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Counterfactuals and motivation: Mood as input to affective enjoyment and preparation

Lawrence J. Sanna,* Susanne Meier and **Eric A. Wegner**

Department of Psychology, Washington State University, USA

Two studies demonstrated that moods, in interaction with motivational goals, can influence counterfactual thinking (mental simulations of 'what might have been'). This was shown for performances on laboratory tasks (Study 1) and for real-life course exams (Study 2). In Study 1, with enjoyment goals, participants in good moods generated the greatest number of downward (worse than actuality) counterfactuals; with performance goals, participants in bad moods generated the greatest number of upward (better than actuality) counterfactuals. Downward counterfactuals in good moods with enjoyment goals was reflected in concern with affective motives, positive moods and low preparation. Upward counterfactuals in bad moods with performance goals was reflected in concern with preparative motives, negative moods and high preparation. In Study 2, affective and preparative goals were manipulated directly, mirroring Study 1. After success, participants with affective goals generated the greatest number of downward counterfactuals, which was reflected in high enjoyment, positive moods and low preparation. After failure, participants with preparative goals generated the greatest number of upward counterfactuals, which was reflected in concern with performance, negative moods and high preparation. Discussion centres on implications for counterfactuals, self-motives and mood-as-input research.

Counterfactual thinking refers to 'if only' or 'at least' mental simulations of alternative outcomes that people often have in response to life events. Such thoughts about 'what might have been' can occur spontaneously (Sanna & Turley, 1996) and can influence a variety of reactions, including affect (Medvec, Madey, & Gilovich, 1995), accident and victim compensation (Macrae & Milne, 1992; Turley, Sanna, & Reiter, 1995), blame assignment (Miller & Gunasegaram, 1990), coping (Davis & Lehman, 1995) and causal ascriptions (Lipe, 1991; McGill & Klein, 1993). Counterfactuals can differ by direction. *Upward* counterfactuals are alternatives that are better than actuality (e.g. 'If only I lived in a warmer climate, I would not have to spend winters digging my car out of the snow'); *downward* counterfactuals are alternatives that are worse than actuality (e.g. 'At least I heard the smoke detector, or I might have been seriously injured'). We presently test further the mechanisms and motives of counterfactual thinking by manipulating people's moods and goal states, using the mood-as-input paradigm (Martin, Ward, Achee, & Wyer, 1993). By

* Requests for reprints should be addressed to Lawrence J. Sanna, Department of Psychology, CB 3270 Davie Hall, University of North Carolina at Chapel Hill, Chapel Hill, NC 27599-3270, USA (e-mail: sanna@unc.edu).

directly manipulating moods and goals, and by assessing influences on subsequent reactions, we can advance greatly what is known about the motivational processes underlying counterfactual thinking.

Counterfactual direction and motivational functions

Upward counterfactuals are functional because they provide preparative information; downward counterfactuals are functional because they make persons feel good by comparison (Markman, Gavanski, Sherman, & McMullen, 1993; Taylor & Schneider, 1989). Future preparation may be served best by upward counterfactuals because they operate as schemas for future action (Johnson & Sherman, 1990), making salient plans necessary to facilitate successful changes (e.g. actually planning a move to a warmer locale). Evidence for the preparative role of upward counterfactuals was obtained by Markman *et al.* (1993), in which participants played a computer-simulated blackjack game under outcomes framed as a win, as a loss or as neutral. A higher proportion of upward counterfactuals was found following failure (losing) than in the other two outcome conditions, especially when participants expected to play again. Participants who lost or who expected another try were argued to have greater need for preparatory information which might help them in the future. Participants who generated upward counterfactuals also reported a high level of preparative intentions (Roese, 1994), and upward counterfactuals used strategically were associated with a high level of future preparation (Sanna, 1996).

People can also imagine counterfactuals in order to feel better. By way of contrast (Schwarz & Bless, 1992), downward counterfactuals can elicit positive affect (e.g. imagining a more serious injury had a smoke detector not been heard). Direct evidence for the affective function of counterfactuals was also obtained by Markman *et al.* (1993; see also Roese, 1994; Sanna, 1996); manipulations which influenced counterfactual direction, outcome frame and expectancy of a second try, influenced self-reported satisfaction. Failures and expectations of another try elicited not only more upward counterfactuals but also greater dissatisfaction. Adding to this evidence, participants who generated downward counterfactuals reported more positive affect than those who generated upward counterfactuals (Roese, 1994; Sanna, Meier, & Turley-Ames, 1998). Some researchers have even suggested a 'trade-off' between preparative and affective functions (Markman *et al.,* 1993; cf. Boninger, Gleicher, & Strathman, 1994). That is, upward counterfactuals may provide preparative information at the expense of making persons feel bad, whereas downward counterfactuals may make persons feel good at the expense of leaving them unprepared.

Valenced events and counterfactual direction

Counterfactual functions are apparent in response to valenced events. Evidence suggests that negative and positive outcomes, and bad and good moods, influence counterfactuals similarly. Failures produced more upward- and successes produced

more downward-counterfactuals (Markman *et al.,* 1993), and direct mood manipulations yielded results similar to outcomes. Sanna, Turley-Ames, and Meier (1999; Sanna *et al.,* 1998) varied moods directly by having participants watch films or listen to music. Bad moods induced more upward counterfactuals, and good moods induced more downward counterfactuals. Moreover, this pattern was not limited to counterfactuals. Research on prefactual thoughts of 'what may be' (Sanna, 1998) also found that manipulated bad and good moods produced more upward and downward simulations, respectively. Taken together, failures or bad moods resulted in greater numbers of upward simulations, whereas successes or good moods resulted in greater numbers of downward simulations. The connection between valenced outcomes and mood manipulations is conspicuous. Many theorists have proposed the very reasonable argument that numerous life events, including failures and successes, exert their influences precisely because these events alter people's moods (Brown & Mankowski, 1993).

