategies).

The COPE Inventory has been used extensively since its development, including in research examining the relationship between the different types of coping and their affective outcomes. In several studies that examined coping with a variety of stressful situations (e.g., academic achievement, interpersonal conflict), higher levels of positive affect were uniquely associated with greater reliance on active coping strategies, such as problem-solving, planning, and suppression of competing activities (as measured by the corresponding scales of the COPE Inventory), and these were found to have little effect on negative affect (Baker & Berenbaum, 2007; Billings, Folkman, Acree, & Moskowitz, 2000; Blalock, DeVellis, & Giorgino, 1995, Crocker & Graham, 1995, Ntoumanis & Biddle, 1998). In contrast, emotion-focused strategies, such as seeking social support, or focusing on and venting emotions (also as measured by the

corresponding scales of the COPE Inventory), when successful, were more likely to be associated with decreases in negative affect. Based on these findings, one might suspect that active coping strategies, such as planning, are more likely to influence positive feelings than negative feelings. However, a few studies also found a negative correlation between active coping and negative affect (Anshel & Anderson, 2002; Ben-Zur, Yagil, & Oz, 2005; Park, Armeli, & Tennen, 2004). In an attempt to clarify the relationship between active coping and positive and negative affect, Ben-Zur (2009), conducted a secondary analysis of data from three studies that differed in its aims and populations tested, but used the same coping (COPE Inventory) and affect measures (PANAS; Watson, Clark, & Tellegen, 1988). She found a strong positive relationship between active coping and positive affect, and a somewhat weaker, but significant, negative relationship between active coping and negative affect.

Based on these findings, one might suspect that the specific active coping strategy of planning will also increase levels of positive affect and decrease levels of negative affect. Thus far though, studies using the COPE Inventory that also measured affect have not examined the role of planning specifically. Furthermore, it is difficult to draw strong conclusions about the effect of active coping strategies on affect because studies either compared different coping strategies to one another without including a control group or measuring baseline levels of affect (e.g., Baker & Berenbaum, 2007), or examined the relationship between coping and affect at a correlational level only (participants were asked to report how much they used each coping strategy and their ratings were correlated with other outcome variables) (e.g., Ben-Zur, 2009; Crocker & Graham, 1995; Ntoumanis & Biddle, 1998).

Process Mental Simulation and Affect

Whereas negative past experiences are typically less amenable to problem-solving approaches, because one may no longer be able to change the problem, ongoing or future tasks are typically viewed as more open and controllable. An emotion regulation strategy that focuses on problem-solving, such as planning, may therefore be particularly helpful in the context of ongoing or future tasks that a person feels worried, stressed, or anxious about.

In line with this idea, Rivkin and Taylor (1999) examined whether an active coping strategy focused on problem-solving would help people successfully cope with self-nominated stressful events that were perceived as controllable and ongoing. In their study, participants were asked to use a technique called *process mental simulation*, which involves translating experiences into concrete mental images, including visualizing how an experience unfolded, picturing the beginning, middle, and end of an experience, and imagining how one felt at various time points throughout that experience. Following the mental simulation exercise, participants' feelings and coping responses to the stressful experience were assessed both immediately after the mental simulation exercise and one week later. Affect was assessed via the 1983 version of Kammann and Flett's Affectometer, which measures well-being via 10 four-item subscales assessing optimism, self-esteem, self-efficacy, social support, social interest, freedom, confluence, energy, cheerfulness, and thought clarity. Compared to control participants, who were asked only to think of a current stressful situation, or participants who visualized successfully having resolved the stressful situation only (outcome mental simulation), participants who used process mental simulation reported more positive affect and increased coping responses immediately after the exercise and one week later. Specifically, significant positive effects were found for optimism, social support, social interest, confluence, energy, and thought clarity, but not for self-esteem, self-efficacy, freedom, or cheerfulness.

Whereas mental simulation is sometimes discussed in the context of distressing experiences, it is also commonly discussed in the context of planning and task performance. For example, Taylor, Pham, Rivkin, and Armor (1998) discussed the benefits of process mental simulation - the concrete and detailed visual simulation of the steps required to successfully solve a problem or complete a task – primarily in terms of their consequences for motivation and performance. In such contexts, mental simulation is essentially a form of planning, as it involves thinking through the steps that will be taken to carry out a task. Mental simulation planning was shown to be effective in a variety of domains, including that of academic tasks (e.g., Taylor & Pham, 1999; Pham & Taylor, 1999), where compared to outcome mental simulators (those who imagined the positive outcome only) and control participants, mental simulation planners reported putting forth greater effort and obtained higher grades.

In addition to its effects on motivation and performance, Taylor et al. (1998) suggested that the rehearsal of the process needed to reach a specific end state (mental simulation) evokes to some extent the specific emotions that will be experienced when walking through the activities, so that a person can anticipate what these emotional states will be and develop some degree of control over them. Thus, some studies examining the effects of mental simulation planning also investigated its impact on affect. For example, Pham and Taylor (1999) found that compared to no plan controls and outcome simulators, undergraduate students who prepared for their midterms via process mental simulation displayed lower levels of negative affect (anxiety, worry). In fact, along with facilitated planning and maintained aspiration level, reduced negative affect was found to mediate the relationship between mental simulation and enhanced exam performance.

In a study which also compared the effects of a process mental simulation, outcome mental simulation, and no preparation control condition, Taylor and Pham (1999) had participants prepare for an in-lab essay-writing task, and then immediately write either the essay they prepared for, or an essay on a different topic. Subsequently, the researchers measured levels of anxiety, confidence, motivation, and frustration with the task, self-efficacy beliefs, and various variables related to the quality of the written essay. Generally, both process and outcome mental simulation participants wrote superior quality essays compared to controls when writing on the topic they prepared for, but not when writing an essay on an unexpected topic (no differences between the three groups). No effects of simulation (process vs. outcome vs. control), nor an interaction between simulation and essay type (expected vs. unexpected) on anxiety, confidence, motivation, or frustration were observed. A potential explanation for this finding is that an experimenter-assigned essay-writing task does not elicit the same kinds of emotional reactions (e.g., intensity) as more highly self-relevant and personally important tasks such as exams, and thus changes in emotion as a result of mental simulation may be less likely to be observed under such conditions. Alternatively, positive effects on feelings may not have been observed in this study because these were measured after task performance, and not immediately after the mental simulation manipulation.

Greitemeyer and Würz (2006) investigated the benefit of mental simulation (process and outcome) for achieving difficult vs. easy self-nominated personal goals in the domain of health. Compared to control participants who did not complete any exercises, both process (imagined the steps toward achieving the goal on a daily basis) and outcome (imagined having already achieved their goal on a daily basis) simulation participants exhibited greater health goal achievement one week after the experimental session. During the initial experimental session

participants also rated their motivation, planning (preparedness), self-efficacy, and positive and negative affect after the experimental manipulation. These variables were all assessed as potential mediators of the positive effect of simulation on the achievement of difficult health goals. Affect was measured via an adapted version of Kammann and Flett's (1983) questionnaire, and consisted of participants' ratings on 20 affective adjectives (e.g., "free-and-easy). Compared to the control condition, both the process and outcome mental simulation conditions had similarly positive effects on ratings of motivation, planning, and positive affect. No effects were observed on negative affect or self-efficacy. When examined as mediators, only motivation, and not positive affect or planning, was shown to (partially) mediate the effect of simulation on health goal achievement.

In an entirely different context, that of preparing for receiving dental treatment, Armitage and Reidy (2011) compared the effects of process and outcome mental simulations on anxiety, self-esteem, and self-efficacy in patients receiving dental treatment. They found that those who simulated the process of seeing a dentist, displayed reduced levels of state anxiety both before and after their actual dental consultations, compared to those who only simulated the outcome of seeing a dentist. No effects were found for self-esteem or self-efficacy. These findings suggest that in the context of preparing for a particularly anxiety-arousing situation, process mental simulation may help to reduce negative feelings. However, note that a control group was not used in this study, so that it is not possible to rule out that simulation of the outcome results in more anxiety than no simulation. That a significant effect was found only for anxiety, is sensible, given that the primary problem at hand is anxiety and fear of pain, so any changes as a result of preparation should be seen in that domain.

In general, based on these studies, it appears that evidence for a positive effect of process mental simulation on affect is somewhat mixed, and that effects on positive and negative affect are not consistent. It may be the case that effects are context-dependent, such that task preparation via mental simulation is only likely to impact affect when the task is highly self-relevant and likely to evoke strong emotional reactions. Further it may be the case that some contexts are more likely to elicit primarily strong negative feelings, and have little relevance to positive feelings (e.g., dental treatment), or vice versa, and that the benefits of process mental simulation are specific to those emotions.

The unclear relationship between coping and positive and negative affect and mental simulation and positive and negative affect also appears to reflect a general lack of clarity in the literature regarding the nature of positive and negative affect. Some have argued that the two are distinct or independent dimensions (e.g., Watson, Clark, & Tellegen, 1988) whereas others have argued that they are bipolar opposites (Russell & Carroll, 1999). An interesting example in support of the former is Marshall, Wortman, Kusulas, Hervig, and Vickers (1992), who found positive affect to be uniquely and positively related to optimism and extraversion, whereas negative affect was found to be uniquely and positively related to pessimism and neuroticism. Their findings suggest that it is perhaps important to also consider personality factors when examining effects on affect. Overall though, our literature search on this topic did not yield empirical consistency or a clear conceptual explanation for why or under what circumstances positive and negative affect should be negatively or positively related or unrelated. Some research suggests that self-construal moderates the relationship between positive and negative affect, such that for individuals with an independent self-construal (Western cultures) positive and negative affect are clearly negatively related, whereas for those with an interdependent self-

construal (Eastern cultures) the two are moderately positively correlated (Bagozzi, Wong, & Yi, 1999). The researchers argued that these differences can be explained by fundamental differences in the conceptualization, experience, and use of emotion across the two cultures. Because people in independent-based cultures are more likely to analyze emotions, to represent them linguistically and conceptually in oppositional modes, and to see them as central concepts for explaining one's own and other's actions, they are more likely to compare and contrast positive and negative emotions and thus view them in oppositional terms. People from interdependent-based cultures on the other hand, do not devote as much time and energy to the analysis of emotions, are more likely to represent them linguistically and conceptually in harmonious ways, and are less likely to use emotions to explain people's actions, and are therefore less likely to view positive and negative emotion in oppositional terms. Whether the relationship between positive and negative affect may not only vary chronically as a result of culture, but also depending on situational factors, so whether we might be more likely to see positive and negative affect as opposites in some scenarios, but are more likely to see them as independent in others, is unclear.

Importantly, researchers on both sides of the debate acknowledge the importance of contextual factors. For example, Russell and Carroll (1999) suggested that positive and negative affect might be separable in specific circumstances, such as in moments of great emotion or in times of conflict or decision. In the context of goal achievement for example, as noted by Carver and Scheier (1990), it makes sense for both moderately strong positive and moderately strong negative emotions to arise and co-exist at the same point in time. The process of planning may very well bring to mind thoughts about conflicting goals (e.g., wanting to study more to do well in school and wanting to attend more social events to fit in), so both positive feelings about

studying which will result in greater academic achievement and negative feeling about missing out opportunities to socialize could be experienced by an individual.

The goal of the present research was not to establish what exactly the relationship between positive and negative affect is in a goal/planning context, but to acknowledge that different possibilities exist and to remain open to potentially different patterns of results for positive and negative affect. For example, if planning for a goal or task that a person feels stressed, anxious, or nervous about, and has not been looking forward to working on or completing, then we might be more likely to expect planning to influence their negative feelings, but not necessarily positive feelings about the task. On the other hand, if a person has the potential to experience mixed feelings about the task, for example, thinking about how exciting it will be to learn a new skill, and realizing that it may not be as difficult and stressful as first imagined, then we might expect planning to have the potential to influence both positive and negative feelings about the task.

Planning and Affect Outside the Mental Simulation Domain

Although never systematically examined, the aforementioned mental simulation studies suggest that mental simulation task preparation or planning might have positive effects not only on task performance, but also on feelings about the task itself. Interestingly, outside the domain of mental simulation, the impact of planning on affect specifically is rarely examined, but related constructs have received a little bit more attention. For example, Webb and Sheeran (2008) examined the effect of implementation intentions (if-then plans; defined further in the next section) on perceptions of self-efficacy, in the context of a variety of goals, in a meta-analysis of 22 studies. They found, on average, only very small effects of implementation intentions (compared to controls) on self-efficacy, and these were statistically significant in only one case,

suggesting that implementation plans may not impact positive feelings about being capable of achieving a goal.

The one exception we are currently aware of, that examined the effect of planning on affect specifically, outside the mental simulation domain, is Masicampo and Baumeister (2011), who assessed participants' affect after they had made a plan for how to complete an important self-nominated task or errand (that was not part of the participants' regular routine and that they had not yet made a plan to complete). The primary purpose of their paper was to show that making plans can eliminate the cognitive effects of unfulfilled goals. Previous research demonstrated that thoughts about unfulfilled goals have a tendency to persist in the mind, and interfere with performance on unrelated tasks, until the goal is fulfilled (Förster, Liberman, & Friedman, 2007; Förster et al., 2005; Klinger, 1975; Martin & Tesser, 1989; Masicampo & Baumeister, 2011). The authors showed that making a plan to complete the goal can eliminate the intrusive thoughts related to it. Their proposed mediator for this effect was the earnestness of the plan (whether one actually follows through with the plan made) and so they wanted to rule out affect as an alternative mediator. In two of their studies (5A, 5B) they therefore also measured goal-related emotions. In those studies, participants self-nominated an already fulfilled or an unfulfilled task, and for the unfulfilled task, either made a plan to complete it or did not make a plan to complete it. Participants then rated their feelings about the task on four emotion adjectives: anxious, nervous, confident, and content. For participants who nominated an unfulfilled goal, there were no significant differences between those who made a plan and those who did not make a plan on any of the four goal-related emotions. Participants who thought about an already fulfilled task, though, tended to display lower levels of negative affect and

higher levels of positive affect than those who thought about an unfulfilled goal across the two studies.

That no significant differences were found between those who planned for the unfulfilled goal and those who did not is surprising: if making a plan eliminates intrusive thoughts about the unfulfilled task, one might also expect making a plan to reduce intrusive (negative) feelings about the task. If it is truly the case that you no longer have thoughts about the task in mind, then it would also seem logical that you are no longer, or to a lesser extent experiencing the affect that comes along with those thoughts. The possibility that participants were not feeling particularly negative or positive about the unfulfilled tasks to begin with, and therefore changes in affect were not very likely, cannot be ruled out (levels of affect in the unfulfilled task condition were not particularly high for negative affect, $M = 3.03$ on a 7-point scale, or particularly low for positive affect, $M = 4.27$ on a 7-point scale). The fact that more positive affect and less negative affect was observed in the fulfilled goal (control) condition than in the unfulfilled goal condition, does suggest that those with unfulfilled goals may have been feeling somewhat more negative and less positive as a result of having the unfulfilled goal in mind.

Another potential reason why participants in the two aforementioned studies may not have experienced any changes in affect, even though the task nominated was highly self-relevant and important to them, could be the type of planning they engaged in. To form their plan, participants were asked simply to describe when, where, and how they would complete the task. This type of planning may result in a simple statement of facts for how the goal could be achieved, and not be particularly experiential or emotionally engaging. Participants would be less likely to simulate the successful completion of different steps toward fulfilling the goal than if they mentally simulated their plan, and would also be less likely to experience any emotions that

would arise during the process of imagining those steps. Simply put, planning which does not involve the detailed simulation (visualization/imagination) of performing the actions needed to fulfill the goal may be less likely to evoke relevant emotions, and therefore be less likely to lead to a change in feelings about the task.

The idea that some types of planning are more emotionally engaging, and thus more optimally suited for emotional regulation than others, can be further explored by comparing the effects of two well-known and extensively researched planning types – mental simulation and implementation intention planning. Both have been shown to effectively increase motivation and performance, and ultimately lead to greater goal achievement, but in terms of their impact on affect, there are good reasons to suspect that they might differ.

Comparing Implementation Intentions and Mental Simulation

As has been shown for mental simulation plans, the formation of implementation intentions has also been found to promote goal attainment in many different domains, including academic achievement and health-related behaviors (for a meta-analysis see Gollwitzer & Sheeran, 2006). In the psychological literature, the term *implementation intentions* (not to be confused with an *implemental mindset* - an orientation or mindset characterized by the intent to take action toward a goal) refers to a specific way of making plans to reach a goal. Implementation intentions are typically operationalized as detailed if-then statements consisting of the following structure: "If situation X occurs, then I will perform goal-directed behavior Y" (Faude-Koivisto, Wuerz, & Gollwitzer, 2009). An example of such a statement might be "If I am on the bus, then I will read my textbook". The "if" part involves the identification of a critical situation, or anticipated opportunity to perform goal-directed behavior, establishing when and where action will take place, and the then-part involves the identification of an action response

that will promote goal attainment, establishing how action will take place. Note that this if-then structure may also lend itself quite nicely to the consideration of obstacles and how to overcome them. An anticipated opportunity, such as "If I am on the bus", may very well be replaced with an obstacle, such as "If it's a Thursday night and my friends are distracting me", and an action plan for how to overcome the obstacle such as "then I will go to the library to study by myself".

Whereas both mental simulation and implementation intentions are thought to further goal attainment through enhanced planning of goal-directed actions, the way in which mental simulations benefit the planning process differ from implementation intentions in an important way that is relevant to how participants might feel about the task they are planning for. Whereas implementation intention planners specify precisely when, where, and how they will act to achieve a goal in the form of if-then statements, mental simulation planners form detailed mental images of how a future event will unfold, visualizing successfully performing each step needed to carry out a task (Taylor et al., 1998). In contrast to exact specifications of task completion, mental simulations are more experiential in nature (Faude-Koivisto, Wuerz, & Gollwitzer, 2009), and thus likely to be more emotionally engaging. Indeed, research indicates that mental simulations of future events elicit hedonic reactions similar to those accompanying the actual events (Gilbert & Wilson, 2007; Rivkin & Taylor, 1999; Taylor et al., 1998). Implementation intentions are also thought to be more likely to lead to close-mindedness, tightly focusing the planner on the specific situations and actions formulated, whereas mental simulations are thought to be more flexible and associated with an open mindset (Faude-Koivisto, Wuerz, & Gollwitzer, 2009), leaving more room for exploration of possible means or paths to a goal (Oettingen, 2000; Oyserman & James, 2009), each of which could evoke different feelings in the planner. The vivid imagination of different paths to goal achievement could also bring to mind situations

which require emotion regulation, such as overcoming temptation, or struggling to complete part of a goal, and may thus give the planner a sense of preparedness for when such a scenario arises. Mental simulations of this nature may ease negative feelings, in that the planner has already successfully imagined overcoming the potentially unpleasant parts of completing the task. Although it is also possible to imagine that a planning type that it more emotionally engaging amplifies both positive and negative feelings, ultimately, simulating the successful completion of each step in a plan should elicit positive feelings of accomplishment, similar to those created by actual task progress, and ease worries, stress and negative thoughts related to the task. Accordingly, we might expect individuals who plan via mental simulation to report less negative feelings and more positive feelings than those who plan via implementation intentions. In particular, for tasks where negative feelings predominate (anxiety, dread, stress) and positive feelings are less relevant, such as "must dos"/chores, mental simulation should reduce negative feelings, and for tasks where both positive and negative feelings are relevant, such as self-chosen personal projects, mental simulation should increase positive feelings (e.g. inspiration, enthusiasm) and decrease negative feelings.

The Current Work

The goal of the present research is to test the possibility that planning can be an effective emotion regulation tool, allowing the planner to feel less negative about a yet-to-be completed task or goal. In this set of studies, we expect an effect of planning primarily on negative affect, and not necessarily on positive affect, because participants are asked to plan for tasks about which they may already be experiencing some negative affect, and that are generally not particularly likely to evoke positive emotions. We prompt for the nomination of tasks participants have been concerned about completing lately in Study 1 and 2, and participants

planned primarily for academic tasks or chores/errands, so tasks which they MUST complete, but do not necessarily want to complete (and may therefore not be likely to start feeling excited or inspired about). In Study 3, participants planned for preparing for their final exam. Because of the nature of these tasks, increases in positive affect seemed less likely than decreases in negative affect.

Across three studies we test the hypotheses that (1) mental simulation planning results in less negative affect about the goal than not making a plan, and (2) mental simulation planning results in less negative affect about the goal than planning via implementation intentions. We expect this to be the case only for important, and highly self-relevant goals, so in Study 1 and 2, we asked participants to nominate an important task of their own choosing. In Study 3, participants planned for how they would prepare for an upcoming final exam, which we thought should also be relatively important to all of them. Any positive effects of planning on negative affect should also be more likely in a context where people are already experiencing some negative feelings, so in Study 1 and 2 participants were asked to nominate tasks that they had felt concerned about completing lately. Participants in Study 3, who were planning for their final exam, could also be reasonably expected to potentially experience some negative affect (e.g., worry, stress).

To be able to better compare the results of our study to those of Masicampo and Baumeister (2011), whose task nomination procedure we follow quite closely, in Study 1 and 2, we include a condition where participants plan by specifying when, where, and how they will complete the task. Whereas implementation intention plans are typically defined by the use of if-then statements, the simple specification of when, where, and how one will complete a task, is also sometimes argued to be a form of implementation intention plans. Because this

operationalization of implementation intention plans is less frequently used, we were less sure about the cognitive and affective mechanisms that would underlie such a planning strategy, and therefore did not have a priori hypotheses about its effect on affect. We might expect planning via implementation intentions to differ from when-where-how planning because when-where-how planning is less structurally restrictive. When-where-how planners are not required to identify a specific situation (the "if") that they have to explicitly link to a specific action (the '"then") that gets them closer to task completion. This should give when-where-how planners more flexibility and freedom in their planning, but may make it less likely that they identify key situations for taking action. That is, when-where-how planners may be more likely to also include mere goal intentions in their plans, and not just implementation intentions. They may end up forming a plan that is more optimistic, as their plan will not require that they form an explicit connection between the when and where, and the how, and they make think less carefully about when and where they will in fact be able to perform goal-directed behaviors. This freedom may lead to increased optimism (potentially unrealistic in nature) which could in turn lead to reduced negative affect or increased positive affect about the task being planned for compared to implementation intention planners.

Study 1

In an initial study examining the potential impact of planning on affect, we targeted undergraduate students (in the middle of the term), all of whom were likely to have school projects, such as essays, reports, quizzes, or midterm to plan for. We had participants identify an important task and plan for it using either implementation intentions, mental simulation, or by simply specifying when, where, and how (*when-where-how* planning) they would complete the task. Control participants did not make a plan. We then assessed participants' levels of negative

and positive affect, and perceptions of task difficulty. It was hypothesized that participants who engaged in mental simulation planning would have decreased levels of negative affect compared to those who planned via implementation intention planning or did not make a plan (controls). We had no a priori hypothesis about when-where-how planners.

Method

Participants

Undergraduate students from the psychology participant pool of Wilfrid Laurier University were recruited to participate in the study in exchange for course credit. The sample consisted of 144 students (113 female, 31 male) between the ages of 17 and 25 (M = 18.86 years, SD = 1.30 years).

Procedure

Participants were recruited using an online scheduling system for a study about the effects of planning for unfulfilled goals. Upon arrival at the lab, participants were seated in individual cubicles and asked to complete an on-line survey (via Qualtrics survey software) that contained the experimental manipulation and measures (see Appendix A). First, participants were asked to identify an important upcoming task that they needed to complete in the next week or two. They were told that this task should be one that is (1) not part of their regular routine (they do not complete on a daily or weekly basis), (2) one that they do not yet know when, where, and how they will complete, and (3) one that they have felt concerned about completing lately. The third task requirement was not included in Baumeister and Masicampo's (2011) task nomination instructions, and was added to target task about which participants may already be experiencing negative affect. Participants were then asked to briefly describe the task, its importance, and the consequences if the task was not completed. They also rated the task on the

following pre-plan characteristics: (1) how difficult they thought completing the task would be (1 = *not at all difficult* to 7 = *extremely difficult*), (2) how much control they felt they had over completing the task (1 = *no control*, 7 = *complete control*), (3) to what extent they expected to be able to complete the task (1 = *not at all likely to complete*, 7 = *extremely likely to complete*), and the importance of the task (1 = *not at all important* to 7 = *extremely important*).

Next, participants were randomly assigned to one of four planning conditions: (1) a no plan control condition (where participants went straight from the task nomination and pre-plan characteristic ratings to the dependent measures), (2) mental simulation planning, (3) implementation intention planning, and (4) when-where-how planning.

Participants randomly assigned to the mental simulation condition received the following instructions:

Next, we are going to ask that you make a specific plan to complete the task. Please VISUALIZE in detail how you will complete the task. Try to be as detailed as possible and write at least 3 sentences in each box. It is very important that you take your time when writing out your plans. The "next" button to advance to the next screen will not appear for 5 minutes to ensure that enough detail is provided, but you are certainly encouraged to take more time if you would like.

They were then asked to write their plan into three textboxes, each with specific instructions:

(Box 1) Picture the preparations you would make and the first steps you would take toward completing the task. Literally visualize what working on the task would be like. Please try to write down, in as much detail as you can, the steps or path you imagined. (Box 2) Picture problems you may encounter on the way to completing your task and what you would need to do to overcome them. Visualize the actions you would need to take in order to overcome problems you encounter. Please try to write down, in as much detail as you can, what problems and solutions you imagined. (Box 3) Picture the different steps involved in completing the task, and imagine where and when these would be taking place. Visualize what the path to completing the task looks like. Please try to write down, in as much detail as you can, what preparations and first steps you imagined.

Participants randomly assigned to the implementation intentions condition received the following instructions:

Next, we are going to ask that you make a specific plan to complete the task. Please try to formulate your plan using specific if-then statements (when situation x arises, then I will perform response y). For example, "if it is after 8pm on a weekday, then I will read my textbook for two hours". Try to be as detailed as possible and write at least 3 sentences in each box. It is very important that you take your time when writing out your plans. The "next" button to advance to the next screen will not appear for 5 minutes to ensure that enough detail is provided, but you are certainly encouraged to take more time if you would like.

They were then asked to write their plan into three textboxes, each with specific instructions:

(Box 1) Your first set of if-then statements (when situation x arises, then I will perform response y). (Box 2) Your second set of if-then statements (when situation x arises, then I will perform response y). (Box 3) Your third set of if-then statements (when situation x arises, then I will perform response y).

Participants randomly assigned to the when-where-how condition received the following instructions:

Next, we are going to ask that you make a specific plan to complete the task. Please indicate in detail WHEN, WHERE, and HOW you will complete the task. Try to be as detailed as possible and write at least 3 sentences in each box. It is very important that you take your time when writing out your plans. The "next" button to advance to the next screen will not appear for 5 minutes to ensure that enough detail is provided, but you are certainly encouraged to take more time if you would like.

They were then asked to write their plan into three textboxes, each with specific instructions:

(Box 1) WHEN - please write at least 3 statements about when you will be completing the task. (Box 2) WHERE - please write at least 3 statements about where you will be completing the task. (Box 3) HOW - please write at least 5 statements about how you will be completing the task.

Each of the three textboxes was of identical size for each planning condition, and expanded if participants wanted to write more.

Dependent Measures

Affect. The primary dependent variable was participants' feelings about the task, and was assessed via the Positive and Negative Affect Schedule (PANAS; Watson, Clark, & Tellegen,

1988). Participants indicated the extent to which they felt each of the 20 PANAS adjectives (10 positive, 10 negative) when thinking about the task they nominated on scales from 1 = *very slightly or not at all* to 5 = *extremely*. Positive affect items included adjectives such as *enthusiastic*, *determined*, and *inspired*, and negative affect items included adjectives such as *nervous*, *distressed*, and *afraid*. The reliability of the positive affect scale (α = .87, M = 3.08, SD = 0.46) and the negative affect scale (α = .86, M = 2.13, SD = 0.58) was good.

Task difficulty. All participants again rated how difficult they thought completing the task would be, on a scale from 1 = *not at all difficult*, to 7 = *extremely difficult.*

Demographics. The final section of the questionnaire asked participants to indicate their gender, age, and ethnicity. Gender and age did not impact (as a moderator or covariate) the results, and will therefore not be discussed further.

Results

To test for effects of planning type we submitted each measure to a one-way ANCOVA (planning type: mental simulation vs. implementation intentions vs. when-where-how vs. none) that included each of the pre-plan ratings as covariates. Where appropriate, these were followed up with post-hoc LSD tests. For significant post-hoc tests we calculated Cohen's d effect sizes. Preliminary analyses indicated that there were no significant differences across the planning conditions on any of the four pre-plan characteristics (all *p*s > .08) (see Table 1). Because perceived task difficulty, control over completing the task, completion expectations, and task importance, could all be reasonably expected to impact feelings about the task, these variables were included as covariates. Estimated means are reported; in addition, standard errors, confidence intervals, and effect sizes (Eta Squared, Cohen's d) for the analyses can be found in

Table 2.[1]

Affect

Our primary hypothesis was that participants who engaged in mental simulation planning would show decreased levels of negative affect compared to those who did not make a plan, and compared to those who planned via implementation intentions. The effect of planning condition on negative affect was significant, $F(3, 136) = 6.10$, $p = .001$. In line with our hypothesis, participants reported lower levels of negative affect in the mental simulation condition ($M = 2.04$) than in the control condition ($M = 2.39$), $p = .02$, $d = .56$. Participants in the mental simulation condition also reported lower mean levels of negative affect than those in the implementation intentions condition ($M = 2.28$), but this difference failed to reach significance, $p = .10$. In contrast to the findings by Masicampo and Baumeister (2011), participants who planned via when-where-how planning also reported lower levels of negative affect ($M = 1.81$) than those who did not make a plan, $p < .001$, $d = .93$, and compared to those who planned via implementation intentions, $p = .002$, $d = .76$. Implementation intention planners and those in the no plan control condition did not differ in terms of negative affect, $p = .46$, and neither did mental simulation and when-where-how planners, $p = .12$.

The effect of planning condition on positive affect was not significant, $F(3, 136) = 0.13$, $p = .94$. Participants in the mental simulation ($M = 3.09$), implementation intentions ($M = 3.03$), when-where-how ($M = 3.14$), and no plan control condition ($M = 3.05$), did not differ in their ratings on the positive emotion adjectives.

[1] For all three studies, we also tested whether the pre-plan characteristics moderated the effect of planning on the primary dependent variables. A separate regression was conducted for each pre-plan variable (controlling for the other pre-plan variables) examining its effect on each of the primary dependent variables. None of the interaction terms reached significance in Study 1 ($p > .10$) or Study 2 ($p > .08$). In Study 3, all but two of the regressions did not contain significant interaction terms ($p > .09$). Because no consistent pattern suggesting moderation emerged, these will not be discussed further.

Task Difficulty

The effect of planning condition on task difficulty was significant, $F(3, 136) = 3.65$, $p = .01$. Compared to the control condition ($M = 4.59$), all of the planning conditions resulted in significantly lower task difficulty ratings: when-where-how, $M = 3.66$, $p = .007$, $d = .66$, mental simulation, $M = 3.69$, $p = .006$, $d = .65$, implementation intentions, $M = 3.73$, $p = .01$, $d = 0.62$. No significant differences emerged between the three planning conditions (all ps >.50). A paired t-test indicated that ratings of task difficulty in the control condition did not differ between Time 1 (pre-plan task characteristic ratings) and Time 2 (after rating their affect), $t(34) = -1.11$, $p = .27$. For each of the planning conditions task difficulty did decrease significantly from Time 1 to Time 2 (mental simulation: M Time 1 = 4.14, M Time 2 = 3.49, $t(36) = 2.49$, $p = .018$, $d = .47$; implementation intentions: M Time 1 = 4.70, M Time 2 = 3.81, $t(35) = 3.05$, $p = .004$, $d = .60$; when-where-how: M Time 1 = 4.86, M Time 2 = 3.78, $t(35) = 4.39$, $p < .001$, $d = .70$).

Elaboration

Because participants provided us with their typed plan, we were able to examine whether the three planning manipulations differentially impacted how much participants elaborated. To measure elaboration, we counted the number of words the participants typed. For this variable, the effect of planning condition was significant, $F(2, 103) = 3.63$, $p = .03$. Post-hoc tests indicated that those in the mental simulation condition ($M = 222.71$) wrote significantly more than those in the implementation intentions condition, ($M = 174.01$), $p = .009$, $d = .64$. The when-where-how planning condition ($M = 202.06$) did not differ significantly from the mental simulation planning condition, $p = .23$, and only slightly trended toward having a higher mean than the implementation intentions planning condition, $p = .13$.

Correlations

Zero-order correlations were calculated between the primary dependent variables for the complete sample (see Table 3). Negative affect and task difficulty were significantly and positively correlated ($r = .44$, $p < .001$), indicating that, generally, participants who rated the task as more difficult, also rated themselves as experiencing greater levels of negative feelings. Positive and negative affect, and positive affect and task difficulty, were not significantly correlated. Elaboration (the number of typed words) was also not correlated with any of the three primary dependent variables. Partial correlations controlling for pre-plan characteristics ratings for the complete sample were also calculated and can be seen in Table 4.

For the same variables, zero-order correlations were also computed within each of the planning conditions (see Table 5). The pattern of correlations was very similar – in all four conditions, negative affect correlated significantly and positively with task difficulty. All of the other correlations were not significant, with the exception of one negative correlation between positive and negative affect in the when-where-how condition ($r = -.35$, $p = .04$). When participants who planned by specifying when, where, and how they would complete the task gave higher ratings on negative affect adjectives, they also tended to give lower ratings on positive affect adjectives. Partial correlations among the dependent variables, controlling for the pre-plan characteristics, were also computed within each of the planning conditions and can be seen in Table 6.

Discussion

In line with our primary hypothesis, participants who planned via mental simulation reported lower levels of negative affect than those who did not plan. No differences emerged for ratings of positive affect. Perhaps planning helped participants feel more in control of the task they had yet to complete, reducing some of the anxiety or stress they felt before planning, but did

not result in more positive affect about the task, because making a specific plan caused participants to be more aware of the actual effort and time commitment needed to complete the task. As most participants nominated major tasks related to school work (e.g., essays, reports), planning may have made the fact that they would be spending a considerable amount of time on a task they might not consider exciting or fun highly salient, making it unlikely for them to experience greater positive affect. Thus, although we might have also expected simulation of the successful completion of steps involved in completing the task to result in increased positive feelings related to confidence, enthusiasm and inspiration, this was not the case.

Participants who planned via implementation intentions did not display significantly higher levels of negative affect compared to those who planned via mental simulation, but they also did not display lower levels of negative affect than controls. It is difficult to draw any conclusions based on this result, but perhaps implementation intentions were just slightly less helpful than mental simulations for decreasing negative feelings. An additional point to consider is that implementation intentions may be more difficult to form, due to their restrictive if-then structure, resulting in a plan that is more list-like and less like a coherent story that flows smoothly and lends itself easily to planning for all the steps from start to finish. That implementation intention planners wrote significantly less than the two other types of planners lends some partial support to this idea. If increased difficulty forming the statements results in a less complete plan, this may cause participants to feel less certain about how they will complete the nominated task, and less at ease about their worries related to the task. Mental simulation plans inherently involve the simulation of successful task completion, and this may further ease uncertainties about completing the task. On the other hand, the fact that no differences were found for feelings of positive affect, might suggest that such differences do not play a role in

influencing affect. Given the fact that no differences emerged between any of the conditions for feelings of positive affect, one might suspect that planning is not likely to impact positive feelings, or at least not in the context examined in this study.

Whereas mental simulation encourages the visualization of various steps leading to task completion, all or parts of which are then written down by participants, the formation of implementation intentions encourages planning of the steps needed to complete the task by verbal means. Therefore, mental simulations are much more suited for participants who prefer a visual thinking style, and implementation intentions are better suited for participants who prefer to a verbal style. Furthermore, although we are not aware of any research on this, it is possible to imagine that the restrictive if-then structure of implementation intentions makes planning more difficult for participants with writing difficulties, and that mental simulations are simply more intuitive to form.

Other differences related to how participants were asked to plan may have also impacted the results. Specifically, participants in the mental simulation condition received more instructions than participants in the other conditions, and were explicitly asked to think of obstacles and how to overcome them. Participants in the implementation intentions condition were asked simply to form three sets of if-then statements. Receiving additional instructions may have made the planning exercise easier for mental simulation participants, resulting in the formation of a more complete plan. The fact that mental simulation planners typed more than implementation intention planners supports this idea. A more complete plan may have eased negative feelings more than an incomplete plan. Furthermore, if implementation intentions are in fact more difficult to form, then they may cause some frustration, impeding potential affective benefits of planning.

Interestingly, when-where-how planners also exhibited decreased negative affect in comparison to those who did not make a plan, and compared to implementation intention planners (in fact, when-where-how planners gave the lowest negative affect ratings). This finding stands in contrast to the findings of Masicampo and Baumeister (2011), who found no differences between when-where-how planners and controls on ratings of negative affect adjectives. In line with their findings, we found no difference in terms of positive affect ratings between when-where-how planners and the control condition. Our task nomination procedure and planning instructions paralleled their Studies 5a and 5b closely, so we are unsure why we failed to replicate their findings. One reason why the effects of when-where-how planning may have been very similar to the effects of mental simulation planning is that when-where-how planning may elicit fairly optimistic planning from participants. Participants may think of when, where, and how they would ideally like to complete the task, and write down those points. Potential obstacles or problems are not as likely to come to mind as when planning via implementation intentions, and therefore participants felt at ease after using this planning type. Additionally, one might suspect that when-where-how planning is less difficult to do than implementation intention planning.

We also found that participants in all planning conditions reported lower levels of task difficulty than those in the control condition. One reason for this could be that making a detailed plan allowed participants to break the task down into smaller and more manageable steps, resulting in the perception that the task is less complicated, and less overwhelming than before planning. Note that making a detailed plan, outlining the many steps that may be required to complete the task, could have also resulted in participants thinking that completing the task will be more difficult than anticipated, but this was not the case in this study.

Also relevant to the task difficulty finding is research on fluency (e.g., Min & Arkes, 2012; Sanna & Schwarz, 2004; Song & Schwarz, 2008). In our case, fluency can be thought of as the ease with which the plan was made. This could include both how easy it was to think of the steps needs to complete the task, and how easy it was to write out many planning statements. A fluency effect in this study would mean that participants judged the task as easier to complete as a result of it being easy to make the plan. Unfortunately, we do not have participants' ratings of how difficult it was to form their plan for Study 1, but it is certainly possible that all participants found the plan-making process relatively easy and that this reduced task difficulty ratings. Considering individual conditions, if we were to assume that implementation intentions are more difficult to form, and we think that fluency effects are occurring, then we might have expected higher ratings of task difficulty for implementation intention planners than mental simulation and when-where-how planners, but this was not the case.