Valenced events influence counterfactuals because moods inform current states (Schwarz & Clore, 1996). According to this 'feelings-as-information' view, people employ a 'How do I feel about it?' heuristic. Good moods are construed as information of high life-satisfaction (e.g. 'I am a success'), whereas bad moods inform one of low life-satisfaction (e.g. 'I am a failure'). Current-life judgments serve as an anchor from which *alternatives* are then generated. Just as upward and downward counterfactuals lead to bad and good moods, corresponding moods are linked to counterfactuals in the reverse direction (Sanna *et al.,* 1999). In other words, by contrast (Schwarz & Bless, 1992), bad moods lead to construing one's position as poor (actuality), and alternatives (not actuality) likely focus on better, or upward, counterfactuals (e.g. thinking about the move to a warmer locale). Good moods lead to construing one's position as favourable (actuality), which by contrast results in a person's counterfactual (not actuality) thoughts most likely focusing on how things may be worse (e.g. having been injured if not hearing a smoke alarm). Further consistent with feelings-as-information views (Sinclair, Mark, & Clore, 1994), Sanna *et al.* (1998) found that moods did not influence counterfactuals when they were attributed to irrelevant external sources.

The present research: additional motives and mood as input

It had been supposed that motivational functions, valenced events and counterfactuals were linked such that self-improvement (or preparative) motives were served by upward simulations, and self-enhancement (or affective) motives were served by downward simulations. Bad moods serve to signal problems that require action (Schwarz, 1990), and counterfactuals are one cognitive response mobilized to deal with these aversive situations (Roese & Olson, 1997). Upward counterfactuals in particular are preparative, serving a self-improvement (Sedikides & Strube, 1997) motive. Consistent with this proposal, Markman *et al.*'s participants generated predominantly upward counterfactuals after failures and those failures very likely induced bad moods (Brown & Mankowski, 1993). However, Markman *et al.* also found that after successes participants generated predominantly downward counterfactuals, and successes likely induced good moods. That bad and good

moods produced upward and downward counterfactuals, respectively, is also consistent with research in which moods have been manipulated directly (Sanna *et al.,* 1998, 1999).

Counterfactual researchers, however, have not attended to motives for why people generate downward counterfactuals after good moods or successes to the same degree as they have for why people generate counterfactuals after bad moods or failures. That is, researchers have focused only on either self-improvement (preparation) or self-enhancement in the form of mood-repair after failures or bad moods. Testing possible motives underlying downward counterfactual generation after good moods and successes was thus one major goal of the present studies. Sanna *et al.* (1999) suggested that mood-maintenance may underlie downward counterfactuals when in good moods or after successes, mood-maintenance being one of several self-enhancement (Sedikides & Strube, 1997) motives. This line of reasoning is further consistent with notions that people in good moods may sometimes aspire to prolong or even increase their pleasant state (Isen, 1987). In other words, people may wish to continue enjoying their good moods and they use downward counterfactuals as one means to accomplish this. However, no such mood-maintenance motives for generating downward counterfactuals when in good moods or after successes were actually tested in Sanna *et al.*'s, or in any other, counterfactual research.

The mood-as-input model, in contrast, provides an elegant opportunity to test this possibility. Martin *et al.*'s (1993; see also Martin, Abend, Sedikides, & Green, 1997) 'mood-as-input' model uses the feelings-as-information 'How do I feel about it?' heuristic, but goes further to predict that it is not the mood *per se* which has particular implications (e.g. increased or decreased processing); rather, it is the person's interpretation of that mood. Martin *et al.* (1993) found that the implications of moods vary as a function of one's goals. When considering the adequacy of performance (a *performance goal,* e.g. 'Have I done enough?'), sad moods can lead one to construe performance as less adequate ('I haven't done enough'), resulting in *greater* persistence when in sad than happy moods. In contrast, when considering task enjoyment (an *enjoyment goal*, e.g. 'Am I enjoying this task?'), sad moods can lead one to construe tasks as less enjoyable ('I am not enjoying this task'), resulting in *lesser* persistence when in sad than happy moods. Martin *et al.* (1993, 1997) found support for these proposals using a variety of tasks (e.g. impression formation). Adding to this evidence, Sanna, Turley, and Mark (1996) obtained similar results on a use-generation task (see also Hirt, Levine, McDonald, Melton, & Martin, 1997).

Overview of the research. Our objective was to further inform the mechanisms and motives underlying counterfactual thinking, which was accomplished by using the mood-as-input paradigm. Prior research indicates that greater numbers of counterfactuals are generated overall when in bad than good moods (Sanna, 1998; Sanna *et al.,* 1998, 1999). A related finding is that negative outcomes (e.g. failures) induced more counterfactual generation (Gleicher *et al.,* 1990; Markman *et al.,* 1993; Sanna & Turley, 1996) or activation (Roese & Hur, 1997) than positive outcomes. One likely result of bad moods or failures is upward counterfactuals, owing to their

preparative function as described. On the basis of these studies, one would expect simply that more counterfactuals in general, or more upward counterfactuals in particular, would occur after negative moods or outcomes. An alternative prediction, however, can be derived from the mood-as-input model. This model suggests conditions under which *positive* moods can lead to high numbers of counterfactuals. Specifically, there may be more counterfactuals after positive moods or outcomes when enjoyment goals are adopted.

Applications of the mood-as-input model are valuable for a second and even more important reason. It can assist in informing the nature of counterfactuals. For example, with enjoyment goals, people in good moods not only may generate high numbers of counterfactuals, but they may generate more downward counterfactuals in particular, suggesting that downward counterfactuals may be used to maintain good moods and that people find such mood-maintenance particularly enjoyable. Of course, the mood-as-input model can equally inform the performance and preparative relation. Upward counterfactuals may have greater benefits under performance goals, because they specify what can be done to improve future performance. A likely result may be more upward counterfactuals in bad moods with performance goals, as an attempt at greater understanding or planning. Downward counterfactuals do not generally share this quality. This parallels, for example, the distinction between problem-focused and emotion-focused coping (Lazarus, 1991).

To summarize, we used the mood-as-input paradigm to further inform possible mechanisms and motives underlying counterfactual thinking. Although past research has shown more counterfactual thinking in bad moods or after failure, the mood-as-input model allows predictions for when high numbers of counterfactuals can occur in good moods or after successes. In addition, past counterfactual research demonstrated more upward counterfactual thinking after bad moods or outcomes, and more downward counterfactual thinking after good moods or outcomes. The mood-as-input model allows us to further test possible reasons for this pattern. We did this in two ways, reversing the manipulations and measures across two studies. In Study 1, we manipulated moods and enjoyment vs. performance goals. Participants generated counteractuals after a laboratory task, and we measured self-reported affect and preparation. In Study 2, we used naturally occurring moods varied by outcome valence after real-life exams, and reversed these procedures. We manipulated affective and preparative goals, and measured self-reported enjoyment and performance. To date, we know of no research within the mood-as-input paradigm which has manipulated affective and preparative goals. Counterfactual researchers also have not tested how manipulating goals may interact with manipulated moods.

STUDY 1

Manipulated moods and enjoyment vs. performance goals

The mood-as-input model allows predictions for when good moods can lead to more counterfactuals and, when combined with past research (Sanna, 1998; Sanna

et al., 1998, 1999), it may also predict that good moods can lead to more downward counterfactuals in particular, if enjoyment goals are adopted. In Study 1, we used a laboratory word-association task, the Remote Associates Test (RAT; McFarlin & Blascovich, 1984), after which counterfactuals were generated. Enjoyment and performance goals and moods were manipulated directly (Martin *et al.,* 1993). The main design of Study 1 was a 3 (mood: negative, positive, control) × 2 (goal: many, enjoy) between-participants factorial. With enjoyment goals, we predicted high numbers of downward counterfactuals when in good moods. Conversely, with performance goals, we predicted high numbers of upward counterfactuals when in bad moods. We finally predicted that greater numbers of downward counteractuals with enjoyment goals in good moods would be reflected in more self-rated concern with affective motives and better moods, whereas greater numbers of upward counterfactuals with performance goals in bad moods would be reflected in more self-rated concern with preparative motives and higher preparation.

Method

Participants

Participants were 87 (46 female and 41 male) introductory psychology students who received extra course credit. There were approximately equal numbers of participants, and approximately equal proportions of females and males, randomly assigned within each condition.

Procedure

Participants arrived at the laboratory and were tested individually. A cover story indicated that the experiment involved a series of unrelated activities that included rating movies and other cognitive tasks being tested for possible use in future research.

RAT. As a first task, participants were seated at a table on which sat a personal computer and they were asked to read the following instructions which were presented on their computer screen (Sanna, 1992; Sanna & Mark, 1995; Sanna & Pusecker, 1994):

> In this experiment, we are studying people's test taking competence and aptitude on a test of intellectual ability called the Remote Associates Test (RAT). Each RAT item consists of three stimulus words that are somehow related to a fourth word that you are to determine and record. For example, an item might consist of the three stimulus words: 'elephant,' 'lapse,' and 'vivid.' A correct response would be the fourth word 'memory.' That is, in this example, the fourth word, 'memory,' can be related to each of the three stimulus words in the following way: (a) memory like an 'elephant'; (b) memory 'lapse'; (c) 'vivid' memory. During this experiment, you will be asked to perform a series of RAT items, and to answer some questions concerning your perceptions of the tasks and your performance.

Three RAT lists were developed (see McFarlin & Blascovich, 1984). We used the 'control list', which is composed of five easy and five difficult items and is of moderate difficulty overall.

Each RAT item consisted of three stimulus words that were related to a fourth unreported word that participants were to identify and record. Each triad of stimulus words were presented on the computer screen for 1 min. During each 1-min interval, participants attempted to identify the fourth word. Participants were instructed that, once identified, they should type the fourth word into the computer using the keyboard. If participants could not think of an answer, they were told that they could leave their answer blank or take a guess. However, the instructions stated that each word would

remain on the screen for only 1 min. Similar procedures for administering the RAT have been used effectively in previous research (Sanna, 1992; Sanna & Mark, 1995).

Mood induction. As a second task, participants watched and rated film clips. In the *positive*-mood condition, participants watched humorous clips from the films *Splash* and *Stripes*, whereas in the *negative*-mood condition, participants watched sad clips from the films *Gallipoli* and *Sophie's Choice*. Preceding these, participants watched a car-chase scene from the movie *Bullit*; though engaging, this clip is relatively neutral in valence. We included it primarily to draw participants' attention away from the overall emotional tone of the films, thus lessening the chances they would guess that the clips were designed to influence their moods. The series of film clips lasted about 20 min. After each clip, participants responded to surveys entitled 'Pilot Movie Ratings', which asked for routine ratings of the films (e.g. whether they had seen the movie before; see Sanna *et al.*, 1996). These procedures have induced moods effectively in previous research (Martin *et al.*, 1993). In additional, we included a *control*-mood condition, in which no films were shown. Instead, participants were told that there was some trouble with the video equipment, so the movies would be skipped in the session. These participants were told that they would still be able to complete other parts of the session that did not involve movie ratings (Sanna *et al.*, 1996).

After rating the last film clip, as a manipulation check, participants indicated the extent to which a series of positive and negative adjectives reflected their current feelings. The positive adjectives were happy, satisfied, pleased, delighted, content, relieved and glad; the negative adjectives were gloomy, annoyed, depressed, miserable, sad, disappointed and frustrated (Sanna *et al.*, 1999). Each were rated on 9-point scales anchored by 1 = not at all and 9 = very much. Participants in the control-mood condition also completed these ratings.