In order to test the reproducibility of the findings of Study 1, and to address some of the variability in the instructions across conditions, we ran a second study. In this second study, we changed the planning manipulation instructions to be more similar in length and structure, so that the observed effects could not be argued to be simply due to receiving more instructions in the mental simulation condition. Furthermore, all participants were asked to plan for the initial, middle, and final steps of completing the task, to ensure that everyone planned for at least these basic parts of completing the task. This was done to encourage participants to include more details. We were concerned about the lack of detail in some of the plans in Study 1, and wanted to get participants thinking more in depth about how they would carry out the task by providing three different task stages for them to think and write about. Using the beginning middle, and end allowed us to do this in a uniform way across conditions. We also asked participants how

difficult they found the planning exercise, to determine whether implementation intentions were perceived as a more difficult way of planning.

Finally, we wanted to begin to explore the effects of the different types of planning on motivation because of two interesting and competing possibilities we were aware of. Negative feelings such as anxiety and distress could lead to a decrease in motivation, by causing people to avoid working on the task (e.g., procrastination and stress; Brown, 1991; Burka & Yuen, 1983; Ellis & Knaus, 1977; Steel, 2007), or an increase in motivation, due to a desire to change the negative feelings by taking action to complete the task (e.g., defensive pessimism; Norem & Cantor, 1986). If planning decreases negative affect, then it might lead either to an increase or a decrease in motivation. Previous research found that being overly optimistic (focusing on positive outcomes only) can decrease motivation (e.g., Kappes & Oettingen, 2011), so if when-where-how and mental simulation planning result in more optimistic plans, they may lead to decreases in motivation. Because we did not find a clear reason to prefer one hypothesis over the other, we chose to treat motivation as an exploratory variable.

Study 2

The main purpose of the second study was again to examine the impact of planning on affect, but this time using a more heterogeneous sample, and more standardized planning instructions. Specifically, we were concerned that the mental simulation planning instructions in Study 1 were more detailed and more specific than in the implementation intentions condition, making it easier for participants to formulate their plan, and feel better about this plan, not because of the type of planning, but because of the additional instructions. Therefore, in Study 2, we made sure that participants received more similar amounts of instruction and that each of the three planning boxes asked participants to plan for the same thing (the beginning, middle, and

final steps of completing the task). Participants received the same task nomination instructions as in Study 1, rated the self-nominated task on the same pre-plan task characteristics, were instructed to make a plan using one of the three types of planning, or not asked to make a plan, and then rated their affect. Additionally, we wanted to begin to explore the impact of the different planning types on motivation, so we included an item asking about motivation. We also wanted to know whether implementation intention planning was perceived as more difficult to form than the other planning types, so we assessed perceptions of planning difficulty. It was hypothesized that participants would report lower levels of negative affect in the mental simulation and when-where-how planning conditions, compared to the implementation intentions and control conditions.

Method

Participants

American participants were recruited via the crowdsourcing website CrowdFlower. One hundred and sixty-one participants signed up to complete the study, however, participants were excluded if they did not finish the questionnaire (n = 17) or did not follow the instructions (n = 11). The observed pattern of results did not change as a result of this exclusion criteria. Participants were coded as not following instructions if they selected a project with a deadline more than a month away (n = 2), or failed to complete the planning exercise (n = 9) (i.e. did not write anything, wrote something unrelated to the task being planned for, or wrote less than one full sentence). The final sample consisted of 133 participants (45 male, 85 female, 3 missing) between the ages of 20 and 73 (M = 41.95 years, SD = 12.53 years) who participated in exchange for payment (approx. $0.50).

Procedure

Participants were recruited for an online study examining the effect of planning on thoughts and judgments about future tasks. After consenting to take part in the study, participants were directed to an online questionnaire that contained all instructions and measures (see Appendix B). Participants were asked to identify an important task that they needed to complete in the next week or two that was not part of their regular routine (that they do not complete on a daily or weekly basis). They were asked to select a task for which they did not yet know exactly when, where, or how they will complete it, and that they had felt concerned about completing lately. They were then asked to briefly describe the task, its importance, and the consequences if they did not complete it. As in Study 1, participants rated how difficult they thought completing the task would be, how much control they felt they had over completing the task, the extent to which they expected to be able to complete the task, and the importance of the task.

As in Study 1, participants were then randomly assigned to one of four conditions: (1) a no plan control condition where participants went straight from the task nomination and pre-plan characteristic ratings to rating their affect, (2) mental simulation planning, (3) implementation intention planning, and (4) when-where-how planning.

Participants randomly assigned to the mental simulation condition received the following instructions:

Next, we are going to ask you to make a specific plan to complete the task. Please **VISUALIZE** in detail how you will complete the task. Before writing anything, please take some time to **IMAGINE** the steps involved in completing the part of the task you have in mind. Once you have pictured the steps involved, write down what you imagined. It is very important that you take your time when writing out your plans. The arrows button to advance to the next screen will not appear for 4 minutes to ensure that everyone writes for at least 4 minutes, but you are certainly encouraged to take more time.

They were then asked to write their plan into three textboxes, each with specific instructions:

(Box 1) Please visualize how you will complete the **initial steps** of the task. Please write down how you imagined completing the initial steps of the task. (Box 2) Please visualize how you will complete the **middle steps** of the task. Please write down how you imagined completing the middle steps of the task. (Box 3) Please visualize how you will complete the **final steps** of the task. Please write down how you imagined completing the final steps of the task.

Participants randomly assigned to the implementations intentions condition received the following instructions:

Next, we are going to ask you to make a specific plan to complete the task. Please try to formulate a detailed plan using as many **IF-THEN statements** (if situation x arises, then I will perform response y) as possible. Here are a couple of examples of if-then statements: "If it is after 8pm on a weekday, then I will read my textbook for two hours", or "If I finish picking up the supplies at the store, then I will start painting my bathroom that same day". It is very important that you take your time when writing out your plans. The arrows button to advance to the next screen will not appear for 4 minutes to ensure that everyone writes for at least 4 minutes, but you are certainly encouraged to take more time.

They were then asked to write their plan into three textboxes, each with specific instructions:

(Box 1) Please plan how you will complete the **initial steps** of the task using if-then statements (If ....., then .....). (Box 2) Please plan how you will complete the **middle steps** of the task using if-then statements (If ....., then .....). (Box 3) Please plan how you will complete the **final steps** of the task using if-then statements (If ....., then .....).

Participants randomly assigned to the when-where-how condition received the following instructions:

Next, we are going to ask you to make a specific plan to complete the task. Please try to formulate a detailed plan by writing about **WHEN, WHERE**, and **HOW** you will complete the task. It is very important that you take your time when writing out your plans. The arrows button to advance to the next screen will not appear for 4 minutes to ensure that everyone writes for at least 4 minutes, but you are certainly encouraged to take more time.

They were then asked to write their plan into three textboxes, each with specific instructions:

(Box 1) Please plan how you will complete the **initial steps** of the task and refer to when, where, and how this will occur. (Box 2) Please plan how you will complete the **middle steps** of the task and refer to when, where, and how this will occur. (Box 3) Please plan how you will complete the **final steps** of the task and refer to when, where, and how this will occur.

Each of the three textboxes was of identical size for each planning condition, and expanded if participants wanted to write more.

Dependent Measures

Affect. As in Study 1, the primary dependent variable was participants' feelings about the task, and was assessed via the Positive and Negative Affect Schedule (PANAS; Watson, Clark, & Tellegen, 1988). Participants indicated the extent to which they felt each of the 20 PANAS adjectives (10 positive, 10 negative) when thinking about the task they nominated on scales from 1 = *very slightly or not at all* to 5 = *extremely*. The reliability of the positive affect scale (α = .92, M = 3.12, SD = 0.39) was excellent, and the reliability of the negative affect scale (α = .89, M = 1.71, SD = 0.34) was good.

Motivation. Next, participants rated how motivated they felt to complete the task, on a scale from 1 = *not at all motivated*, to 7 = *extremely motivated.*

Task difficulty. All participants rated how difficult they thought completing the task would be, on a scale from 1 = *not at all difficult*, to 7 = *extremely difficult.*

Plan difficulty. Participants then rated how difficult they found making their plan, on a scale from 1 = *not at all difficult*, to 7 = *extremely difficult.*

Demographics. The final section of the questionnaire asked participants to indicate their gender, age, and ethnicity. Gender and age did not impact the results, and will therefore not be discussed further.

Results

To test for effects of planning type we submitted each measure to a one-way ANCOVA (planning type: mental simulation vs. implementation intentions vs. when-where-how vs. none) that included each of the pre-plan ratings as covariates. Where appropriate, these were followed up with post-hoc LSD tests. Preliminary analyses indicated that there were no significant differences across the planning conditions on three of the pre-plan characteristics (all *p*s > .30) (see Table 7). However, for completion expectations the ANOVA was marginal, $F(3, 125) = 2.40$, $p = .07$. The nature of this marginal effect was that participants in the control condition ($M = 6.55$, $SE = .143$, 95% CI [6.27, 6.84]) scored higher on task completion expectations than participants in the mental simulation ($M = 6.06$, $SE = .149$, 95% CI [5.76, 6.35]), $p = .02$, $d = .53$, and implementation intentions condition ($M = 6.10$, $SE = .161$, 95% CI [5.78, 6.32]), $p = .04$, $d = .48$. No other differences reached significance (all *p*s > .20). This finding hints at the possibility of a failure of random assignment. Because perceived task difficulty, control over completing the task, completion expectations, and task importance, could all be reasonably expected to impact feelings about the task, these variables were included as covariates. Estimated means are reported; in addition, standard errors, confidence intervals, and effect sizes for the analyses can be found in Table 8.

Affect

Our primary hypothesis was that mental simulation planning should result in lower levels of negative affect than not making any plan, or planning via implementation intentions. For negative affect, the effect of planning type was not significant, $F(3, 125) = 1.74$, $p = .16$. Contrary to our hypothesizing, if anything, participants showed a slight trend toward lower levels of negative affect in the implementation intentions condition ($M = 1.63$) compared to those in the control ($M = 1.97$), when-where-how ($M = 1.84$), and mental simulation condition ($M = 1.81$).

The effect of planning type on positive affect was also not significant, $F(3, 125) = 1.71$, $p = .17$. If anything, participants showed a slight trend toward higher levels of positive affect in the implementation intentions condition ($M = 3.39$) compared to the mental simulation condition ($M = 2.97$). The control condition ($M = 3.14$) and when-where-how condition ($M = 3.06$) fell in between.

Motivation

To explore potential effects on motivation we asked participants to rate how motivated they felt to complete the task they nominated. The effect of planning type on motivation was marginally significant, $F(3, 125) = 2.38$, $p = .07$. Post-hoc tests indicated that when-where-how planners ($M = 5.89$) and implementation intentions planners ($M = 5.94$) gave similarly high motivation ratings, in comparison to mental simulation planners ($M = 5.26$) who reported lower levels of motivation, $p = .03$, $d = .52$, and $p = .02$, $d = .57$, respectively. Control participants fell in between ($M = 5.63$).

Task Difficulty

Unlike in Study 1, task difficulty ratings at Time 2 did not differ significantly by planning condition, $F(3, 125) = 1.86$, $p = .14$. There was a slight trend toward when-where-how planners ($M = 3.41$) reporting lower task difficulty than control participants ($M = 3.97$). Implementation intention condition ratings ($M = 3.52$) and mental simulation condition ratings ($M = 3.73$) fell in between.

Elaboration

To determine whether any of the planning instructions resulted in more detailed plans by participants, the total number of words typed for each plan was counted. The effect of planning type on elaboration was significant, $F(2, 87) = 6.69$, $p = .002$. Post-hoc tests indicated that when-

where-how planners (M = 94.39) and implementation intention planners (M = 103.15) did not differ significantly, p = .53, but both wrote significantly more than mental simulation planners (M = 58.0), p = .008, d = .68, and p = .001, d = .85, respectively.

Plan Difficulty

For ratings of plan difficulty, no differences between the planning conditions emerged, $F(2, 87) = 1.39$, p = .25. Means were highest in the mental simulation condition (M = 3.06), and lower in the when-where-how (M = 2.66) and implementation intentions condition (M = 2.55).

Correlations

Zero-order correlations were calculated between the primary dependent variables for the entire sample (see Table 9). As in Study 1, negative affect and task difficulty were significantly and positively correlated (r = .44, p < .001), indicating that, generally, participants who rated the task as more difficult, also rated themselves as experiencing greater levels of negative feelings. Negative affect was also moderately and negatively correlated with motivation (r = -.26, p = .003), indicating that those participants who felt more negative also tended to report feeling less motivated. Plan difficulty was positively correlated with negative affect (r = .45, p < .001), indicating that participants who felt more negative about the task also tended to find making their plan more difficult. Unlike in Study 1, positive and negative affect were significantly correlated in Study 2 (r = -.22, p = .01). This small negative correlation suggests that participants who felt positive emotions about the task to a greater extent also tended to feel negative emotions about the task to a lesser extent. Positive affect ratings also correlated strongly and positively with motivation ratings (r = .51, p < .001). Positive affect and task difficulty ratings were negatively related (r = -.25, p = .004). Plan difficulty ratings were strongly and positively correlated with task difficulty ratings (r = .59, p < .001), meaning that participants who perceived the task as

more difficult, also tended to rate making their plan as more difficult. Neither plan difficulty ratings nor task difficulty ratings were significantly correlated with motivation ratings – this is contrary to the possible expectation that more difficult tasks would result in lower or higher levels of motivation, although the possibility also exists that the two processes are cancelling each other out. Elaboration (the number of typed words) was not significantly correlated with any of the five primary dependent variables.

Partial correlations controlling for the pre-plan characteristics ratings were also calculated for the complete sample and can be found in Table 10.

For the same variables, zero-order correlations were also computed within each of the planning conditions (see Table 11). For the mental simulation condition, the pattern of correlations was very similar to the overall pattern of correlations. All of the variables that were significantly correlated in the overall sample were significantly correlated in the mental simulation condition, and in the same direction. Unlike in the overall sample, ratings of positive affect and plan difficulty were significantly and negatively correlated (r = -.35, p = .04). Furthermore, the significant correlations in the mental simulation condition tended to be somewhat stronger than those in the overall sample.

In contrast to the mental simulation condition, in the when-where-how condition, negative affect and positive affect, negative affect and motivation, and task difficulty and positive affect, and plan difficulty and positive affect were not significantly negatively correlated. The lack of relationship between negative affect and motivation is interesting, as it indicates that participants in this condition were not feeling less motivated to complete the task if they felt more negative about it. As in the mental simulation condition, a significant positive

correlation emerged between positive affect and motivation (r = .52, p = .003), task difficulty and negative affect (r = .54, p = .002), and plan difficulty and negative affect (r = .56, p = .001).

Overall, fewer variables were significantly correlated in the implementation intentions condition than in any of the other planning conditions. As was the case in all conditions, positive affect ratings correlated positively and significantly with motivation ratings (r = .62, p < .001). As was also the case in the two other planning conditions, plan difficulty and task difficulty ratings were significantly and positive correlated (r = .51, p = .005). No other variables shared significant correlations. We did not observe a significant relationship between motivation and negative affect, or motivation and task difficulty, suggesting that in this condition, participants did not feel less motivated as the task was perceived as more difficult, or as they felt more negative about it. The control condition showed yet another pattern – unlike in the planning conditions, motivation and positive affect were not significantly correlated (r = .20, p = .23). The only correlation that reached significance was between task difficulty and negative affect (r = .35, p = .03).

Partial correlations within each condition were also calculated and can be found in Table 12.

Discussion

The findings of Study 1 were not replicated in Study 2. Contrary to our expectations, mental simulation planning did not result in lower levels of negative affect compared to not making a plan, or planning via implementation intentions. In fact, if anything, the trend was the opposite – implementation intention planners showed a slight trend toward less negative affect, and more positive affect than mental simulation planners. Ratings of task difficulty also did not show the same trend as Study 1. If anything, only when-where-how and implementation-

intention planners perceived the self-nominated task as less difficult after planning than those who did not make the plan, and even trended toward rating the task as less difficult than mental simulation planners. Motivation ratings and task difficulty ratings showed a similar pattern, in the sense that when-where-how and implementation intention planners showed a trend toward higher ratings of motivation than mental simulation planners.

Contrary to the expectation that implementation intention plans would be rated as more difficult to form, there was no significant differences in the ratings of plan-making difficulty. In terms of elaboration, the effect of Study 1 was reversed. This time, mental simulation planners wrote significantly less than implementation intention and when, where, how planners. Interestingly, a positive correlation between plan difficulty and negative affect emerged only for mental simulation and when-where-how planners, but not for implementation intention planners.

There are several important differences between Study 1 and Study 2 that could contribute to the differences in the findings. First, Study 2 used a different, more heterogeneous, sample that nominated qualitatively different tasks than the sample of Study 1. Whereas participants from Study 1 were undergraduates who nominated tasks primarily related to school work, the Study 2 sample was older and nominated tasks that were more of an errand/chore-like nature. The Study 2 tasks appeared to be of the kind that would take less time, and/or strenuous effort to complete, and appeared less complex than those tasks nominated in Study 1. These tasks were also more heterogeneous in nature, encompassing a variety of tasks – everything from cleaning the bathroom to filing custody papers.

Planning instructions also differed between Study 1 and Study 2. In Study 2, but not in Study 1, all participants were explicitly instructed to plan for the beginning, middle, and final steps of the task, and planners in each condition received the same number of instructions. A

possibility exists that the "separation" of the plan into three sections may have made plans more list-like, which is most likely to be potentially problematic for the mental simulation condition, where it may have interrupted any narrative flow (telling a coherent story of how one will complete the task) that mental simulation planning may naturally produce. Although the degree to which each participant planned for the beginning, middle, and end of completing the task was not formally coded, all participants included in the analyses (i.e., who met the inclusion criteria) included at least one statement pertaining to each of the three sections.

Plan length also differed dramatically between Study 1 and Study 2. Participants in Study 1 wrote over twice as much, on average, as participants in Study 2 ($t(202) = 11.94$, $p < .001$, $d = 1.72$; Study 1 $M = 199.57$ ($SD = 79.17$), Study 2 $M = 83.75$ ($SD = 55.57$)). However, elaboration was not found to moderate the results within study, when entered as a continuous variable into a regression to predict the key dependent variables in Study 1 or 2. Additionally, the correlation between elaboration and the primary dependent variables was not significant in both Study 1 and 2, making elaboration an implausible mediator.

The average level of negative affect (but not positive affect) also differed significantly between Study 1 and Study 2, such that participants in Study 1 reported greater levels of negative affect than those in Study 2 ($t(275) = 2.57$, $p = .01$, $d = .44$; Study 1 $M = 2.06$ ($SD = 0.74$), Study 2 $M = 1.82$ ($SD = 0.67$)). The possibility exists that the nomination of easier tasks in Study 2, resulted in lower baseline levels of negative affect than in Study 1. Perhaps positive effects of planning on affect (reduction in negative affect) occur only when a certain baseline level of negative affect is present.

Therefore, in the next study, we chose to return to a student sample, and to restrict the target task to an academic task.

Study 3

Study 3 was designed to examine the impact of planning on affect in a more controlled manner, by using a standardized task and setting, and homogeneous sample. This was done because the findings of Study 1 and 2 were not consistent, and may have been impacted by uncontrolled variables associated with the nomination of highly heterogeneous tasks, particularly in Study 2. In a classroom setting, students were instructed to make a detailed plan to prepare for the final exam of their first-year psychology class.

Participants were instructed to make this plan using either mental simulation or implementation planning, and were asked to plan either before (experimental group) or after rating their current feelings about the exam (control group). For practical reasons (sample size limitations) we included only two of the three planning conditions from Study 1 and 2 – the when-where-how condition was not included because we have the least empirical and theoretical information about its effects. Planning instructions were also altered to draw on what we perceived to be key strengths of each of the two types of planning. For the mental simulation condition, participants were asked to envision the complete sequence of events from beginning to end, that would be involved in preparing for the final exam, and to write down the scenario they imagined. These instructions were meant to encourage a match between what participants imagined and what they would write down. By encouraging fluency, or narrative flow, we hoped that mental simulation would be able to flow freely without potential disruption from having to separate the plan into different sections. In the implementation intentions condition, we intentionally did not include instructions about planning for each or all of the steps toward completing the goal, and instead focused participants on identifying specific situations or opportunities for action and the specific actions they would perform in those situations. As in

the mental simulation condition, we still asked them to make their plan detailed, but with less pressure to plan for every step, participants hopefully felt less restricted or frustrated if it was difficult to cover all aspects of completing the task with if-then statements.

After outlining their plan and rating their emotions, participants also rated their motivation, perceptions about the final exam, the process of planning, and reactions to the planning exercise. It was again hypothesized that participants would report lower levels of negative affect if they had planned via mental simulation than if they had not yet made a plan before rating their affect, or had planned via implementation intentions.

Method

Participants

A total of 178 participants completed the questionnaire. However, 14 participants were excluded because they did not follow the planning instructions (e.g., did not write anything, did not write a plan for preparing for the final exam), and another 17 participants were excluded because they failed an embedded attention check. The final sample consisted of 147 undergraduate students from Wilfrid Laurier University (42 men, 92 women, 13 failed to report) between the ages of 18 and 22 (M = 18.69 years, SD = 0.89 years) who participated for course credit.

Procedure

Participants were recruited from a first-year introductory psychology classroom at the beginning of class and invited to participate in a research study about planning for future tasks. After consenting to take part in the study, participants filled out a paper questionnaire that contained all instructions and measures (see Appendix C). In the study introduction, all participants were instructed to think about the future task of preparing for their final exam in the

class (the study was conducted during the last week of classes, approximately one week before the final exam). They were asked to briefly indicate how prepared they felt for the exam currently, their personal goal for the grade they wished to achieve on the exam (*desired grade*), and to write a couple of sentences about the importance of achieving their desired grade on the exam. The purpose of these questions was to get the participants thinking about the exam and to bring to mind any existing feelings about the exam. On the next page of the questionnaire, participants rated their current perceptions of the final exam: how difficult they thought achieving their desired grade on the final exam would be (1= *not at all difficult*, 7 = *very difficult*) (*difficulty*), how much control they felt they had over achieving their desired grade on the exam (1 = *no control,* 7 = *complete control*) (*control*), to what extent they expected to be able to achieve their desired grade on the exam (1 = *not at all likely,* 7 = *extremely likely*) (*expectation to achieve*), and how important it was for them to achieve their desired grade on the exam (1 = *not at all important,* 7 = *extremely important*) (*importance*). Additionally, participants were also asked to indicate the extent to which they believed that they had the capability to achieve their desired grade on the exam (1 = *not at all certain*, 7= *completely certain*) (*efficacy*), how much they thought effectively preparing for the exam determines how well they will do on the exam (1 = *strongly disagree,* 7 = *strongly agree*) (*preparation matters*), how much they thought other factors, besides how much and how effectively a person prepares contribute to exam performance (1 = *very little*, 7 = *very much*) (*other factors*), and how much they had already started to prepare for the exam (1 = *not at all*, 7 = *a great deal) (current preparation).*

Next, participants either completed a planning exercise that asked them to develop a plan for how they will prepare for the final exam (experimental condition), or rated their feelings

about the final exam (control condition). One half of participants were given instructions to plan via implementation intentions, and the other half were instructed to plan via mental simulation.

Participants randomly assigned to the mental simulation condition received the following instructions:

We will now ask you to develop a detailed plan outlining how you will prepare for the final exam. We would also like you to form and describe your plan in a particular way.

Please develop your plan by imagining the complete sequence of events, from beginning to end, that will be involved in preparing for the final exam. Try to **envision** exactly when, where, and how you will be carrying out the specific steps that you will take to prepare for the exam. Your plan should take the form of a detailed, step-by-step, scenario that describes all the specific actions that you will be taking in preparation for the exam.

In the space below, please write down the plan you envisioned as a detailed, step-by-step scenario that describes how you will prepare for the exam. Take your time (at least 5 minutes) and provide as much detail as possible. (You are welcome to continue writing on the next page if you like.)

Participants randomly assigned to the implementation intentions condition received the following instructions:

We will now ask you to develop a detailed plan outlining how you will prepare for the final exam. We would also like you to form and describe your plan in a particular way.

Please form your plan by generating "**If-then**" statements that identify a specific situation or opportunity you may have, and the specific actions you will take if it arises. These statements should have the following structure: "If situation X occurs, then I will initiate behaviour Y". One of these statements might look like this: "If it is after 8pm on a weekday, then I will read my textbook for two hours". Each of these statements should identify a specific situation or opportunity you may have, and the specific action that you will take, in preparation for the exam.

In the space below, please write your plan using "If-then" statements describing how you will prepare for the exam. Take your time (at least 5 minutes) and provide as much detail as possible. (You are welcome to continue writing on the next page if you like.).

Participants were given approximately one and one half blank pages to write their plan.

Dependent Measures

Affect. As in Study 1 and 2, participants were asked to indicate the extent to which they felt each of the 10 positive and 10 negative PANAS emotion adjectives when thinking about the exam (on a scale from 1 = *not at all*, to 5 = *extremely*). The positive affect subscale produced a reliability of α = .84, *M* = 2.56 (*SD* = .65), and the negative affect subscale produced a reliability of α = .91, *M* = 2.40 (*SD* = .69).

Participants who planned before rating their affect (experimental condition) encountered all the dependent measures in the order which follows below. Participants who rated their affect before planning (control condition) completed the motivation and perceptions about the final exam measures before making a plan, and then completed the planning process measures and reactions to the planning exercise measures after making a plan.

Motivation. Motivation was measured by (1) asking participants, "Overall, how motivated do you feel to prepare for the upcoming exam?" using a scale ranging from 1 (*not at all motivated*) to 7 (*extremely motivated*) and (2) via six items from Lockwood, Jordan, and Kunda's (2002) Motivation Scale, adapted from a focus on general schoolwork to a focus on this specific exam. Two example items were "I plan to put a lot of extra effort into preparing for this exam", and "I plan to avoid wasting time more so than usual before this exam" using a scale ranging from 1 (*not at all true)* to 7 (*very true)*. The Motivation Scale produced a reliability of α = .69, *M* = 5.15 (*SD* = .81).

Perceptions of the final exam. Participants were again asked about their perceptions of the final exam: how difficult they thought achieving their desired grade on the final exam would be (1= *not at all difficult*, 7 = *very difficult*), how much control they felt they had over achieving their desired grade on the exam (1 = no control, 7 = complete control), to what extent they expected to be able to achieve their desired grade on the exam (1 = *not at all likely*, 7 = *extremely*

likely), how important it is for them to achieve their desired grade on the exam (1 = *not at all important*, 7 = *extremely important*), and to what extent they believed that they had the capability to achieve their desired grade on the exam (1 = *not at all certain*, 7= *completely certain*).

Planning process. Participants were asked several questions concerning the process of planning. They were asked to indicate the extent to which they took into account (1 = *not at all*, 7 = *a great deal*) each of the following as they were making their plan: potential obstacles, successful past experiences in preparing for exams, unsuccessful past experiences in preparing for exams, other demands on their time, and all the specific steps they intended to take as they were making their plan. They also rated how difficult they found making their plan (1 = *not at all difficult* to 7 = *extremely difficulty*), how similar the planning process was to the way they usually plan for upcoming exams (1 = *not at all similar*, 7 = *extremely similar*) and to what extent their plan read like a coherent story that flow from beginning to end (1 = *not at all*, 7 = *very much so*).

Reactions to the planning exercise. Participants' reactions to planning were assessed with seven items. Three items asked about how the participants felt after planning, (1)"In general, did making your plan make you feel better or worse about the upcoming exam?" on scale from -5 = *much worse* to 5 = *much better*, (2)"To what extent did making your plan influence negative feelings about the exam such as nervousness or anxiety?" on a scale from -5 = *greatly increased* to 5 = *greatly decreased*, and (3)"To what extent did making your plan influence positive feelings about the exam such as optimism or enthusiasm?" on a scale from -5 = *greatly reduced* to 5 = *greatly increased*. The remaining four items asked participants to indicate, (1)"To what extent did making this plan cause you to feel like you have already made some progress toward the exam preparation?" on a scale from 1 = *not at all* to 7 = *very much so*,

(2)"To what extent do you believe that the kind of planning you engaged in is an effective way to plan for upcoming exams?" on a scale from -5 = *highly ineffective* to 5 = *highly effective*, (3)"To what extent did making your plan influence your motivation to prepare for the exam?" on a scale from -5 = *greatly reduced* to 5 = *greatly increased*, and (4)"To what extent did making your plan influence your confidence that you will achieve your desired grade?" on a scale from -5 = *greatly reduced* to 5 = *greatly increased*.

Individual differences. The final section of the questionnaire assessed participants' trait anxiety via the 20 trait items of Spielberger, Gorsuch, Lushene, Vagg, and Jacob's (1983) State-Trait Anxiety Inventory. Example items include "I feel nervous and restless" and "I worry too much over something that really doesn't matter" assessed on a scale from 1 = *almost never* to 4 = *almost always*. The scale produced a reliability of $\alpha = .92$, $M = 2.23$ ($SD = .34$). Levels of trait anxiety were not systematically impacted by the two factors or their interaction (all Fs < 0.20, all ps > .66). Finally, participants reported their gender, age, and ethnicity. Trait anxiety, gender and age did not impact the results and will therefore not be further discussed.

Results

To test for effects of planning condition (experimental - planning before any of the dependent measures vs. control - planning after the affect, motivation, and perceptions of the final exam measures) and planning type (mental simulation vs. implementation intentions) we submitted each measure to a two-way ANCOVA that included each of the pre-plan ratings as covariates. Where appropriate, these were followed up with post-hoc LSD tests. A main effect of planning condition only, on affect, motivation, or perceptions of the final exam, would indicate that those who planned differed from those who did not plan. Based on our primary hypothesis, however, we would expect an interaction effect, such that those in the experimental condition

who planned via mental simulation would display lower levels of negative affect and higher levels of positive affect than those in the control condition who planned via mental simulation, than those in the control condition who planned via implementation intentions, and compared to those in the experimental condition who planned via implementation intentions.

Pre-Plan Characteristics

Table 13 displays means and standard deviations for the pre-plan characteristics and Table 14 displays analyses for planning condition, planning type, and the planning condition x type interaction (tests of whether differences between conditions existed before participants encountered the manipulation). Preliminary analyses indicated that there were no significant differences across any of the conditions on seven of the nine pre-plan characteristics (all *p*s > .13). However, there was a main effect of planning condition on the desired grade variable, $F(1, 143) = 4.18$, $p = .04$, such that participants in the experimental condition ($M = 82.19$, $SE = .802$, 95% CI [80.60, 83.78]) rated their desired grade on the exam as higher than participants in the control condition ($M = 79.63$, $SE = .962$, 95% CI [77.73, 81.53]). For the other factors variable, there was a two-way interaction effect, $F(1, 143) = 5.17$, $p = .02$, and post-hoc tests indicated that participants in the control condition who planned via implementation intentions ($M = 5.04$, $SE = .274$, 95% CI [4.50, 5.58]) indicated that other factors, besides how much and how effectively one prepares, mattered more than participants in the control condition who planned via mental simulation ($M = 4.28$, $SE = .247$, 95% CI [3.79, 4.77]), $p = .04$, $d = .57$. No other differences reached significance (all *p*s > .08). These findings suggest that a failure of random assignment may have occurred. Because the pre-plan task characteristics could all be reasonably expected to impact feelings about the task, these variables were included as covariates. Estimated

means are reported; in addition, standard errors and confidence intervals can be found in Table 15, and effect sizes for the analyses can be found in Table 16.

Affect

For negative affect, there was no main effect of planning condition, $F(1, 133) = 0.47$, $p = .49$, planning type, $F(1, 146) = 0.33$, $p = .57$, and contrary to our main hypothesis, there was also no planning condition x planning type interaction effect, $F(1, 133) = 0.51$, $p = .48$. For positive affect, there was no main effect of planning condition, $F(1, 133) = 0.00$, $p = .99$, planning type, $F(1, 133) = 0.02$, $p = .90$, nor a planning condition x planning type interaction, $F(1, 133) = 0.45$, $p = .73$.

Motivation

For the item assessing overall motivation to prepare for the final exam, there was a marginally significant two-way interaction between planning condition and planning type, $F(1, 133) = 2.88$, $p = .09$. In the experimental condition, participants who planned via mental simulation ($M = 5.07$) did not differ from those who planned via implementation intentions ($M = 4.87$), $p = .77$. In the control condition, those who planned via mental simulation ($M = 5.12$), also did not differ significantly from those who planned via implementation intentions ($M = 5.61$), $p = .12$. There was also a marginal main effect of planning condition, $F(1, 133) = 3.48$, $p = .06$, where those in the experimental condition ($M = 4.97$) rated their motivation as marginally lower than those in the control condition ($M = 5.36$), and no effect of planning type, $F(1, 133) = 0.53$, $p = .47$.

On the six-item exam motivation scale, there was no effect of planning condition, planning type, nor a planning condition x planning type interaction (all Fs < 0.60, all ps > .46).

Perceptions of the Final Exam

Remember that all of the pre-plan characteristic ratings were assessed again (after planning for those in the experimental condition, and before planning for those in the control condition). The following variables: control, expectation to be able to achieve, and efficacy were all not impacted by the planning condition or planning type factor, or their interaction (all *F*s < 1.70, all *p*s > .19). There was no main effect of planning condition, nor a planning condition x planning type interaction for the difficulty and importance variables (all *F*s < 1.80, all *p*s > .18), but there was a marginally significant effect of planning type for difficulty, $F(1, 133) = 3.02$, $p = .09$, and for importance, $F(1, 133) = 3.32$, $p = .07$. Mental simulation planners ($M = 4.46$) rated achieving the desired grade on the exam as marginally less difficult than implementation intentions planners ($M = 4.73$), and rated the importance of achieving the desired grade on the exam ($M = 5.66$) as marginally lower than implementation intention planners ($M = 5.86$).

Planning Process

Eight items assessed perceptions of the planning process, and for these items it would be reasonable to expect effects of planning type, because the measures always came after plans were generated. Analyses of these items revealed several main effects of planning type (see Tables 7, 8). As expected, implementation intention planners reported that they took obstacles into account to a greater extent than mental simulation planners ($p = .07$). Those who engaged in mental simulation planning indicated that they considered successful past experiences ($p = .02$) and considered all the specific steps they would take ($p = .10$) to a greater degree than did those who engaged in implementation intention planning. In addition, participants in the mental simulation conditions rated the planning process as less difficult ($p = .05$), more similar to their usual planning ($p = .02$), and more like a coherent story ($p < .001$) than did those in the implementation intentions condition. There were no main effects of planning condition and no

planning type x planning condition interactions, suggesting that differences in the planning process were not moderated by when in the procedure the planning took place.

Reactions to the Planning Exercise

Participants' reactions to planning were assessed with seven items. These items shared a focus on the perceived value or effectiveness of the planning exercise and thus were combined into an overall index indicating the positivity of the participants' reactions ($\alpha = .81$, $M = 1.68$, $SD = 1.14$). Additionally, each of the items was analyzed individually.

There were several main effects of planning type suggesting that participants had more positive perceptions of the planning exercise in the mental simulation condition than in the implementation intentions condition. The analysis of the positivity index revealed that, in general, participants viewed mental simulation planning more positively than implementation intention planning ($p = .004$). More specifically, participants in the mental condition reported that the planning exercise made them feel better about the exam ($p = .001$), increased their confidence ($p = .004$), and was effective ($p = .03$) to a greater degree than those in implementation intentions condition. Again these differences across the planning types did not interact with planning condition, and there were no main effects of planning condition.

Correlations

Zero-order correlations were calculated between the primary dependent variables for the entire sample (see Table 17). As in Study 1 and 2, negative affect and task difficulty (difficulty to achieve the desired grade) were significantly and positively correlated ($r = .25$, $p = .003$), indicating that, generally, participants who rated the task as more difficult, also rated themselves as experiencing greater levels of negative feelings. Small, but significant, positive correlations also emerged between task difficulty and importance, considering potential obstacles, and the 6-

item motivation scale. Task difficulty was also positively correlated with plan difficulty (r = .16, p = .049), albeit to a lesser extent than in Studies 1 and 2. Plan difficulty was not correlated with negative affect, indicating that participants who felt more negative about the task did not tend to report making their plan as more difficult.

Different from both Study 1 and 2, in Study 3 positive and negative affect were significantly and positively correlated (r = .20, p = .014). This small correlation suggests that participants who reported more positive emotions also tended to some extent to report more negative emotions. Negative affect also correlated positively with the motivation scale (r = .33, p < .001) (but not the general motivation item), and importance (r = .32, p < .001). Considering potential obstacles and reactions to the planning exercise did not significantly correlate with negative affect.

Positive affect showed a similar pattern as negative affect in terms of being positively correlated with the motivation scale (r = .23, p = .006) and importance (r = .23, p = .004), and was also correlated positively with the overall motivation item (r = .42, p < .001). Additionally, positive affect showed a moderately strong positive correlation with the reactions to planning index (r = .41, p < .001), indicating that generally, participants who gave higher ratings on the positive affect adjectives also gave higher ratings of the degree to which they liked and perceived the planning exercise as effective.

Unlike in Study 2, negative affect was not correlated negatively with the single motivation item (r = .00, p = .99) indicating that feeling more negative emotions did not relate to general feelings of motivation. Interestingly, for the six-item motivation scale, a moderate positive correlation emerged between negative affect and motivation, indicating that participants who gave higher ratings on the negative emotion adjectives also tended to rate their motivation

to prepare for the exam more highly. The motivation scale and general motivation item were moderately correlated ($r = .37$, $p < .001$). Both motivation measures exhibited significant, moderate positive correlations with importance and the reactions to planning index. Only the motivation scale shared small, but significant, positive correlations with difficulty ($r = .19$, $p = .023$) and potential obstacles ($r = .18$, $p = .027$).

Task difficulty ratings shared a positive relationship with the consideration of potential obstacles ($r = .17$, $p = .043$). Obstacle consideration did not relate significantly to plan difficulty.

Partial correlations controlling for pre-plan characteristic ratings for the complete sample can be seen in Table 18.

For the same variables, zero-order correlations were also computed within each of the planning conditions (see Table 19). Generally speaking, the experimental implementation intentions condition exhibited the smallest number of significant relationships between variables, and this was particularly true for relationships between the primary dependent variables (affect, motivation, and perceptions of planning) and the secondary dependent variables (planning process and reactions to planning) variables. Partial correlations were also computed within each of the planning conditions and can be found in Table 20.

Discussion

Contrary to the findings of Study 1, Study 3 did not reveal any effects of planning on affect. It was not the case that mental simulation planners exhibited lower levels of negative affect or increased levels of positive affect following planning, compared to those who did not make a plan, or compared to those who planned via implementation intentions. In Study 3, mean levels of negative affect were quite similar to the mean levels of negative affect in Study 1, so baseline differences in overall negativity would not be expected to influence the results. Whether

a person planned or did not plan, or the type of planning they used, also did not appear to have a clear effect on self-report motivation.