Once the mood ratings were completed, participants were told about another task that was (ostensibly) being tested for future research. To supposedly test people's representations of environments, participants were asked to draw a map of their university campus; they were allowed 1 min to do this. Following Martin *et al.* (1993), the actual purpose of this task was to create a brief (1-min) time interval between participants' mood ratings and the task of main interest (described next), as a few studies have suggested that participants might discount their moods as a basis for behaviours if the moods are rated immediately before proceeding to the task of interest.

Counterfactual thoughts. After rating film-clips and map-drawing, participants were asked to generate counterfactual thoughts by reading the following instructions:

> As part of a final study about people's reactions to various life events, we would like you to think back on your RAT performance. After performing tasks such as this, people often have thoughts like 'if only' or 'at least.' These types of thoughts are called 'counterfactuals,' and they are about how things might have turned out differently. Sometimes these thoughts can be about things that would have made the performance better, and they are about things that are better than what actually happened. Sometimes these thoughts can be about things that would have made the performance worse, and they are about things that are worse than what actually happened. In the spaces below, please list things that might have been different that would have made your RAT performance either better or worse.

Goal instructions. Participants then went on to read the goal manipulations, patterned after previous mood-as-input research (Martin *et al.*, 1993), but which were modified for use with counterfactuals. In the *many* condition, the instructions continued as follows:

> As you generate counterfactuals, ask yourself 'Have I generated as many counterfactuals as I can?' If the answer is 'yes,' then stop. If the answer is 'no,' then continue generating counterfactuals. There is no right or wrong time to stop. Stop when you feel that you have generated as many counterfactuals as you can.

In the *enjoy* condition, the instructions continued as follows:

> As you generate counterfactuals, ask yourself 'Do I feel like continuing with this task?' If the answer is 'yes,' then continue generating counterfactuals. If the answer is 'no', then stop. There is no right or wrong time to stop. Stop when you feel that you no longer enjoy generating counterfactuals.

Counterfactual direction and functionality. After generating counterfactuals, participants coded their own direction. To accomplish this, they were instructed to go back to the counterfactuals they listed and place a 'U' beside thoughts that might have made their performances better (upward counterfactuals), and a 'D' beside thoughts that might have made their performances worse (downward counterfactuals), a method similar to that used successfully in prior research (e.g. Sanna, 1999; Sanna *et al.*, 1998). In addition, embedded among filler items, participants checked a box indicating whether they had been instructed to generate as many counterfactuals as they could or to generate counterfactuals until they no longer enjoyed the task.

Previous research (Markman *et al.*, 1993; Roese, 1994; Sanna, 1996) has suggested that counterfactuals may serve at least two functions, affective and preparative, and that there may be a 'trade-off' between them. To assess this, on a final page, participants were asked to make ratings of affective and preparative functions by reading the following instructions:

> Some researchers have suggested that people's counterfactual thoughts may serve at least two purposes. One possible reason that people might think of counterfactuals is to help them to understand their situation or to plan or prepare for the future. Another possible reason that people might think of counterfactuals is to help them to feel good or to influence their moods or feelings. Please go back to the counterfactuals that you listed and use the following scale to indicate how much each one was made because you were concerned with preparation or planning, or because you were concerned with your moods or feelings.

Participants were shown a 9-point rating-scale anchored by −4 = feelings/moods and +4 = understanding/preparation, with zero as a scale mid-point.

Affect and preparation ratings. Finally, all participants responded to the series of positive and negative mood-adjectives once again. Embedded among filler items, participants also answered a set of three questions on which they rated the extent to which they felt prepared for, the extent to which they felt ready for, and the extent to which they could handle, an RAT if given in the future. After these measures, participants were debriefed and thanked.

Results and discussion

Manipulation checks

After watching the final film clip, participants' rated their moods on a series of positive and negative adjectives. The negative mood adjectives were reverse scored and averaged with those of positive mood adjectives (Cronbach's $\alpha = .84$). A 3 (mood) × 2 (goal) ANOVA revealed only a mood main effect ($F(2,81) = 14.28$, $p < .001$).[1] Follow-up contrasts within the ANOVA (Rosenthal & Rosnow, 1985) revealed that participants who viewed the happy films reported feeling better ($M = 5.54$) than participants who viewed the sad films ($M = 3.23$; $t(81) = 4.23$, $p < .01$). Control-mood participants fell between ($M = 4.05$) and differed from both negative and positive mood participants (both $t(81)$s = 2.05, ps < .05). In addition, all many- and enjoy-goal participants correctly checked the box indicating their appropriate goal conditions.

Counterfactual thoughts

Participants were adept at generating upward (e.g. 'If only I had been a little more motivated, I could have scored higher) and downward (e.g. 'At least I liked the

[1] For each study reported in this article, we also conducted supplementary analyses which included sex of participant as an additional variable. Because sex of participant did not qualify any of our results, and nor did it interact with any of our mood and/or goal manipulations, we do not further discuss sex of participant in this article.