Task difficulty ratings also did not vary by condition – planners did not rate preparing for their final exam as less difficult than those who had not planned. As predicted after Study 1, and in contrast to Study 2, in Study 3 implementation intention planners did rate their plans as more difficult to form than mental simulation planners. Thus, even though we may have expected those who found making their plan as less difficult to rate the task as less difficult (a fluency effect) based on the findings of Study 1, this was not found to be the case in Study 3.

Those who planned via implementation intentions also reported considering obstacles to a greater extent than those who planned via mental simulation. This result makes sense to the extent that the if-then format of implementation intentions lends itself particularly well to the nomination of a potential obstacle (the "if" part) and how to overcome that obstacle (the "then" part). Mental simulation planners reported considering successful past experiences to a greater extent than implementation intention planners, and this finding also makes sense because we would expect a mental simulation planner to be more likely to imagine a successful outcome, and this imagination could result directly from memories of past successful experiences, or bring forth such memories, whereas implementation intention planners are making new action plans, which would be less likely to elicit these kinds of memories.

These two findings raise questions about whether mental simulation planning leads to the formation of a plan that is more optimistic and less realistic than implementation intention planning. Previous research (Min & Arkes, 2012; Sanna & Schwarz, 2004) does suggest that plans that are easier to form are more likely to lead to optimistic prediction bias (the planning fallacy) than plans that are difficult to form, so if mental simulation planning is (perceived as)

less difficult than implementation intention planning, it may be more likely to lead to prediction bias. Although not examining mental simulation planning specifically, in two studies, Buehler and Griffin (2003) had participants plan for a future task by picturing and then describing, in detail, the steps involved in completing it. Participants were asked to provide a complete scenario, from beginning to end, of how completing the task would unfold. Their planning manipulation bears great resemblance to mental simulation planning manipulations generally, and particularly to the one we used in Study 3. Compared to a no plan control condition, they found that participants who planned using these instructions, exhibited more optimistic completion predictions (predicted that they would finish the task earlier), and greater overall optimistic bias as a result of their optimistic predictions (actual completion times did not differ). Their findings suggest that compared to not making a plan, mental simulation-type planning may result in unrealistically optimistic plans. Examining implementation intentions specifically, Koole and Van't Spijker (2000) found that compared to not making a plan, the formation of implementation intentions to lead to increased optimism in completion predictions. However, this increase in optimism was exceeded by an increase in actual rates of goal completion, resulting in a net reduction in unfounded optimism. Thus, according to these findings, both types of planning may lead to optimistic predictions, but perhaps implementation intention planners are less likely to exhibit an overall optimistic bias by finishing the task planned for more quickly. Note that these findings speak only to optimism or bias relevant to when tasks will be completed, but not to how well, or how in line with the original proposed actions or steps the tasks will be completed. Furthermore, because mental simulation and implementation intention plans were not compared in the same study in this context, at least as far as we know, it is difficult to draw any strong conclusions.

Overall, participants seemed to show a preference for mental simulation planning. Mental simulation participants reported feeling significantly better about the exam as a result of planning and reported greater positive feelings about the exam as a result of planning than implementation intention participants. Mental simulation planning was also rated as more effective for exam preparation than implementation intention planning. Whereas the two types of planning have been compared in terms of the mindsets they induce and the mental representations generated by their use (see Wuerz, Gollwitzer, & Greitemeyer, 2007), whether (or when) one of the two is objectively more effective for goal achievement/performance is currently unknown (for a discussion see Faude-Koivisto, Wuerz, & Gollwitzer, 2009).

In this study, implementation intention planners did rate their plans as more difficult to form than mental simulation planners. Given the general preference for mental simulation planning observed in ratings of the reactions to planning variables, this finding raises the question of whether the ease with which a detailed plan can be formed, may also influence people's feelings about the task being planned for. Therefore, we tested (using the PROCESS Macro for SPSS, Model 4) whether plan difficulty, plan similarity, and plan coherence mediated the effect of planning type on the positive planning reactions index, controlling for planning condition and the pre-plan characteristics. Plan similarity and plan coherence were found to partially mediate the effect of planning type on planning reactions, but plan difficulty was not (for the relevant statistics see Table 21). In addition, we tested the reverse mediation model, that is, whether positive reactions to planning mediated the effect of planning type on plan difficulty, plan similarity, and plan coherence. The effect of planning type on plan similarity and plan coherence, but not on plan difficulty, was found to be partially mediated by positive reactions to planning (see Table 22).

These findings suggest (1) that the effect of the planning exercise on participants' overall positive feelings about the exam depended partially on how similar the planning exercise was to how they usually plan and how much the plan they created read like a coherent story (but not on how difficult it was to form the plan), or (2) that the effect of the planning exercise on participants' perceptions of how similar the planning exercise was to how they usually plan or how much the plan flowed like a coherent story (but not how difficult it was to form the plan), depended partially on their overall positive feelings toward the exam. It seems somewhat more plausible that participants felt more positive as a result of forming a more similar and coherent plan than judging the plan as more coherent and similar as a result of feeling more positive. Plan difficulty, similarity, and coherence/flow were also assessed before the reaction to planning measures.

The fact that affect ratings immediately after planning and self-perceptions of feelings after planning showed a different pattern may suggest that the two differ in important ways. Perhaps this difference indicates that people are more likely to perceive benefits of planning for affect after reflection about their plan.

In terms of trying to explain the difference between the findings of Study 1 and Study 3, one of the potential explanations that remains, is that planning has a beneficial impact on affect only for people who value planning. Whereas in Study 3, all students in the class were asked to take part in the study, in Study 1, participants could in some sense self-select into the study. The study ad (on the school's on-line system) did indicate that participants would be asked to plan for a future task, so perhaps only those who already had some sort of preconceived notion about the benefits of planning decided to sign-up for and participate in the study.

General Discussion

Overall, the findings of Studies 1 to 3 did not support our primary hypotheses. We did not find consistent evidence that planning for an important future task had immediate benefits for negative (or positive) feelings about that task. Whereas the results of Study 1 were suggestive of a potential reduction in negative affect as a result of planning, particularly for mental simulation and when-where-how planners, Studies 2 and 3 failed to replicate this result. Contrary to the hypothesis that mental simulation planning in particular, should be beneficial for increasing levels of positive and decreasing levels of negative affect about the task being planned for, we did not find consistent differences between mental simulation planners and controls, or mental simulation planners and implementation intention planners. In fact, if anything, in Study 2, a trend was observed toward more positive affect for implementation intention planners than mental simulation planners. No differences in terms of positive or negative affect were found between no plan controls, mental simulation, and implementation intention planners in Study 3.

The novel finding on task difficulty ratings in Study 1, that perceptions of task difficulty decreased as a result of planning for all planning types, was also not consistently supported. The result was not replicated in Study 2 or 3: planners did not differ depending on the type of plan they made, or compared to those who did not make a plan on task difficulty ratings.

Studies 2 and 3 also measured self-report levels of motivation. No consistent differences between those who planned and those who did not plan, or between mental simulation and implementation intention planners emerged. This finding is surprising in light of previous evidence that both of these types of planning can boost motivation (e.g., Faude-Koivisto, Wuerz, & Gollwitzer, 2009; Gollwitzer, 1999; Gollwitzer & Sheeran, 2006; Taylor et al., 1998). It may be that motivation was not increased by planning in the present studies because of one (or a combination) of the following reasons: a) it was measured via self-report and not behavioral

measures, b) it was measured after participants gave their affect ratings of the task (and thinking about how they felt may have impacted their motivation judgments), and c) in Study 2, it was measured via a single item (multiple targeted items inquiring about specific behavioral intentions may be necessary to capture changes in motivation).

In terms of differences between the two primary plan types examined here, there are a few interesting findings from Study 3 worthy of discussion. When asked about their reactions to the planning exercise, mental simulation planners indicated feeling better about preparing for the final exam as result of planning than implementation intention planners, mental simulation planners indicated feeling more positive about preparing for the exam than implementation planners, and mental simulation planners rated the planning type they engaged as a more effective for preparing for the final exam than implementation intention planners. We suspect that these findings reflect, at least in part, the fact that mental simulation planning (as defined in this research) is more similar to how people usually form their plans than implementation intention planning and that mental simulation planning lends itself better to the formation of a detailed and coherent plan outlining all the steps to completion from start to finish (as supported by the partial mediation findings in Study 3).

Another important point to note is that the context and way in which we asked participants to form implementation intentions differs from the context and way in which they are typically used. Specifically, implementation intentions are typically used to plan for tasks or goals which require habit formation/repetition of one or a few behaviors at regular intervals, such as health goals (e.g. exercising regularly, choosing healthy foods, remembering to take medication), but they have also been applied in other domains (academic, financial) to foster goal achievement by encouraging the regular performance of actions that would lead to success

(e.g., reading one's textbook at the end of every day, putting away money into a savings account at the end of every week). As was the case in our studies, typical instructions emphasize that the plans should be as specific and detailed as possible, but do not explicitly ask participants to plan out each or all of the steps toward completing the goal or task. Aside from being unusual, asking participants to make a plan for completing their entire task using implementation intentions could have significant consequences. For example, it may be more challenging and difficult (not supported in Study 2, but supported by Study 3) to write a whole plan using primarily if-then statements. Participants may find that some aspects of getting the task done are not well suited for writing out in an if-then format, so they may not have written these parts down or may have even neglected to elaborate on them in their thoughts. Thus, the possibility exists that participants may have made less complete plans; this was supported by shorter plan length for implementation intention planners in Study 1, but not in Study 2, and partially supported by lower plan coherence and consideration of all the steps (self-report ratings) in the implementation intentions condition in Study 3. If the planning process was perceived as awkward, or the plan was less complete than it might have otherwise have been, this could have produced some greater level of uncertainty (compared to the other planning conditions) about if/when/how the task would actually be completed, potentially failing to reduce uneasy feelings about the task or decreasing feelings of confidence about being able to complete the task. In terms of promoting the automatic link between the critical situation (the "if") and identified goal-striving action (the "then"), making a large number of if-then statements could hinder how well participants end up remembering those statements and thus effect how much critical situations, when they arise in the environment, would actually cue the planned action. This is not necessarily consequential for immediate affect ratings, but might impact task performance later

down the road. Furthermore, the restrictive nature of if-then statements could have been frustrating for some participants causing a potential increase in negative affect.

Masicampo and Baumeister (2011) found no differences in negative and positive affect between those who planned and those who did not plan, for an important and yet-to-be completed future task. With the exception of the reduction in negative affect found for mental simulation and when-where-how planners, compared to implementation planners and no plan controls, in Study 1, the findings of our three studies are in line with this finding. That is, across two studies, we saw little evidence that forming a plan influenced people's current affect.

The findings of Study 1, but not Study 2 or 3, are in line with that of Pham and Taylor (1999), who reported lower levels of negative affect for mental simulation planners compared to controls, and that of Armitage and Reidy (2011), who found decreased levels of anxiety as a result of mental simulation planning. In contrast to Greitemeyer and Würz (2006), who reported increased levels of positive affect (but no changes in negative affect) as a result of mental simulation planning, in none of our three studies did we find changes in positive affect as a result of planning (any type).

Because planning for the future may be regarded as an active coping strategy, we can compare the results of our three studies to the results of the three studies analyzed by Ben-Zur (2009). She found a positive correlation between positive affect and active coping and a negative relationship between negative affect and coping. Again, with the exception of Study 1, which suggested a negative relationship between planning and negative affect, our findings for positive and negative affect across Studies 1 to 3 do not lend support to the idea that planning has immediate benefits for feelings about important future tasks.

Returning to discussion about the relationship between positive and negative affect, in Study 1 and 2, positive and negative affect were generally not correlated (except in the when-where-how planning condition in Study 1, where they were negatively correlated). In Study 3, overall, positive and negative affect were weakly and positively correlated, but this positive correlation appeared to occur primarily in the implementation intentions control condition, as the correlation was non-significant in the three other conditions. For one condition in Study 3, then, it appeared that those participants who experienced greater levels of positive affect also experience greater levels of negative affect. Additionally, in all three studies, a factor analysis clearly yielded a two-factor structure, with the negative adjectives loading onto one factor, and the positive adjectives loading onto another. Overall, our results provide some limited support for the independence of the positive and negative affect. Keep in mind though that the PANAS is not necessarily a fair test of whether positive and negative affect are bipolar opposites. As pointed out by Russell and Carroll (1999), the positive and negative adjectives of the PANAS are not direct opposites, or even closely match one another, and reflect primarily higher arousal-type emotion words, as opposed to a balance of high (e.g., enthusiastic, hostile) and low (e.g., calm, depressed) arousal words.

Thinking about levels of positive and negative affect in another way, one potential explanation for our findings that we cannot rule out is that some type of emotion washout occurred – that is, that planning both decreased and increased negative affect (and potentially also positive affect). For example, it is possible that planning decreased negative feelings in the sense that participants felt less uneasy or worried about what they needed to do and how they would do it, but that other negative feelings, such as dread about all the work that this would require, brought the level of negative affect back up to the same levels as for those participants

who did not plan. Based on this explanation one might suspect different patterns of results for different emotion adjectives, such as "scared" and "irritable", but this was not the case. In additional exploratory analyses, we also attempted to group the emotion adjectives in meaningful ways, for example, approach-avoidance (motivated – dejected), but these groupings did not yield systematic effects.

Limitations and Future Directions

Although we examined individual differences in trait anxiety (which did not moderate the results) in Study 3, we did not examine the impact of other individual difference variables that may influence effects of planning on affect. For example, the possibility still exists that only "planners" (e.g., those high in the propensity to plan, those who view planning as important) benefit affectively from planning. Similarly, people high in need for control may find planning particularly useful, and may be more likely to use planning to regulate negative feelings. Related to this idea, Carver, Scheier, and Weintraub (1989) suggested that preferences for different coping styles may vary depending on personality/individual difference variables. They found that a preference for active coping and planning was associated positively with optimism, self-esteem, hardiness, and Type A personality, and negatively with trait anxiety. In terms of preferences for mental simulation vs. implementation intention planning, Faude-Koivisto, Wuerz, and Gollwitzer (2009) suggest that people high in need for closure may be more likely to prefer implementation intention planning, whereas people low in need for closure may prefer mental simulation planning because it is more open and flexible. Future research may benefit from systematically examining whether these individual differences play a role in moderating the relationship between planning and affect.

Another potentially important variable, plan earnestness (Masicampo & Baumeister, 2011), was not assessed across the three studies. Particularly in Study 3, where participants were not given the opportunity to pick a task of their own choosing, plan earnestness may have played a role. If participants did not create a plan which they ultimately intended to execute, they would be unlikely to feel different about the task as a result of planning.

Because feelings about the task were always measured immediately after planning, we cannot rule out the possibility that a different pattern of results may have been observed if there was a delay between planning and affect ratings. It is possible that the affective benefits of planning are not immediate, but that it takes some time for participants to feel reassured by their plan. Perhaps negative feelings of anxiety or distress are actually elicited during the process of making the plan, when the necessary steps toward completing the task are realized, and these feelings do not dissipate right away.

Also related to how affect was measured, we asked participants how they felt about the task, but we could have also asked participants how they felt right now. We chose to reference the task because we thought asking about the task itself might be more likely to lead participants to reflect at least very briefly about how they feel now that they have made their plan, as opposed to reporting how they felt right now, which could be more likely to reflect feelings of tension or stress spilling over from the plan-making process (as this process may have been difficult and possibly even frustrating for some participants). In other words, instead of capturing feelings about the process of planning making, we wanted to capture how participants would feel as a result of making their plan. On the other hand, asking about the task could have prompted participants to think back to their original feelings about the task when they described it at the beginning of the study. We also acknowledge that assessing affect in this way could have created

demand characteristics, as participants may have inferred that the point of making the plan was to get them to feel better about the task.

The possibility that participants did not feel sufficiently stressed, anxious, or worried, about the tasks they nominated, for planning to have substantial emotion regulation benefits cannot be entirely ruled out either. Mean levels of negative affect prior to planning were just below the scale midpoint for Study 1, well below the midpoint for Study 2, and right around the midpoint for Study 3. Perhaps initially high levels of negative affect would make it more likely to observe changes in affect as a result of planning, or perhaps participants would have to actively identify the task as a challenge, threat, or problem to be overcome or coped with, in order for benefits to be observed.

Conclusion

The findings of three studies investigating the effects of planning for important future tasks on negative and positive emotions did not clarify the relationship between planning and affect. Under the conditions present in our experiments, mental simulation planners were not found to experience consistently lower levels of negative affect, or higher levels of positive affect, as a result of planning compared to participants who did not make a plan or planned via implementation intentions. Future research will be need to explicate whether, when, and how the creation of a plan can serve as an effective mood regulation strategy.

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Appendix A1

Study 1 Materials – Introduction

We would like you to think of an important task you need to complete in the next week or two that is not part of your regular routine (that you do not complete on a daily or weekly basis).

Select a task for which you do not yet know when, where, or how you will complete it, and that you have felt concerned about completing lately.

We would like you to provide us with information about the task you have thought of. Please, using point form, describe this task, explain its importance, and what will happen if you do not complete it.

Try to list at least 3 points in each box. The "next" button to advance to the next screen will not appear for 2 minutes to ensure that enough detail is provided, but you are certainly encouraged to take more time if you wish.

Task Description:

Importance:

Consequences if task is not completed:

Appendix A2

Study 1 Materials – Pre-Plan Characteristics

How difficult do you think completing the task will be?

Not at all difficult						Extremely Difficult
○	○	○	○	○	○	○

How much control do you feel you have over completing the task?

No Control						Complete Control
○	○	○	○	○	○	○

To what extent do you expect to be able to complete the task?

Not at all likely to complete						Extremely Likely to Complete
○	○	○	○	○	○	○

Please rate the importance of completing the task:

Not at all important						Extremely Important
○	○	○	○	○	○	○

Appendix A3

Study 1 Materials – When-Where-How Condition Plan Instructions

Next, we are going to ask that you make a specific plan to complete the task. Please indicate in detail WHEN, WHERE, and HOW you will complete the task. Try to be as detailed as possible and write at least 3 sentences in each box.

It is very important that you take your time when writing out your plans. The "next" button to advance to the next screen will not appear for 5 minutes to ensure that enough detail is provided, but you are certainly encouraged to take more time if you would like.

WHEN (please write at least 3 statements about when you will be completing the task)

WHERE (please write at least 3 statements about where you will be completing the task)

HOW (please write at least 5 statements about how you will be completing the task)

Appendix A4

Study 1 Materials – Implementation Intentions Condition Plan Instructions

Next, we are going to ask that you make a specific plan to complete the task. Please try to formulate your plan using specific if-then statements (when situation x arises, then I will perform response y). For example, “if it is after 8pm on a weekday, then I will read my textbook for two hours”. Try to be as detailed as possible and write at least 3 sentences in each box.

It is very important that you take your time when writing out your plans. The "next" button to advance to the next screen will not appear for 5 minutes to ensure that enough detail is provided, but you are certainly encouraged to take more time if you would like.

Your first set of if-then statements (when situation x arises, then I will perform response y):

Your second set of if-then statements (when situation x arises, then I will perform response y):

Your third set of if-then statements (when situation x arises, then I will perform response y):

Appendix A5

Study 1 Materials – Mental Simulation Condition Plan Instructions

Next, we are going to ask that you make a specific plan to complete the task. Please VISUALIZE in detail how you will complete the task. Try to be as detailed as possible and write at least 3 sentences in each box.

It is very important that you take your time when writing out your plans. The "next" button to advance to the next screen will not appear for 5 minutes to ensure that enough detail is provided, but you are certainly encouraged to take more time if you would like.

Picture the preparations you would make and the first steps you would take toward completing the task. Literally visualize what working on the task would be like.

Please try to write down, in as much detail as you can, what preparations and first steps you imagined.

Picture problems you may encounter on the way to completing your task and what you would need to do to overcome them. Visualize the actions you would need to take in order to overcome problems you encounter.

Please try to write down, in as much detail as you can, what problems and solutions you imagined.

Picture the different steps involved in completing the task, and imagine where and when these would be taking place. Visualize what the path to completing the task looks like.

Please try to write down, in as much detail as you can, the steps or path you imagined.

Appendix A6

Study 1 Materials – Affect Measure (PANAS; Watson, Clark, & Tellegen, 1988)

Planning Conditions Instructions:

Now that you have made a specific plan to complete the task, we would like to ask how you feel about the task you wrote about.

Please indicate to what extent you feel the following emotions when thinking about the task you described:

Control Condition Instructions:

We would like to ask how you feel about the task you wrote about.

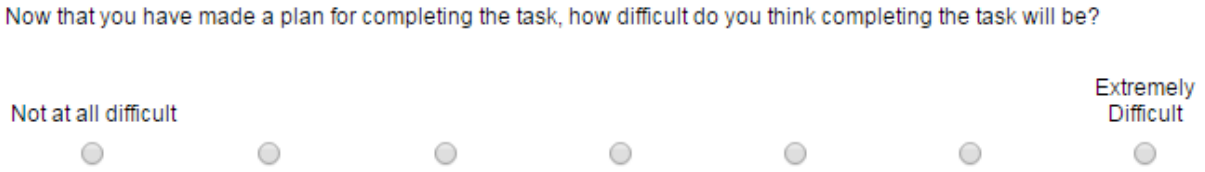
Please indicate to what extent you feel the following emotions when thinking about the task you described:

	Very Slightly or Not at all	A little	Moderately	Quite a Bit	Extremely
Confident	○	○	○	○	○
Anxious	○	○	○	○	○
Content	○	○	○	○	○
Nervous	○	○	○	○	○
Interested	○	○	○	○	○
Distressed	○	○	○	○	○
Excited	○	○	○	○	○
Upset	○	○	○	○	○
Strong	○	○	○	○	○
Guilty	○	○	○	○	○
Scared	○	○	○	○	○
Hostile	○	○	○	○	○
Enthusiastic	○	○	○	○	○
Proud	○	○	○	○	○
Irritable	○	○	○	○	○
Alert	○	○	○	○	○
Ashamed	○	○	○	○	○
Inspired	○	○	○	○	○
Determined	○	○	○	○	○
Attentive	○	○	○	○	○
Jittery	○	○	○	○	○
Active	○	○	○	○	○
Afraid	○	○	○	○	○

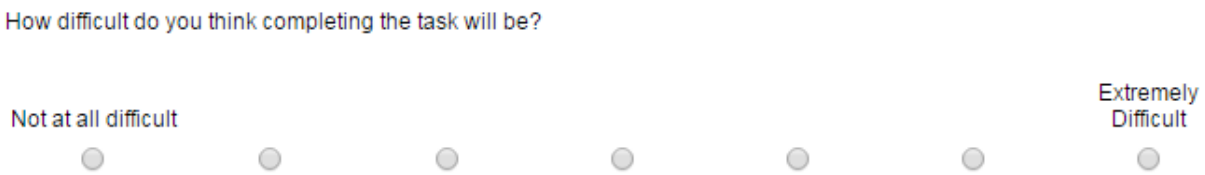
Appendix A7

Study 1 Materials – Task Difficulty Measure

Planning Conditions:



Control Condition:



Appendix A8

Study 1 Materials – Demographics

Earlier, we asked some people to make a specific plan to complete the uncompleted task they described.

Please select the option which most closely describes the instructions you received.

- ○ Make a plan using if-then statements of how you will complete the task.
- ○ Make a plan indicating when, where, and how the task will be completed.
- ○ Make a plan by visualizing how you will complete the task.
- ○ I was not asked to make a plan.

Last, please answer the following demographic questions:

What is your gender:

- ○ Man
- ○ Woman
- ○ Other Identity

What is your ethnicity?

- ○ Caucasian
- ○ Asian
- ○ Black
- ○ East Indian
- ○ Aboriginal
- ○ Other

Please indicate your age:

What you think this study was about? Please explain.

Appendix B1

Study 2 Materials – Introduction

We would like you to think of an important task you need to complete in the next week or two that is not part of your regular routine, i.e., one that you do not complete on a daily or weekly basis. (If you cannot think of a task that you need to complete in the next week or two, you may choose one that you need to complete within the next month.)

Select a task for which you do not yet know exactly when, where, or how you will complete it, and that you have felt concerned about completing lately.

We would like you to provide us with information about the task you have thought of. Please, using point form, briefly describe this task and explain its importance.

Task Description:

Importance:

(For e.g., you may want to talk about the positive consequences of completing the task, and/or the negative consequences of not completing it.)

Appendix B2

Study 2 Materials – Pre-Plan Characteristics

How difficult do you think completing the task will be?

Not at all difficult			Moderately Difficult			Extremely Difficult
1	2	3	4	5	6	7

How much control do you feel you have over completing the task?

No Control			Moderate Control			Complete Control
1	2	3	4	5	6	7

To what extent do you expect to be able to complete the task?

Not at all likely to complete					Extremely Likely to Complete
1	2	3	4	5	7

Please rate the importance of completing the task:

Not at all Important			Moderately Important			Extremely Important
1	2	3	4	5	6	7

Appendix B3

Study 2 Materials – When-Where-How Condition Plan Instructions

Next, we are going to ask you to make a specific plan to complete the task.

Please try to formulate a detailed plan by writing about **WHEN, WHERE**, and **HOW** you will complete the task.

It is very important that you take your time when writing out your plans. The arrows button to advance to the next screen will not appear for 4 minutes to ensure that everyone writes for at least 4 minutes, but you are certainly encouraged to take more time.

Please plan how you will complete the **initial steps** of the task and refer to when, where, and how this will occur:

Please plan how you will complete the **middle steps** of the task and refer to when, where, and how this will occur:

Please plan how you will complete the **final steps** of the task and refer to when, where, and how this will occur:

Appendix B4

Study 2 Materials – Implementation Intentions Condition Plan Instructions

Next, we are going to ask you to make a specific plan to complete the task.

Please try to formulate a detailed plan using as many **IF-THEN statements** (if situation x arises, then I will perform response y) as possible. Here is a couple of examples of if-then statements: “If it is after 8pm on a weekday, then I will read my textbook for two hours”, or “If I finish picking up the supplies at the store, then I will start painting my bathroom that same day".

It is very important that you take your time when writing out your plans. The arrows button to advance to the next screen will not appear for 4 minutes to ensure that everyone writes for at least 4 minutes, but you are certainly encouraged to take more time.

Please plan how you will complete the **initial steps** of the task using if-then statements:
(If ....., then .....)

Please plan how you will complete the **middle steps** of the task using if-then statements:
(If ....., then .....)

Please plan how you will complete the **final steps** of the task using if-then statements:
(If ....., then .....)

Appendix B5

Study 2 Materials – Mental Simulation Condition Plan Instructions

Next, we are going to ask you to make a specific plan to complete the task.

Please **VISUALIZE** in detail how you will complete the task. Before writing anything, please take some time to **IMAGINE** the steps involved in completing the part of the task you have in mind. Once you have pictured the steps involved, write down what you imagined.

It is very important that you take your time when writing out your plans. The arrows button to advance to the next screen will not appear for 4 minutes to ensure that everyone writes for at least 4 minutes, but you are certainly encouraged to take more time.

Please visualize how you will complete the **initial steps** of the task.

Please write down how you imagined completing the initial steps of the task:

Please visualize how you will complete the **middle steps** of the task.

Please write down how you imagined completing the middle steps of the task:

Please visualize how you will complete the **final steps** of the task.

Please write down how you imagined completing the final steps of the task:

Appendix B6

Study 2 Materials – Affect Measure (PANAS; Watson, Clark, & Tellegen, 1988)

Planning Conditions Instructions:

Now that you have made a specific plan to complete the task, we would like to ask how you feel about the task you wrote about.

Please indicate to what extent you feel the following emotions when thinking about the task you described:

Control Condition Instructions:

We would like to ask how you feel about the task you wrote about.

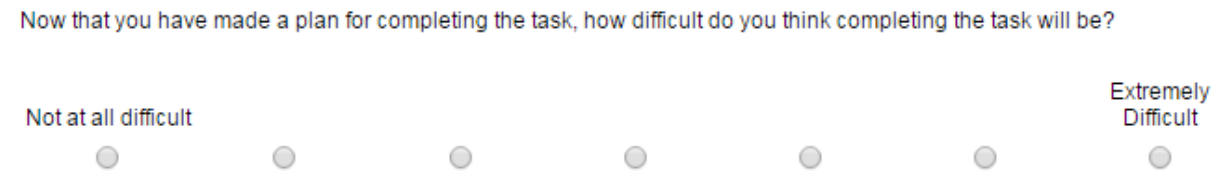
Please indicate to what extent you feel the following emotions when thinking about the task you described:

	Very Slightly or Not at all	A little	Moderately	Quite a Bit	Extremely
Confident	○	○	○	○	○
Anxious	○	○	○	○	○
Content	○	○	○	○	○
Nervous	○	○	○	○	○
Interested	○	○	○	○	○
Distressed	○	○	○	○	○
	Very Slightly or Not at all	A little	Moderately	Quite a Bit	Extremely
Excited	○	○	○	○	○
Upset	○	○	○	○	○
Strong	○	○	○	○	○
Guilty	○	○	○	○	○
Scared	○	○	○	○	○
Hostile	○	○	○	○	○
	Very Slightly or Not at all	A little	Moderately	Quite a Bit	Extremely
Enthusiastic	○	○	○	○	○
Proud	○	○	○	○	○
Irritable	○	○	○	○	○
Alert	○	○	○	○	○
Ashamed	○	○	○	○	○
Inspired	○	○	○	○	○
	Very Slightly or Not at all	A little	Moderately	Quite a Bit	Extremely
Determined	○	○	○	○	○
Attentive	○	○	○	○	○
Jittery	○	○	○	○	○
Active	○	○	○	○	○
Afraid	○	○	○	○	○

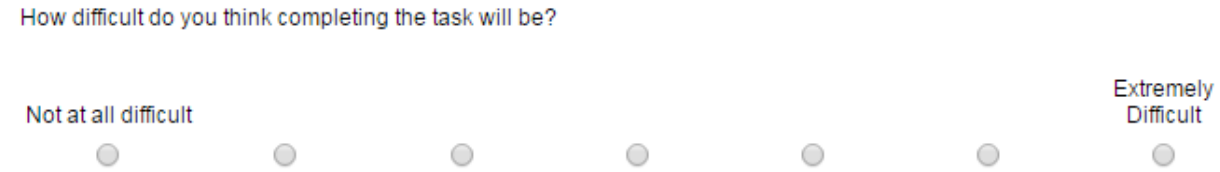
Appendix B7

Study 2 Materials – Motivation, Task Difficulty, Plan Difficulty Measures

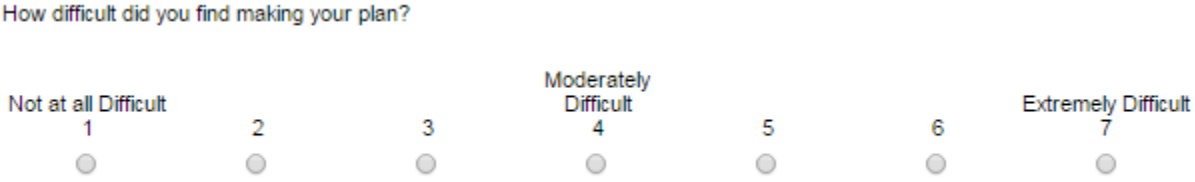
Planning Conditions:



Control Condition:



Planning Conditions:



Appendix B8

Study 2 Materials – Demographics

In this study we asked some people to make a specific plan for the uncompleted task they described.

Please select the option which most closely describes the instructions you received.

- ○ Make a plan using if-then statements of how you will complete the task.
- ○ Make a plan indicating when, where, and how the task will be completed.
- ○ Make a plan by visualizing how you will complete the task.
- ○ I was not asked to make a plan.

Last, please answer the following demographic questions:

What is your gender?

- ○ Man
- ○ Woman
- ○ Other Identity

What is your age?

What is your ethnicity?

- ○ Caucasian/European American
- ○ Asian/Asian American/Pacific Islander
- ○ African American/Black
- ○ East Indian
- ○ Native American
- ○ Middle Eastern/West Asian/North African
- ○ Latino/Hispanic American/Chicano/Puerto Rican
- ○ Other
- ○ Prefer not to say

What did you think this study was about?

Appendix C1

Study 3 Materials – Introduction

Welcome to the study!

We would like to start by sincerely thanking you for choosing to participate.

Because your participation is crucial to enhancing our scientific understanding of planning, and to the success of my Master's Thesis, we ask that you pay close attention when answering the questions that follow. In fact, if you are not able to stay focused on our questions, we may obtain inaccurate results and draw misguided conclusions about the nature of planning.

Introduction

In this study we are interested in how people think about and make plans for future tasks. The future task we would like you to think about during this survey is **preparing for your PS102 final exam**.

We would like to start by asking you some questions about this final exam. There are no right or wrong answers to any of these questions; we are simply looking for your opinion. You are welcome to use point form, but please do your best to write legibly.

1. Please tell us a little bit about how prepared you feel for the exam at this point in time. That is, if you had to write the exam later today, how prepared would you be?

2. What is your personal goal for the grade you want to achieve on this exam?
   My goal is to achieve a mark of _____% on the exam.
   (If you have only a letter grade in mind please indicate it instead: _____.)

   Please tell us a little bit about how important this exam is for you. That is, how important is it that you achieve the grade you indicated above? What would be the consequences if you do not achieve the grade you desire?

Appendix C2

Study 3 Materials – Pre-Plan Characteristics

For this next set of questions, please circle the most applicable option.

4. How difficult do you think achieving your desired grade on the exam will be?

Not at all difficult 1	2	3	4	5	6	Extremely difficult 7

5. How much control do you feel you have over achieving your desired grade on the exam?

No Control 1	2	3	4	5	6	Complete Control 7

6. To what extent do you expect that you will be able to achieve your desired grade on the exam?

Not at all likely 1	2	3	4	5	6	Extremely likely 7

7. How important would you say it is for you to achieve your desired grade on the exam?

Not at all important 1	2	3	4	5	6	Extremely important 7

8. To what extent are you certain (do you believe) that you have the capability to achieve your desired grade on the exam?

Not at all certain 1	2	3	4	5	6	Completely certain 7

9. Please tell us how much you agree with the following statement. How much, and how effectively I prepare for the exam is what determines how well I do on this exam.

Strongly Disagree 1	2	3	4	5	6	Strongly Agree 7

10. How much do you think other factors, besides how much and how effectively a person prepares, contribute to exam performance?

Very little 1	2	3	4	5	6	Very Much 7

11. How much have you already started to prepare for this exam?

Not at all 1	2	3	4	5	6	A great deal 7

Appendix C3

Study 3 Materials – Mental Simulation Condition Plan Instructions

MAKING A PLAN:

We will now ask you to develop a detailed plan outlining how you will prepare for the final exam. We would also like you to form and describe your plan in a particular way.

Please develop your plan by imagining the complete sequence of events, from beginning to end, that will be involved in preparing for the final exam. Try to **envision** exactly when, where, and how you will be carrying out the specific steps that you will take to prepare for the exam. Your plan should take the form of a detailed, step-by-step, scenario that describes all the specific actions that you will be taking in preparation for the exam.

In the space below, please write down the plan you envisioned as a detailed, step-by-step scenario that describes how you will prepare for the exam. Take your time (at least 5 minutes) and provide as much detail as possible. (You are welcome to continue writing on the next page if you like.)

Appendix C4

Study 3 Materials – Implementation Intentions Condition Plan Instructions

MAKING A PLAN:

We will now ask you to develop a detailed plan outlining how you will prepare for the final exam. We would also like you to form and describe your plan in a particular way.

Please form your plan by generating "**If-then**" statements that identify a specific situation or opportunity you may have, and the specific actions you will take if it arises. These statements should have the following structure: "If situation X occurs, then I will initiate behaviour Y". One of these statements might look like this: "If it is after 8pm on a weekday, then I will read my textbook for two hours". Each of these statements should identify a specific situation or opportunity you may have, and the specific action that you will take, in preparation for the exam.

In the space below, please write your plan using "If-then" statements describing how you will prepare for the exam. Take your time (at least 5 minutes) and provide as much detail as possible. (You are welcome to continue writing on the next page if you like.)

Appendix C5

Study 3 Materials – Affect Measure (PANAS; Watson, Clark, & Tellegen, 1988)

Next, indicate the extent to which you feel the following emotions when thinking about the exam:
(Please check the most applicable option for each emotion.)

	Very slightly or not at all	A little	Moderately	Quite a bit	Extremely
	1	**2**	**3**	**4**	**5**
1. Interested	○	○	○	○	○
2. Distressed	○	○	○	○	○
3. Excited	○	○	○	○	○
4. Upset	○	○	○	○	○
5. Strong	○	○	○	○	○
6. Guilty	○	○	○	○	○
7. Scared	○	○	○	○	○
8. Hostile	○	○	○	○	○
9. Enthusiastic	○	○	○	○	○
10. Proud	○	○	○	○	○
11. Irritable	○	○	○	○	○
12. Alert	○	○	○	○	○
13. Ashamed	○	○	○	○	○
14. Inspired	○	○	○	○	○
15. Nervous	○	○	○	○	○
16. Determined	○	○	○	○	○
17. Attentive	○	○	○	○	○
18. Jittery	○	○	○	○	○
19. Active	○	○	○	○	○
20. Afraid	○	○	○	○	○
21. Confident	○	○	○	○	○
22. Anxious	○	○	○	○	○
23. Content	○	○	○	○	○

Appendix C6

Study 3 Materials – Motivation Measures

In this section we would like to ask several questions about how motivated you are to prepare for the exam.

1. Overall, how motivated do you feel to prepare for the upcoming exam?

Not at all motivated 1	2	3	4	5	6	Extremely motivated 7

2. Please rate the extent of your agreement with the following statements.

	Not at all true						**Very True**
	1	**2**	**3**	**4**	**5**	**6**	**7**
1. I plan to put a lot of time into preparing for this exam.	○	○	○	○	○	○	○
2. I plan to spend less time engaging in social activities that interfere with my exam preparation.	○	○	○	○	○	○	○
3. I plan to put extra effort into preparing for this exam.	○	○	○	○	○	○	○
4. I plan to procrastinate less before this exam.	○	○	○	○	○	○	○
5. I plan to start preparing for this exam well before the term ends.	○	○	○	○	○	○	○
6. I plan to avoid wasting time more so than usual before this exam.	○	○	○	○	○	○	○

Appendix C7

Study 3 Materials – Perceptions of the Final Exam Measures

Now that you have had a chance to consider your thoughts and feelings about the final exam a little more, please tell us:

1. How difficult do you think achieving your desired grade on the exam will be?

Not at all difficult 1	2	3	4	5	6	Extremely difficult 7

2. How much control do you feel you have over achieving your desired grade on the exam?

No control 1	2	3	4	5	6	Complete Control 7

3. To what extent do you expect that you will be able to achieve your desired grade on the exam?

Not at all likely 1	2	3	4	5	6	Extremely Likely 7

4. How important would you say it is for you to achieve your desired grade on the exam?

Not at all important 1	2	3	4	5	6	Extremely important 7

5. To what extent are you certain (do you believe) that you have the capability to achieve your desired grade on the exam?