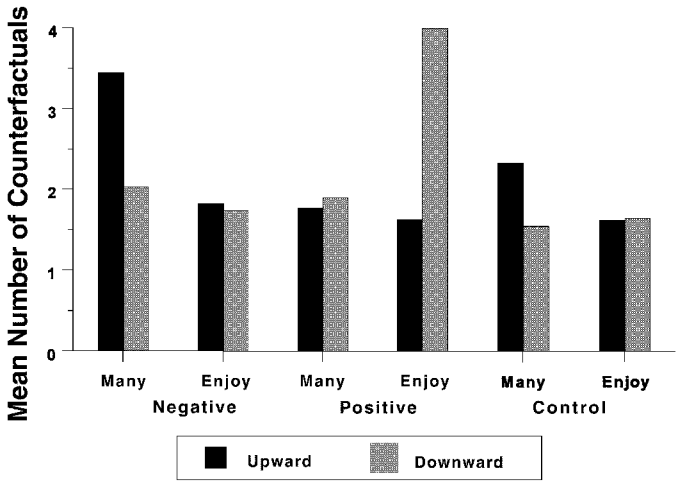

Figure 1. Mean number of counterfactuals by mood (negative, positive, control) and goal (many, enjoy) for Study 1.

experiment, or I might not have tried as hard') counterfactuals. These were subjected to a 3 (mood) × 2 (goal) × 2 (counterfactual: upward, downward) ANOVA, with counterfactual a within-participant variable.[2]

There was a mood main effect ($F(2,81) = 11.21$, $p < .01$; $M_{negative} = 2.25$; $M_{positive} = 2.31$; $M_{control} = 1.78$). Follow-up contrasts within the ANOVA revealed that the control mean differed from the other two ($t(81) = 2.08$, $p < .05$), but the other two means did not differ from each other.

There also were the following interactions: mood × goal ($F(2,81) = 21.66$, $p < .01$); mood × counterfactual ($F(2,81) = 33.10$, $p < .01$); goal × counterfactual, $F(1,81) = 31.22$, $p < .01$); and three-way ($F(2,81) = 4.94$, $p < .01$). Contrasts within the three-way interaction (see Fig. 1) revealed that, as predicted, the number of downward counterfactuals within the positive-mood/enjoy cell ($M = 3.98$) differed from the number of downward counterfactuals generated in all other cells (*M*s = 2.02, 1.73, 1.89, 1.54, 1.64, left to right for other downward means in Fig. 1; $t(81) = 4.29$, $p < .01$). The other downward means did not differ from each other. Also as predicted, the number of upward counterfactuals generated within the negative-mood/many cell ($M = 3.43$) differed from the number of upward counterfactuals generated in all other cells (*M*s = 1.82, 1.76, 1.62, 2.33, 1.62, left to right for other upward means in Fig. 1; $t(81) = 3.97$, $p < .01$). The other upward means did not differ from each other. The only other difference was between the

[2] As in prior research, there was little variability in actual RAT performance on the control list, in the absence of giving participants explicit feedback (Sanna & Mark, 1995; Sanna & Pusecker, 1994). In Study 1, we did not provide any explicit performance feedback, and participants answered an average of 5.89 RAT items, which is approximately half of the items available on the list and a mean comparable to that of past research. The fact that about half of the items were answered, and on the basis of findings from pilot testing, supports further the ambiguity of performance when no explicit feedback is given. A supplementary 3 (mood) × 2 (goal) ANOVA on the number of correctly answered RAT items revealed no main effects or interactions, discounting the possibility that our results are owing to differences in RAT responding. Moreover, a 3 × 2 ANOVA with RAT scores entered as a covariate also revealed an identical pattern of results as reported in the test.

Table 1. Mean functionality, affect and preparation by mood and goals for Study 1

	Negative mood		Positive mood		Control mood	
Variable	Many	Enjoy	Many	Enjoy	Many	Enjoy
Functionality	2.21	.54	.43	−2.37	.89	.12
Affect	3.06	4.23	4.48	6.22	3.94	4.31
Preparation	6.45	4.98	4.33	4.23	5.23	4.76

Note. Mean functionality could range from −4 to +4; mean affect and preparation could range from 1 to 9.

number of upward (M = 2.33) and downward (M = 1.54) counterfactuals in the control-mood/many cell ($t(81) = 2.01$, $p < .05$).

The lower-order mood × goal and mood × counterfactual interactions replicated prior mood-as-input (Martin *et al.*, 1993) and counterfactual (Sanna *et al.*, 1999) patterns, respectively. When in bad moods, many-goals led to more counterfactuals (M = 2.72) than enjoy-goals (M = 1.77), whereas when in good moods, enjoy-goals led to more counterfactuals (M = 2.80) than many-goals (M = 1.82; $t(81)$s > 2.11, ps < .05). Many (M = 1.93) and enjoy-goals (M = 1.60) did not differ within the control-mood condition. When in bad moods, more upward (M = 2.62) than downward (M = 1.87) counterfactuals were generated; whereas, when in good moods, more downward (M = 2.93) than upward (M = 1.69) counterfactuals were generated ($t(81)$s > 2.01, ps < .05). Upward (M = 1.97) and downward (M = 1.59) counterfactuals did not differ within the control-mood condition.[3]

Counterfactual functionality

We predicted that greater numbers of downward counterfactuals with enjoyment goals in good moods would be reflected in ore self-rated concern with affective motives; greater numbers of upward counterfactuals with performance goals in bad moods would be reflected in more self-rated concern with preparative motives. Participants rated counterfactuals for affective vs. preparative function. A 'functionality index' was created by averaging the ratings for each participant. Negative scores thus indicate more concern with affect (feelings/moods), whereas positive scores indicate more concern with preparation (understanding/preparation).

The functionality index was subjected to a 3 (mood) × 2 (goal) ANOVA. There was a mood main effect ($F(2,81) = 10.85$, $p < .01$). Preparative functionality was most salient in bad moods (M = 1.67), whereas affective functionality was most salient in good moods (M = −1.97), but the control mood mean (.50) fell between

[3] An alternative procedure for analysing the counterfactual data in Study 1 is to use difference scores. In the present data, this was done by subtracting the mean number of downward from upward counterfactuals for each participant. A supplementary ANOVA using this difference index revealed a pattern of significance analogous to that reported in the test. We constructed a similar index for counterfactuals in Study 2, which also revealed a pattern analogous to that reported in the text. These alternate analyses were suggested to us by an anonymous reviewer.

and differed from each of these ($t(81)$s > 3.090, ps < .01). There also was a goal main effect (M_{many} = 1.17; M_{enjoy} = −.93; $F(1,81)$ = 24.23, p < .01). However, each of these was qualified by a two-way interaction ($F(2,81)$ = 5.03, p < .05; see Table 1). When in bad moods, as predicted, contrasts within the ANOVA indicated more concern with preparative functionality with many- than enjoy-goals, whereas when in good moods there was more concern with affective functionality with enjoy-than many-goals ($t(81)$s > 2.52, ps < .05). Many- and enjoy-goal functionality did not differ within the control-mood conditions.