Not at all certain 1	2	3	4	5	6	Completely certain 7

Appendix C8

Study 3 Materials – Planning Process Measures and Attention Check

The following questions concern the planning exercise that you completed previously.

1. As you were making your plan, to what extent did you take into account each of the following:

	Not at all						**A great deal**
	1	**2**	**3**	**4**	**5**	**6**	**7**
a) Potential obstacles (i.e., hindrances to preparing successfully)	○	○	○	○	○	○	○
b) Successful past experiences in preparing for exams	○	○	○	○	○	○	○
c) Unsuccessful past experiences in preparing for exams	○	○	○	○	○	○	○
d) Other demands on your time (e.g., other exams, work, already planned	○	○	○	○	○	○	○
e) All the specific steps that you intend to take	○	○	○	○	○	○	○

2. How difficult did you find it to make your plan?

Not at all difficult 1	2	3	4	5	6	Extremely difficult 7

3. To what extent was the planning process similar to the way you usually plan for upcoming exams?

Not at all similar 1	2	3	4	5	6	Extremely similar 7

4. To what extent does your plan read like a coherent story that flows from beginning to end?

Not at all 1	2	3	4	5	6	Very much so 7

5. Beyond your thoughts about the plan-making process, we need to ensure that you paid attention to our instructions, so that we get accurate information. If you are paying attention right now, please check option "2" for this question.

Not at all 1	2	3	4	5	6	Very much so 7

Appendix C9

Study 3 Materials – Reactions to Planning Measures

The following questions concern your **reactions** to the planning exercise you completed previously:

6. In general, did making your plan make you **feel** better or worse about the upcoming exam?

Much worse -5	-4	-3	-2	-1	Neither 0	1	2	3	4	Much better 5

7. To what extent did making this plan cause you to feel like you have already made some **progress** toward the exam preparation?

Not at all 1	2	3	4	5	6	Very much so 7

8. To what extent do you believe that the kind of planning you engaged in is an effective way to plan for upcoming exams?

Highly ineffective -5	-4	-3	-2	-1	Neither 0	1	2	3	4	Highly effective 5

9. To what extent did making your plan influence your **motivation** to prepare for the exam?

Greatly reduced -5	-4	-3	-2	-1	No effect 0	1	2	3	4	Greatly increased 5

10. To what extent did making your plan influence your **confidence that you will achieve your desired grade**?

Greatly reduced -5	-4	-3	-2	-1	No effect 0	1	2	3	4	Greatly increased 5

11. To what extent did making your plan influence **negative feelings** about the exam such as nervousness or anxiety?

Greatly increased -5	-4	-3	-2	-1	No effect 0	1	2	3	4	Greatly reduced 5

12. To what extent did making your plan influence **positive feelings** about the exam such as optimism or enthusiasm?

Greatly reduced -5	-4	-3	-2	-1	No effect 0	1	2	3	4	Greatly increased 5

Appendix C10

Study 3 Materials – Trait Anxiety Measure (Spielberger et al., 1983)

Almost finished! At this time we would like to ask you some questions about how you see yourself in general (i.e., your personality).

Please read each statement and then assign the appropriate number to the statement to indicate how you ***generally*** feel. There are no right or wrong answers. Do not worry about spending too much time on any one statement, but give the answer which seems to describe how you generally feel.

	Almost Never	Sometimes	Often	Almost Always
	1	**2**	**3**	**4**
1. I feel pleasant	○	○	○	○
2. I feel nervous and restless	○	○	○	○
3. I feel satisfied with myself	○	○	○	○
4. I wish I could be as happy as others seem to be	○	○	○	○
5. I feel like a failure	○	○	○	○
6. I feel rested	○	○	○	○
7. I am "calm, cool and collected"	○	○	○	○
8. I feel that difficulties are piling up so that I cannot overcome them	○	○	○	○
9. I worry too much over something that really doesn't matter	○	○	○	○
10. I am happy	○	○	○	○
11. I have disturbing thoughts	○	○	○	○
12. I lack self-confidence	○	○	○	○
13. I feel secure	○	○	○	○
14. I make decisions easily	○	○	○	○
15. I feel inadequate	○	○	○	○
16. I am content	○	○	○	○
17. Some unimportant thought runs through my mind and bothers me	○	○	○	○
18. I take disappointments so keenly that I can't put them out of my mind	○	○	○	○
19. I am a steady person	○	○	○	○
20. I get in a state of tension or turmoil as I think over my recent concerns and interests.	○	○	○	○

Appendix C11

Study 3 Materials – Demographics

You have now reached the final set of 8 questions.

1. In this study we asked you to make a specific type of plan to prepare for your final exam. Please select the option which most closely describes the instructions you received.

❍	Make a plan using if-then statements of how you will prepare for the exam.
❍	I was not asked to make a plan.
❍	Make a step-by-step plan describing how you envision preparing for the exam.

2. What gender group do you identify with?

❍	Men
❍	Women
❍	Prefer not to say

3. What is your age?

4. What cultural/ethnic group(s) do you identify with? Please check all that apply.

❍	Caucasian/European American
❍	Asian/Asian American/Pacific Islander
❍	African American/Black
❍	East Indian
❍	Native American
❍	Middle Eastern/West Asian/North African
❍	Latino/Hispanic American/Chicano/Puerto Rican
❍	Other – Please specify:
❍	Prefer not to say

5. What do you think this study was about?

Table 1
Pre-Plan Characteristics by Planning Condition (Study 1)

Dependent Variable	Overall *M*	Mental Simulation *M*	Implementation Intentions *M*	When-Where-How *M*	No Plan (Control) *M*	*F*	*p*	η^2	*d*
Difficulty	4.52_a (1.36)	4.14_a (1.23)	4.70_a (1.35)	4.86_a (1.52)	4.37_a (1.26)	2.16	.10	.044	.43
Control	5.35_a (1.49)	5.32_a (1.45)	5.49_a (1.47)	5.00_a (1.62)	5.60_a (1.40)	1.10	.35	.023	.31
Completion Expectations	5.90_a (1.09)	5.95_a (1.10)	5.92_a (0.92)	5.94_a (1.09)	5.77_a (1.24)	0.21	.89	.004	.13
Importance	6.55_a (0.76)	6.51_a (0.65)	6.49_a (0.87)	6.56_a (0.91)	6.66_a (0.59)	0.34	.80	.007	.17

Note: Standard deviations presented in brackets

Table 2
Negative Affect, Positive Affect, Task Difficulty, and Elaboration by Planning Condition (Study 1)

Dependent Variable	Estimates	Mental Simulation	Implementation Intentions	When-Where-How	No Plan (Control)	*F*	*p*	η^2	*d*
Negative Affect	*M*	2.04_a	2.28_b	1.81_a	2.39_b	6.10	.001	.089	.63
	SE	.103	.102	.103	.105				
	CI	1.84, 2.24	2.08, 2.49	1.61, 2.02	2.18, 2.60				
Positive Affect	*M*	3.09_a	3.03_a	3.14_a	3.05_a	0.13	.94	.003	.10
	SE	.140	.139	.143	.144				
	CI	2.81, 3.37	2.75, 3.30	2.86, 3.42	2.76, 3.33				
Task Difficulty	*M*	3.69_a	3.73_a	3.66_a	4.59_b	3.65	.01	.057	.49
	SE	.229	.227	.233	.236				
	CI	3.23, 4.14	3.28, 4.18	3.20, 4.13	4.13, 5.06				
Elaboration	*M*	222.71_a	174.01_b	202.06_{ab}	---	3.63	.03	.063	.52
	SE	12.84	12.70	12.96					
	CI	197.25, 248.18	148.83, 199.20	176.36, 227.75					

Table 3
Zero-Order Correlations among Dependent Variables (Study 1)

	Negative Affect	Positive Affect	Task Difficulty
Positive Affect	-.12		
Task Difficulty	.44***	-.04	
Elaboration	-.14	.00	-.07

***$p < .001$

Table 4
Partial Correlations among Dependent Variables (Study 1)

	Negative Affect	Positive Affect	Task Difficulty
Positive Affect	-.06		
Task Difficulty	.27**	-.07	
Elaboration	-.13	.04	.05

**$p < .01$

Table 5
Zero-Order Correlations among Dependent Variables by Condition (Study 1)

	Negative Affect	Positive Affect	Task Difficulty
Mental Simulation			
Positive Affect	-.09		
Task Difficulty	.42**	-.22	
Elaboration	-.01	.15	.01
Implementation Intentions			
Positive Affect	.11		
Task Difficulty	.39*	.23	
Elaboration	-.04	-.22	.05
When-Where-How			
Positive Affect	-.35*		
Task Difficulty	.56***	.01	
Elaboration	-.23	.01	-.14
No Plan (Control)			
Positive Affect	-.20		
Task Difficulty	.52**	-.24	
Elaboration	---	---	---

*$p < .05$, **$p < .01$, ***$p < .001$

Table 6
Partial Correlations among Dependent Variables by Condition (Study 1)

	Negative Affect	Positive Affect	Task Difficulty
Mental Simulation			
Positive Affect	.06		
Task Difficulty	.36*	-.08	
Elaboration	.02	.26	.29
Implementation Intentions			
Positive Affect	.01		
Task Difficulty	.20	-.05	
Elaboration	-.02	-.32	.19
When-Where-How			
Positive Affect	-.48**		
Task Difficulty	.24	-.17	
Elaboration	-.15	.22	-.26
No Plan (Control)			
Positive Affect	-.12		
Task Difficulty	.30	.02	
Elaboration	---	---	---

*$p < .05$, **$p < .01$

Table 7
Pre-Plan Characteristics by Planning Condition (Study 2)

Dependent Variable	Overall *M*	Mental Simulation *M*	Implementation Intentions *M*	When-Where-How *M*	No Plan (Control) *M*	*F*	*p*	η^2	*d*
Difficulty	3.98_{a} (1.43)	4.06_{a} (1.55)	4.07_{a} (1.20)	4.23_{a} (1.61)	3.63_{a} (1.32)	1.14	.34	.026	.33
Control	5.40_{a} (1.39)	5.31_{a} (1.39)	5.07_{a} (1.57)	5.50_{a} (1.23)	5.66_{a} (1.34)	1.10	.35	.025	.32
Completion Expectations	6.27_{ab} (0.90)	6.06_{a} (1.03)	6.10_{a} (0.96)	6.33_{ab} (0.71)	6.55_{b} (0.80)	0.21	.07	.053	.47
Importance	6.24_{a} (1.00)	6.11_{a} (0.99)	6.10_{a} (1.13)	6.27_{a} (1.02)	6.45_{a} (0.89)	0.34	.43	.021	.29

Note: Standard deviations presented in brackets

Table 8
Negative Affect, Positive Affect, Motivation, Task Difficulty, Elaboration, and Plan Difficulty by Planning Condition (Study 2)

Dependent Variable	Estimates	Mental Simulation	Implementation Intentions	When-Where-How	No Plan (Control)	*F*	*p*	η^2	*d*
Negative Affect	*M*	1.81_a	1.63_a	1.84_a	1.97_a	1.74	.16	.030	.35
	SE	.100	.109	.108	.098				
	CI	1.61, 2.01	1.42, 1.85	1.63, 2.06	1.76, 2.16				
Positive Affect	*M*	2.97_a	3.39_a	3.06_a	3.14_a	1.71	.17	.030	.35
	SE	.130	.141	.140	.127				
	CI	2.72, 3.34	3.11, 3.23	2.78, 3.34	2.89, 3.39				
Motivation	*M*	5.26_a	5.94_b	5.89_b	5.63_{ab}	2.38	.07	.039	.40
	SE	.196	.212	.21	.191				
	CI	4.88, 5.65	5.52, 6.36	5.48, 6.31	5.25, 6.01				
Task Difficulty	*M*	3.73_a	3.52_a	3.14_a	3.97_a	1.86	.14	.019	.28
	SE	.178	.193	.192	.174				
	CI	3.38, 4.08	3.14, 3.90	3.02, 3.79	3.62, 4.31				

(*table continues*)

Dependent Variable	Estimates	Mental Simulation	Implementation Intentions	When-Where-How	No Plan (Control)	*F*	*p*	η^2	*d*
Elaboration	*M*	58.0_a	103.15_b	94.39_b	---	6.69	.002	.130	.77
	SE	8.99	9.74	9.82					
	CI	40.13, 75.87	83.78, 122.51	74.87, 113.90					
Plan Difficulty	*M*	3.06_a	2.55_a	2.66_a	---	1.39	.25	.021	.29
	SE	.218	.240	.238					
	CI	2.63, 3.14	2.08, 3.03	2.19, 3.14					

Table 9
Zero-Order Correlations among Dependent Variables (Study 2)

	Negative Affect	Positive Affect	Motivation	Task Difficulty	Elaboration
Positive Affect	-.22*				
Motivation	-.26**	.51***			
Task Difficulty	.44***	-.25**	-.16		
Elaboration	-.09	-.12	.11	.12	
Plan Difficulty	.45***	-.15	-.11	.59***	-.03

*$p < .05$, ** $p < .01$, $p < .001$

Table 10
Partial Correlations among Dependent Variables (Study 2)

	Negative Affect	Positive Affect	Motivation	Task Difficulty	Elaboration
Positive Affect	-.16				
Motivation	-.39***	.48***			
Task Difficulty	.19	-.20*	-.12		
Elaboration	-.16	-.10	.17	.06	
Plan Difficulty	.22*	.05	.04	.34**	-.12

*$p < .05$, ** $p < .01$, $p < .001$

Table 11
Zero-Order Correlations among Dependent Variables by Condition (Study 2)

	Negative Affect	Positive Affect	Motivation	Task Difficulty	Elaboration
Mental Simulation					
Positive Affect	-.34*				
Motivation	-.47**	.60***			
Task Difficulty	.62***	-.42**	-.27		
Elaboration	-.08	-.21	-.08	.11	
Plan Difficulty	.63***	-.35*	-.31	.82***	-.08
Implementation Intentions					
Positive Affect	-.21				
Motivation	-.29	.62***			
Task Difficulty	.11	-.14	.10		
Elaboration	-.22	-.21	.01	.19	
Plan Difficulty	-.02	-.09	.27	.51**	.12
When-Where-How					
Positive Affect	-.19				
Motivation	-.22	.52**			
Task Difficulty	.54**	-.29	-.29		
Elaboration	.08	-.15	.20	.17	
Plan Difficulty	.56**	.08	-.09	.42*	.03

(*table continues)*

	Negative Affect	Positive Affect	Motivation	Task Difficulty	Elaboration
No Plan (Control)					
Positive Affect	-.09				
Motivation	-.013	.20			
Task Difficulty	.35*	-.05	-.02		
Elaboration	---	---	---	---	
Plan Difficulty	---	---	---	---	---

*p < .05, **p < .01

Table 12
Partial Correlations among Dependent Variables by Condition (Study 2)

	Negative Affect	Positive Affect	Motivation	Task Difficulty	Elaboration
Mental Simulation					
Positive Affect	-.25				
Motivation	-.56**	.45*			
Task Difficulty	.32	-.32	-.26		
Elaboration	-.20	-.16	-.09	.06	
Plan Difficulty	.38*	-.17	-.28	.56**	-.22
Implementation Intentions					
Positive Affect	.05				
Motivation	-.33	.48*			
Task Difficulty	.09	-.09	.16		
Elaboration	-.36	-.34	-.00	.06	
Plan Difficulty	-.20	.19	.49*	.42*	-.01
When-Where-How					
Positive Affect	-.18				
Motivation	-.24	.43*			
Task Difficulty	.24	-.34	-.25		
Elaboration	.18	-.08	.25	.34	
Plan Difficulty	.37	.15	.01	.07	.17

(*table continues)*

	Negative Affect	Positive Affect	Motivation	Task Difficulty	Elaboration
No Plan (Control)					
Positive Affect	.00				
Motivation	-.08	.26			
Task Difficulty	.31	.17	.04		
Elaboration	---	---	---	---	
Plan Difficulty	---	---	---	---	---

*p < .05, **p < .01

Table 13
Pre-Plan Characteristics by Planning Condition and Planning Type I (Study 3)

Dependent Variable	Overall *M*	Experimental Condition - Mental Simulation *M*	Experimental Condition - Implementation Intentions *M*	Control Condition - Mental Simulation *M*	Control Condition - Implementation Intentions *M*
Difficulty	4.38 (1.16)	4.42_{a} (1.27)	4.61_{a} (0.97)	4.19_{a} (1.15)	4.27_{a} (1.19)
Control	5.48 (1.05)	5.47_{a} (0.92)	5.48_{a} (1.06)	5.50_{a} (1.19)	5.46_{a} (1.14)
Achievement Expectations	4.99 (0.90)	5.02_{a} (0.99)	4.97_{a} (0.95)	4.94_{a} (0.76)	5.00_{a} (0.85)
Importance	5.85 (0.98)	6.00_{a} (0.88)	5.76_{a} (0.94)	5.81_{a} (0.86)	5.69_{a} (1.32)
Desired Grade	81.07 (7.33)	81.50_{a} (7.12)	82.88_{a} (8.86)	79.64_{b} (6.35)	79.62_{b} (6.47)
Efficacy	5.49 (1.07)	5.60_{a} (0.97)	5.36_{a} (1.25)	5.38_{a} (1.04)	5.54_{a} (1.07)
Effectiveness of Preparation	6.14 (0.97)	6.02_{a} (1.13)	6.27_{a} (0.80)	6.06_{a} (0.95)	6.31_{a} (0.84)
Other Factors	4.61 (1.41)	4.73_{ab} (1.43)	4.39_{ab} (1.62)	4.28_{a} (1.17)	5.04_{b} (1.25)
Current Preparation	2.26 (1.27)	2.18_{a} (1.09)	2.21_{a} (1.29)	2.25_{a} (1.27)	2.50_{a} (1.58)

Note: Standard deviations presented in brackets

Table 14
Pre-Plan Characteristics by Planning Condition and Planning Type II (Study 3)

Dependent Variable	Planning Condition				Planning Type				Condition x Type			
	F	*p*	η^2	*d*	*F*	*p*	η^2	*d*	*F*	*p*	η^2	*d*
Difficulty	2.00	.16	.014	.24	0.45	.50	.003	.11	0.07	.79	.000	.04
Control	0.00	.99	.000	.03	0.01	.94	.000	.01	0.02	.89	.000	.02
Achievement Expectations	0.03	.87	.001	.07	0.00	.96	.000	.01	0.13	.72	.001	.06
Importance	0.56	.46	.016	.12	1.16	.28	.008	.18	0.13	.72	.001	.06
Desired Grade	4.18	.04	.004	.34	0.29	.59	.002	.09	0.31	.58	.002	.09
Efficacy	0.02	.89	.000	.02	0.04	.84	.000	.03	1.18	.28	.008	.18
Effectiveness of Preparation	0.06	.81	.000	.04	2.22	.14	.015	.25	0.00	.98	.000	.001
Other Factors	0.17	.68	.001	.07	0.78	.38	.005	.15	5.17	.02	.035	.38
Current Preparation	0.66	.42	.005	.14	0.41	.52	.003	.11	0.25	.62	.002	.08

Table 15
Primary Dependent Variables by Planning Condition and Planning Type I Study 3)