Affect and preparation

What are the consequences of thinking counterfactually under these conditions? We predicted that more downward counterfactuals with enjoyment goals in good moods would be reflected in positive affect (self-enhancing mood-maintenance); greater numbers of upward counterfactuals with performance goals in bad moods would be reflected in higher preparation. After generating counterfactuals, participants responded to a second series of mood adjectives which were appropriately reverse scored and averaged (Cronbach's α = .87). In addition, participants responded to a set of three questions which were averaged to form an index of preparation (Cronbach's α = .72). Each measure were subjected to a 3 (mood) × 2 (goal) ANOVA.

For affect, there were mood ($M_{negative}$ = 3.64; $M_{positive}$ = 5.35; $M_{control}$ = 4.12; $F(2,81)$ = 10.86, p < .01) and goal (M_{many} = 3.82; M_{enjoy} = 4.92; $F(1,81)$ = 19.95, p < .01) main effects, qualified by a mood × goal interaction ($F(2,81)$ = 5.03, p < .01; see Table 1). As predicted, positive-mood/enjoy participants felt better than those in all other cells ($t(81)$ = 3.04, p < .01): of course, participants also generated the most downward counterfactuals in this cell. Participants in the negative-mood/many cell felt worse than all others ($t(81)$ = 2.02, p < .05), except the control-mood/many cell from which it did not differ. There were no other differences on the affect measure.

For preparation, there were mood ($M_{negative}$ = 5.71; $M_{positive}$ = 4.28; $M_{control}$ = 4.99; $F(2,81)$ = 16.52, p < .01) and goal (M_{many} = 5.33; M_{enjoy} = 4.65; $F(1,81)$ = 13.44, p < .01) main effects, qualified by a mood × goal interaction ($F(2,81)$ = 5.23, p < .01; see Table 1). As predicted, negative-mood/many participants felt more prepared than those in all other cells ($t(81)$ = 2.12, p < .05); of course, participants also generated the most upward counterfactuals in this cell. Participants in the control-mood/many cell also felt more prepared than those in the positive-mood/enjoy cell ($t(81)$ = 2.02, p < .05). There were no other differences on the preparation measure.

Study 1 elaborates and extends prior research, and several findings are of note. First there were as many counterfactuals generated overall in positive as there were in negative moods, in comparison to controls. Secondly, when the goal was enjoyment, the greatest number of downward counterfactuals was generated in good moods, but when the goal was performance the greatest number of upward counterfactuals was generated in bad moods. Thirdly, self-ratings indicated that affective functions were salient with task enjoyment goals in good moods, but

preparative functions were salient with performance goals in bad moods. Fourthly, participants felt best in the positive-mood/enjoy condition; they felt least prepared in the two positive mood conditions. Together, the findings are consistent with our hypotheses that people enjoy generating downward counterfactuals in good moods and that this serves a mood-maintenance motive (though they may feel little prepared). People also generated many upward counterfactuals in bad moods with performance goals and they feel more prepared (though they may have bad moods). Fifthly, of course, mood × goal and mood × counterfactual interactions replicated previous mood-as-input and counterfactual findings.

STUDY 2
Outcome valence and affect vs. preparation goals

We used a different strategy in Study 2 to test our reasoning, and we had several objectives. First, although laboratory tasks have been common in counterfactual research, such tasks may be limited in generality. In Study 2, we used students' reactions to real-life exams. Secondly, this method allowed us to test another issue. Outcome valence (success and failure) may influence counterfactuals through moods (Roese & Olson, 1997); positive outcomes elicit good moods, whereas negative outcomes elicit bad moods. In Study 2, this was assessed by relying on students' exam outcomes. Thirdly, we reversed the goal manipulations and measures of Study 1. We varied affective (e.g. 'Do I feel good or satisfied with my moods or feelings?') and preparative (e.g. 'Do I understand my situation or have I prepared for the future?') goals and measured the consequences. This represents a set of goal instructions not used previously by mood-as-input researchers. Mood-as-input researchers also have not yet tested how moods resulting from outcomes may interact with goals. By the same token, counterfactual researchers have not tested how manipulated moods may interact with manipulated goals. In addition to testing processes of counterfactual thinking, Study 2 thus also makes several methodological alterations that advance the generality of prior research.

The main design of Study 2 was a 2 (outcome: failure, success) × 3 (goal; preparative, affective, control) between participants factorial. With affective goals, we predicted high numbers of downward counterfactuals after positive outcomes. Conversely, with preparative goals, we predicted high numbers of upward counterfactuals after negative outcomes. Outcome valence should influence moods. Greater numbers of downward counterfactuals with affective goals after positive outcomes should be reflected in more self-rated enjoyment and positive affect; greater numbers of upward counterfactuals with preparative goals after negative outcomes should be reflected in more self-rated concern with performance and higher preparation. While using exam outcomes, these predictions mirror those of Study 1, but with manipulations and measures reversed.

Method

Participants

Participants were 72 (48 females and 24 male) students who received extra course credit. They were selected from a larger pool of 350 students enrolled in introductory psychology. Approximately equal

numbers of participants and approximately equal proportions of females and males were distributed among conditions.

Procedure

As part of a cover story, students were told that researchers in the psychology department were 'studying variables that might be related to exam performances'. Participants were telephoned and scheduled to meet in a nearby classroom on the day scores were discussed; they had been recruited in the basis of their first exam scores. Thirty-seven students scoring a B and above and 35 students scoring D and below participated.[4] The scheduling and administration was conducted by a research assistant after a regular class session. It was emphasized that their instructor would not see their answers, and the instructor was not present during questionnaire administration.