Dependent Variable	Estimates	Experimental Condition – Mental Simulation	Experimental Condition - Implementation Intentions	Control Condition – Mental Simulation	Control Condition – Implementation Intentions
Negative Affect	*M*	2.64_a	2.61_a	2.56_a	2.46_a
	SE	.084	.092	.117	.125
	CI	2.48, 2.81	2.43, 2.79	2.33, 2.79	2.21, 2.70
Positive Affect	*M*	2.57_a	2.52_a	2.54_a	2.56_a
	SE	.084	.110	.111	.125
	CI	2.41, 2.74	2.31, 2.74	2.32, 2.76	2.31, 2.81
Overall Motivation	*M*	5.07_a	4.87_a	5.12_a	5.61_a
	SE	.158	.211	.212	.234
	CI	4.75, 5.38	4.45, 5.28	4.69, 5.53	5.14, 6.07
Motivation Scale	*M*	5.10_a	5.09_a	5.26_a	5.23_a
	SE	.153	.199	.205	.230
	CI	4.80, 5.40	4.70, 5.49	4.85, 5.66	4.78, 5.69
Perceptions of the Exam					
Difficulty	*M*	4.60_a	4.70_a	4.32_a	4.77_a
	SE	.121	.158	.160	.179
	CI	4.36, 4.84	4.39, 5.01	4.01, 4.64	4.41, 5.12
Importance	*M*	5.66_a	6.00_b	5.65_a	5.72_b
	SE	.084	.110	.111	.125
	CI	5.50, 5.83	5.78, 6.22	5.44, 5.87	5.47, 5.96

(*table continues*)

Dependent Variable	Estimates	Experimental Condition – Mental Simulation	Experimental Condition - Implementation Intentions	Control Condition – Mental Simulation	Control Condition – Implementation Intentions
Control	*M*	1.81_a	1.63_a	1.84_a	1.97_a
	SE	.100	.109	.108	.098
	CI	1.61, 2.01	1.42, 1.85	1.63, 2.06	1.76, 2.16
Expectation to Achieve	*M*	5.13_a	5.19_a	5.14_a	5.12_a
	SE	.081	.105	.107	.120
	CI	4.97, 5.29	4.98, 5.40	4.93, 5.35	4.88, 5.35
Efficacy	*M*	5.42_a	5.56_a	5.41_a	5.41_a
	SE	.100	.130	.131	.147
	CI	5.22, 5.61	5.31, 5.82	5.15, 5.67	5.11, 5.70
Planning Process					
Take into Account Obstacles	*M*	3.36_a	2.91_b	4.66_a	3.67_b
	SE	.437	.575	.568	.645
	CI	2.49, 4.22	1.78, 4.05	3.54, 5.78	2.39, 4.94
Considered Successful Past Experiences	*M*	5.33_a	4.73_b	5.56_a	5.00_b
	SE	.193	.250	.253	.284
	CI	4.95, 5.71	4.24, 5.23	5.06, 6.06	4.43, 5.56

(*table continues*)

Dependent Variable	Estimates	Experimental Condition – Mental Simulation	Experimental Condition - Implementation Intentions	Control Condition – Mental Simulation	Control Condition – Implementation Intentions
Considered Unsuccessful Past Experiences	*M*	4.29_{a}	4.56_{a}	4.60_{a}	4.15_{a}
	SE	.244	.317	.320	.360
	CI	3.81, 4.78	3.94, 5.19	3.97, 5.24	3.44, 4.86
Considered Other Demands	*M*	4.73_{a}	5.02_{a}	4.47_{a}	4.45_{a}
	SE	.234	.304	.307	.345
	CI	4.26, 5.19	4.42, 5.62	3.86, 5.07	3.76, 5.13
Considered All the Specific Steps	*M*	4.68_{ab}	4.44_{a}	5.16_{b}	4.46_{a}
	SE	.220	.285	.289	.324
	CI	4.25, 5.12	3.88, 5.01	4.59, 5.73	3.82, 5.10
Plan Difficulty	*M*	2.93_{a}	3.54_{b}	2.84_{a}	3.81_{b}
	SE	.198	.257	.260	.292
	CI	2.54, 3.32	3.03, 4.05	2.33, 3.36	3.23, 4.39
Similarity of Plan Process	*M*	5.17_{a}	4.49_{b}	5.45_{a}	4.81_{b}
	SE	.207	.269	.272	.306
	CI	4.76, 5.58	3.96, 5.02	4.91, 5.99	4.20, 5.41
Plan Like a Coherent Story	*M*	4.11_{a}	3.36_{b}	4.46_{a}	2.98_{b}
	SE	.201	.261	.264	.296
	CI	3.71, 4.50	2.85, 3.88	3.94, 4.98	2.40, 3.57

(*table continues*)

Dependent Variable	Estimates	Experimental Condition – Mental Simulation	Experimental Condition - Implementation Intentions	Control Condition – Mental Simulation	Control Condition – Implementation Intentions
Reactions to Planning					
Positive Reactions Index	*M*	0.07_a	-0.23_b	0.25_a	-0.11_b
	SE	.088	.110	.120	.124
	CI	-0.10, 0.25	-0.45, -0.02	0.01, 0.48	-0.35, 0.14
Feeling Better or Worse about Exam	*M*	1.51_a	0.43_b	1.84_a	0.87_b
	SE	.245	.320	.326	.359
	CI	1.03, 2.00	-0.21, 1.06	1.20, 2.49	0.16, 1.58
Confidence	*M*	1.78_a	1.30_a	2.30_a	1.74_a
	SE	.237	.299	.312	.335
	CI	1.31, 2.25	0.71, 1.89	1.68, 2.92	1.08, 2.41
Negative Feelings	*M*	0.06_a	-0.51_a	0.45_a	0.07_a
	SE	.268	.340	.370	.382
	CI	-0.47, 0.59	-1.19, 0.16	-0.28, -0.68	-0.68, 0.83
Positive Feelings	*M*	0.92_a	0.30_b	1.47_a	0.22_b
	SE	.246	.312	.340	.351
	CI	0.44, 1.41	-0.32, 0.92	0.80, 2.14	-0.48, 0.91
Effectiveness of Plan Type	*M*	2.33_a	1.93_b	2.70_a	1.81_b
	SE	.236	.303	.311	.339
	CI	1.86, 2.79	1.34, 2.53	2.08, 3.31	1.14, 2.48

(*table continues*)

Dependent Variable	Estimates	Experimental Condition – Mental Simulation	Experimental Condition - Implementation Intentions	Control Condition – Mental Simulation	Control Condition – Implementation Intentions
Progress Toward Preparation	*M*	3.76_a	3.33_a	3.42_a	3.51_a
	SE	.203	.262	.267	.294
	CI	3.36, 4.16	2.81, 3.85	2.90, 3.95	2.93, 4.09
Motivation to Prepare	*M*	2.10_a	1.94_a	2.55_a	3.13_a
	SE	.223	.283	.291	.316
	CI	1.66, 2.54	1.38, 2.50	1.98, 1.61	1.61, 2.87

Table 16
Primary Dependent Variables by Planning Condition and Planning Type II (Study 3)

Dependent Variable	Planning Condition				Planning Type				Condition x Type			
	F	*p*	η^2	*d*	*F*	*p*	η^2	*d*	*F*	*p*	η^2	*d*
Negative Affect	0.47	.49	.002	0.10	0.33	.57	.002	0.08	0.51	.48	.003	0.10
Positive Affect	0.00	.99	.000	0.03	0.02	.90	.000	0.02	0.45	.73	.000	0.05
General Motivation	3.48	.06	.019	0.28	0.53	.47	.003	0.11	2.88	.09	.016	.026
Motivation Scale	0.55	.46	.003	0.11	0.01	.94	.000	0.01	0.00	.97	.000	0.01
Perceptions of the Exam												
Difficulty of Achieving Desired Grade	0.42	.52	.000	0.07	3.02	.09	.011	0.21	1.17	.28	.004	0.13
Importance of Achieving Desired Grade	1.80	.18	.004	0.12	3.32	.07	.007	0.17	1.60	.21	.003	0.12
Control over Achieve Desired Grade	0.63	.43	.002	0.08	0.02	.88	.000	0.01	1.67	.20	.004	0.13
Expectation to Achieve Desired Grade	0.09	.76	.000	0.04	0.02	.89	.000	0.02	0.15	.70	.001	0.05
Efficacy	0.39	.53	.001	0.08	0.30	.59	.001	0.07	0.34	.56	.001	0.07

(*table continues)*

Dependent Variable	Planning Condition				Planning Type				Condition x Type			
	F	*p*	η^2	*d*	*F*	*p*	η^2	*d*	*F*	*p*	η^2	*d*
Planning Process												
Take into Account Obstacles	1.61	.21	.011	0.21	3.32	.07	.023	0.31	0.23	.63	.002	0.08
Considered Successful Experiences	0.98	.32	.005	0.15	5.41	.02	.029	0.34	0.01	.95	.000	0.01
Considered Unsuccessful Experiences	0.03	.87	.000	0.03	0.09	.77	.001	0.05	1.32	.25	.009	0.19
Considered Other Demands	1.89	.17	.012	0.22	0.21	.65	.001	0.07	0.27	.61	.002	0.03
Considered All the Steps	0.74	.39	.006	0.15	2.73	.10	.018	0.27	0.66	.42	.004	0.13
Plan Difficulty	0.13	.78	.001	0.06	9.46	.003	.054	0.48	0.50	.48	.003	0.11
Similarity of Plan Process	1.23	.27	.008	0.18	6.10	.02	.038	0.40	0.01	.94	.000	0.01
Plan Like a Coherent Story	0.00	.96	.000	0.01	18.30	<.001	.113	0.77	2.02	.16	.012	0.22

(*table continues)*

Dependent Variable	Planning Condition				Planning Type				Condition x Type			
	F	*p*	η^2	*d*	*F*	*p*	η^2	*d*	*F*	*p*	η^2	*d*
Reactions to Planning												
Positive Reactions Index	1.82	.18	.011	0.21	8.69	.004	.052	0.47	0.05	.83	.000	0.03
Feel Better or Worse about Exam	1.44	.23	.009	0.19	10.61	.001	.065	.053	0.00	.95	.000	0.01
Confidence	2.53	.11	.017	0.26	2.62	.11	.017	0.27	0.02	.89	.000	0.02
Negative Feelings	1.99	.16	.013	0.24	2.27	.14	.016	0.25	0.13	.72	.001	0.06
Positive Feelings	0.59	.45	.004	0.12	8.42	.004	.054	0.48	0.14	.71	.000	0.02
Effectiveness of Plan Type	0.22	.64	.001	0.08	4.66	.03	.032	0.36	0.78	.38	.005	0.15
Progress Toward Preparation	0.09	.76	.001	0.05	0.55	.46	.003	0.12	0.86	.36	.005	0.15
Motivation to Prepare	1.76	.19	.011	0.21	0.70	.40	.004	0.13	0.08	.78	.000	0.04

Table 17
Zero-Order Correlations among Key Dependent Variables (Study 3)

Dependent Variable	Negative Affect	Positive Affect	Overall Motivation	Motivation Scale	Difficulty Achieve…	Importance Achieve…	Plan Difficulty	Potential Obstacles
Positive Affect	.20**							
Overall Motivation	.00	.42***						
Motivation Scale	.33***	.23**	.37***					
Difficulty Achieve…	.25**	.00	.06	.19*				
Importance Achieve…	.32***	.23**	.30***	.46***	.22**			
Plan Difficulty	.11	-.07	-.09	-.15	.16*	-.04		
Potential Obstacles	.09	.13	.01	.18*	.17*	.04	.11	
Reactions to Planning Index	.00	.41***	.31***	.33***	.04	.09	-.11	.13

*$p < .05$, ** $p < .01$, ***$p < .001$

Table 18
Partial Correlations among Key Dependent Variables (Study 3)

Dependent Variable	Negative Affect	Positive Affect	Overall Motivation	Motivation Scale	Difficulty Achieve…	Importance Achieve…	Plan Difficulty	Potential Obstacles
Positive Affect	.22*							
Overall Motivation	.01	.35***						
Motivation Scale	.20*	.10	.26**					
Difficulty Achieve…	.09	-.01	-.17	.04				
Importance Achieve…	.02	.05	.16	.21*	.01			
Plan Difficulty	.07	.01	-.06	-.20*	.13	.09		
Potential Obstacles	.09	.07	-.06	.18*	.20*	.05	.11	
Reactions to Planning Index	.05	.26**	.18*	.24**	.13	.04	-.09	.08

*$p < .05$, ** $p < .01$, ***$p < .001$

Table 19
Zero-Order Correlations among Key Dependent Variables by Condition (Study 3)

Dependent Variable	Negative Affect	Positive Affect	Overall Motivation	Motivation Scale	Difficulty Achieve…	Importance Achieve…	Plan Difficulty	Potential Obstacles
Experimental – Mental Simulation								
Positive Affect	.10							
Overall Motivation	-.08	.51***						
Motivation Scale	.28***	.25	.51***					
Difficulty Achieve…	.22	-.07	.08	.19				
Importance Achieve…	.32*	.22	.38**	.64***	.20			
Plan Difficulty	.16	.01	-.16	-.18	.04	-.06		
Potential Obstacles	.15	.18	-.03	.34*	.24	.20	.05	
Reactions to Planning Index	-.04	.45***	.50***	.51***	.08	.24	.17	.19

(*table continues*)

Dependent Variable	Negative Affect	Positive Affect	Overall Motivation	Motivation Scale	Difficulty Achieve…	Importance Achieve…	Plan Difficulty	Potential Obstacles
Experimental – Implementation Intentions								
Positive Affect	.06							
Overall Motivation	-.22	.22						
Motivation Scale	.45**	.16	.16					
Difficulty Achieve…	.39*	-.22	-.19	.28				
Importance Achieve…	.40**	.42*	.04	.61***	-.06			
Plan Difficulty	.07	-.30	-.16	-.12	.24	-.16		
Potential Obstacles	.11	.07	-.04	.23	.07	-.06	.09	
Reactions to Planning Index	-.19	.37*	.03	.19	-.06	.09	-.17	.28

(*table continues*)

Dependent Variable	Negative Affect	Positive Affect	Overall Motivation	Motivation Scale	Difficulty Achieve…	Importance Achieve…	Plan Difficulty	Potential Obstacles
Control – Mental Simulation								
Positive Affect	.43*							
Overall Motivation	.15	.33						
Motivation Scale	.29	.12	.29					
Difficulty Achieve…	.07	-.23	-.02	.06				
Importance Achieve…	.28	.06	.29	.23	.05			
Plan Difficulty	.23	.17	.16	-.05	.22	-.09		
Potential Obstacles	-.03	.03	-.06	.06	.06	-.51**	.39*	
Reactions to Planning Index	-.12	.20	.26	.26	.23	-.13	-.21	-.02

(*table continues*)

Dependent Variable	Negative Affect	Positive Affect	Overall Motivation	Motivation Scale	Difficulty Achieve…	Importance Achieve…	Plan Difficulty	Potential Obstacles
Control – Implementation Intentions								
Positive Affect	.39*							
Overall Motivation	.41*	.56**						
Motivation Scale	.47*	.46*	.32					
Difficulty Achieve…	.37*	.42*	.42*	.41*				
Importance Achieve…	.27	.22	.52**	.33	.60**			
Plan Difficulty	.03	-.20	-.31	-.33	.16	.14		
Potential Obstacles	.23	.52**	.49*	.36	.48*	.48*	-.09	
Reactions to Planning Index	.35	.54**	.34	.39**	.11	.07	-.37	.02

*$p < .05$, ** $p < .01$, ***$p < .001$

Table 20
Partial Correlations among Key Dependent Variables by Condition (Study 3)

Dependent Variable	Negative Affect	Positive Affect	Overall Motivation	Motivation Scale	Difficulty Achieve…	Importance Achieve…	Plan Difficulty	Potential Obstacles
Experimental – Mental Simulation								
Positive Affect	.21							
Overall Motivation	-.04	.40**						
Motivation Scale	.06	.06	.39*					
Difficulty Achieve…	-.10	-.04	-.10	.06				
Importance Achieve…	.05	-.04	.28	.39*	-.01			
Plan Difficulty	.08	.04	-.09	-.25	.15	-.08		
Potential Obstacles	.09	.02	-.26	.17	.43**	-.15	.06	
Reactions to Planning Index	-.10	.35*	.42**	.44**	-.06	.03	.10	-.07

(*table continues*)

Dependent Variable	Negative Affect	Positive Affect	Overall Motivation	Motivation Scale	Difficulty Achieve…	Importance Achieve…	Plan Difficulty	Potential Obstacles
Experimental – Implementation Intentions								
Positive Affect	.06							
Overall Motivation	-.26	.48*						
Motivation Scale	.26	.08	.22					
Difficulty Achieve…	.69***	.07	-.28	.22				
Importance Achieve…	.18	.17	.12	.50*	.15			
Plan Difficulty	.43*	-.12	-.44*	-.10	.21	.24		
Potential Obstacles	.31	-.08	-.11	.32	.20	-.01	.14	
Reactions to Planning Index	.10	.29	.04	.25	.02	.37	-.17	.13

(*table continues*)

Dependent Variable	Negative Affect	Positive Affect	Overall Motivation	Motivation Scale	Difficulty Achieve…	Importance Achieve…	Plan Difficulty	Potential Obstacles
Control – Mental Simulation								
Positive Affect	.30							
Overall Motivation	.18	.57*						
Motivation Scale	.25	.20	.21					
Difficulty Achieve…	-.22	-.54*	-.50*	-.04				
Importance Achieve…	.13	.26	.76**	.05	-.32			
Plan Difficulty	-.22	.09	.12	-.15	.15	.05		
Potential Obstacles	-.01	.14	.06	.10	.08	-.33	.56*	
Reactions to Planning Index	-.07	-.14	.05	.06	.58*	.01	.04	.17

(*table continues*)

Dependent Variable	Negative Affect	Positive Affect	Overall Motivation	Motivation Scale	Difficulty Achieve…	Importance Achieve…	Plan Difficulty	Potential Obstacles
Control – Implementation Intentions								
Positive Affect	.50*							
Overall Motivation	.47	.38						
Motivation Scale	.39	.37	.09					
Difficulty Achieve…	-.04	-.14	-.36	.20				
Importance Achieve…	-.08	-.31	-.06	-.27	.36			
Plan Difficulty	-.26	-.14	-.37	-.55*	-.06	.35		
Potential Obstacles	.16	.30	-.04	.24	.06	.39	-.09	
Reactions to Planning Index	.49*	.44	.40	.24	.06	-.41	-.33	-.28

*$p < .05$, ** $p < .01$, ***$p < .001$

Table 21
Ease of Planning Variables as Mediators of the Effect of Planning Type on Positive Reactions to Planning (Study 3)

Mediator	Planning Type to Mediator (a)			Mediator to Positive Reactions (b)			Direct Effect (c')		Indirect Effect		
	B	*SE*	R^2	B	*SE*	R^2	B	*SE*	B	*SE*	CI
Plan Difficulty	0.63	.262	.13	-0.30	.112	.28	-0.04	.038	-0.02	.035	(-.11, .03)
Similarity of Plan Process	-0.68	.275	.18	0.10	.035	.32	-0.26	.110	-0.07	.039	(-.17, -.01)
Plan Like a Coherent Story	-1.08	.265	.19	0.10	.037	.31	-0.22	.114	-0.10	.050	(-.22, -.02)

Table 22
Positive Reactions to Planning as the Mediator of the Effect of Planning Type on the Ease of Planning Variables (Study 3)

Dependent Variables	Planning Type to Mediator (a)			Mediator to Ease of Planning Variables (b)			Direct Effect (c')		Indirect Effect		
	B	*SE*	R^2	B	*SE*	R^2	B	*SE*	B	*SE*	CI
Plan Difficulty	-0.33	.110	.27	-0.22	.215	.14	0.56	.271	0.07	.092	(-.08, .30)
Similarity of Plan Process	-0.33	.110	.27	0.62	.220	.23	-0.48	.278	-0.20	.100	(-.47, -.05)
Plan Like a Coherent Story	-0.33	.110	.27	0.56	.213	.24	-0.90	.268	-0.18	.09	(-.43, -.05)