Outcome valence. We assessed mood as it relates to outcome valence (Roese & Olson, 1997). The study was conducted on the day that scores were discussed, which was the first class session after the exam (two days after the exam). Students viewed their actual exam scores before moving on to a nearby classroom to respond to the measures. On a first questionnaire, embedded among filler items, participants answered a pair of questions on which they rated the extent to which they thought they had done well on the first exam in their course, and the extent to which they thought they were successful on the first exam in their course (1 = not at all, 9 = very much); Participants were also told to think about their exam scores as they responded to a series of positive and negative mood-adjectives that were identical to those of Study 1.

Counterfactual thoughts and goal instructions. The counterfactual and goal instructions were patterned after Study 1. However, preparative- and affective-goals were used in Study 2. Specifically, after reading counterfactual instructions identical to Study 1 but which referred to the course exam, students in the *preparative* condition read the following:

> As you generate counterfactuals, ask yourself 'Do I understand my performance and feel prepared for a future exam?' If the answer is 'yes', then stop. If the answer is 'no' then continue generating counterfactuals. There is no right or wrong time to stop. Stop when you feel better prepared for a future exam.

In the *affective* condition, the instructions read as follows:

> As you generate counterfactuals, ask yourself 'Do I feel good about my exam performance and satisfied with my feelings?' If the answer is 'yes,' then continue generating counterfactuals. If the answer is 'no,' then stop. There is no right or wrong time to stop. Stop when you are satisfied with your feelings.

In the *control* condition, participants merely read the instructions and generated counterfactuals without any further goals, which has been typical in counterfactual research (Roese & Olsen, 1997; Sanna & Turley, 1996). Prior counterfactual researchers have sometimes had counterfactuals coded by participants themselves as in Study 1 (Sanna *et al.*, 1999), but at other times researchers have used rater-code counterfactuals (Roese, 1994; Sanna, 1996). Thus, to increase the generality of our findings, and corresponding to the latter procedure, in Study 2 counterfactual direction was not coded by the students themselves, but later rated by judges. Participants also responded to goal manipulation checks (affective and preparative), similar to Study 1.

[4] This procedure was necessary because of class scheduling conflicts and a strong concern by the instructor and the University Research Review Board that actual class time should not be used for research purposes. There also was another course using the room immediately after the meeting time of introductory psychology. Fortunately, there was an alternate classroom available very close by. Students were selected and telephoned to report to this nearby classroom after their regular class session to complete the measures. Of these initially telephoned, 10 scoring D and below and eight scoring A and above did not show, resulting in the final numbers reported in our Methods. As can be seen, however, no-shows were about equally divided among outcome conditions, making differential 'attrition' an unlikely explanation of our results.

Enjoy vs. many. On another page and embedded among fillers, students rated whether they enjoyed generating counterfactuals or whether they had attempted to generate as many counterfactuals as they could with instructions virtually identical to the 'functionality ratings' of Study 1. However, in Study 2, instructions referred to generating counterfactuals because they are 'enjoyable' or because people feel a need to generate 'a lot' of them. This was rated on one 9-point scale anchored by −4 = a lot and +4 = enjoy, with zero as a scale mid-point.

Mood and preparation ratings. All participants next responded to the series of positive and negative mood adjectives again, and to a set of three questions assessing preparation virtually identical to Study 1, but modified to refer to their course exam.

During a later class session, students were debriefed about the study's purpose, hypotheses and findings, which they appeared to enjoy discussing.

Results and discussion

Outcome valence and moods

On a first questionnaire, participants answered a pair of questions assessing perceived outcome valence, which were averaged ($t(70) = .67$, $p < 0.1$) and submitted to a 2 (outcome) × 3 (goal) ANOVA. There was only an outcome main effect ($F(1,66) = 10.53$, $p < .01$; $M_{failure} = 4.01$; $M_{success} = 5.89$). When thinking about exams, participants also responded to a series of positive and negative mood adjectives, which were appropriately reverse scored and averaged (Cronbach's $\alpha = .76$), again revealing only an outcome main effect in a 2 × 3 ANOVA ($F(1,66) = 14.38$, $p < .01$; $M_{failure} = 4.03$; $M_{success} = 6.10$). Together, these findings are evidence of outcome valence as a source of mood in this study; outcome valence and mood were also correlated ($r(70) = .62$, $p < .01$). All participants responded correctly to the goal manipulation checks.

Counterfactual thoughts

Two judges, each unaware of hypotheses, coded participants' counterfactuals as upward (e.g. 'If only I paid more attention to the assigned readings, my test score would be a lot better') and downward (e.g. 'I studied with my friend who is a psychology major, or I might have done worse'), with an overall agreement of 89% (upward, 92%; downward, 88%). Any discrepancies in coding were resolved through further discussion.

Thoughts were submitted to a 2 (outcome) × 3 (goal) × 2 (counterfactual: upward, downward) ANOVA, with counterfactual as a within-participant variable. There were the following interactions: outcome × goal ($F(2,66) = 15.05$, $p < .01$); outcome × counterfactual ($F(1,66) = 26.47$, $p < .01$); goal × counterfactual ($F(2,66) = 19.55$, $p < .01$); and three-way ($F(2,66) = 5.32$, $p < .01$).

Contrasts within the three-way interaction (see Fig. 2) revealed that, as predicted, the number of downward counterfactuals within the success/affect ($M = 4.97$) and success/control ($M = 4.44$) cells differed from the number of downward counterfactuals generated in all other cells (Ms = 3.21, 3.56, 3.25, 3.27, left to right for other downward means in Fig. 2; $t(66)$s > 2.06, ps < .05). The success/affect and success/control downward counterfactual means did not differ from each other, nor did the group of remaining downward means. Also as predicted, the number of

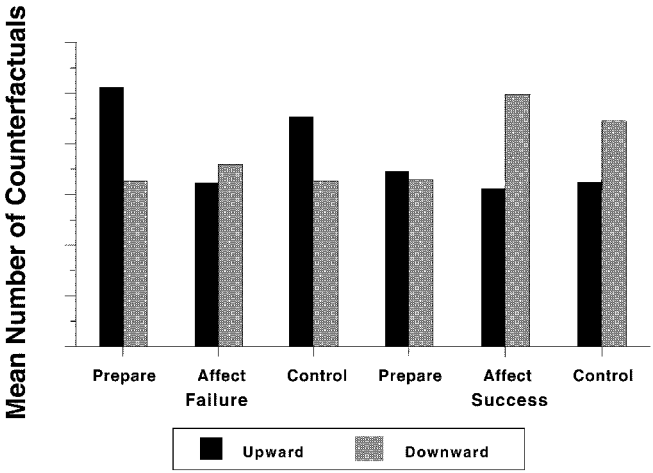

Figure 2. Mean number of counterfactuals by outcome (failure, success) and goal (prepare, affect, control) for Study 2.

upward counterfactuals generated within the failure/prepare ($M = 5.11$) and failure/control ($M = 4.51$) cells differed from the number of upward counterfactuals in all other cells ($Ms = 3.20, 3.43, 3.11, 3.23$, left to right for other upward means in Fig. 2; $t(66)$s > 2.00, $ps < .05$). The failure/prepare and failure/control upward counterfactual means did not differ from each other, nor did the group of remaining upward means.

The lower-order outcome × goal and outcome × counterfactual interactions are consistent with mood-as-input and counterfactual predictions, respectively. After failure, prepare-goals led to more counterfactuals ($M = 4.16$) than affective-goals ($M = 3.38$), whereas after success, affective-goals led to more counterfactuals ($M = 4.04$) than prepare-goals ($M = 3.35$; $t(66)$s > 2.54, $ps < .05$). The failure/control mean (3.89) did not differ from the failure/prepare mean, and the success/control mean (3.84) did not differ from the success/affect mean. After failure, more upward ($M = 4.28$) than downward ($M = 3.25$) counterfactuals were generated, whereas after success, more downward ($M = 4.23$) than upward ($M = 3.30$) counterfactuals were generated ($t(66)$s > 2.03, $ps < .05$).

Enjoyment and performance rating

Participants rated whether they enjoyed generating counterfactuals or whether they had attempted to generate as many counterfactuals as they could. This 'enjoy/many' rating was subjected to a 2 (outcome) × 3 (goal) ANOVA. There were outcome ($F(1,66) = 12.22$, $p < .01$) and goal ($F(2,66) = 9.73$, $p < .01$) main effects qualified by an interaction ($F(2,66) = 3.44$, $p < .05$; (see Table 2). Contrasts indicated that, after failure, there was more concern with performance for preparative and

Table 2. Mean enjoy/many, affect and preparation by outcome and goals for Study 2

Variable	Failure			Success		
	Prepare	Affect	Control	Prepare	Affect	Control
Enjoy/many	−3.13	1.02	−2.87	.52	3.10	2.60
Affect	3.55	5.21	4.04	4.00	5.82	5.14
Preparation	6.45	4.98	6.33	5.23	4.33	4.46

Note. Mean enjoy/many could range from −4 to +4; mean affect and preparation could range from 1 to 9.

control goals than affective goals; after success, there was more concern with enjoyment with affective and control goals than preparative goals ($t(66)$s > 2.32, ps < .05).

Affect and preparation

The consequences of counterfactual thinking were also assessed. After generating counterfactuals, participants responded to a series of mood adjectives which were appropriately reverse scored and averaged (Cronbach's $\alpha = .72$). In addition, participants responded to three questions which were averaged to form an index of preparation (Cronbach's $\alpha = .78$). Each measure was subjected to a 2 (outcome) × 3 (goal) ANOVA (see Table 2).

For affect, there were outcome ($F(1,66) = 15.39$, $p < .01$) and goal ($F(2,66) = 10.01$, $p < .01$) main effects and an interaction ($F(2,66) = 4.88$, $p < .05$). After success, there was more positive affect with affective and control than preparative goals; after failure, there was less positive affect with preparative and control than affective goals (although affective and control goals did not differ). For preparation, there also were outcome ($F(1,66) = 9.55$, $p < .01$) and goal ($F(2,66) = 6.73$, $p < .01$) main effects and an interaction ($F(2,66) = 3.22$, $p < .05$). After success, there was less preparation with affective and control than preparative goals ($t(66) = 2.44$, $p < .05$); after failure, there was more preparation with preparative and control than affective goals ($t(66) = 2.98$, $p < .05$).

Study 2 extends Study 1 and prior research in several ways, and several findings are of note. First, we reversed the goal manipulations and measures of Study 1, but found complimentary results. High numbers of downward counterfactuals were generated in good moods when affective goals were salient, whereas high numbers of upward counterfactuals were generated in bad moods when preparative goals were salient. Secondly, under these same conditions, participants rated downward counterfactuals as enjoyable, whereas they tried to generate many upward counterfactuals. This gives additional credence to a good mood, downward counterfactual, enjoyment relation, and to a bad mood, upward counterfactual, performance relation. Thirdly, people felt positively after generating downward counterfactuals with affective goals, and prepared after generating upward counterfactuals with preparative goals. Fourthly, naturally varied moods on real-life exams provided

further generality to our proposals. Control goals consisting of instructions typically used in counterfactual research produced a pattern after failure similar to preparative goals and a pattern after success similar to affective goals. Finally, we must acknowledge that participants in our success and failure conditions may have differed on other characteristics as well. However, this alone would not easily explain the outcome interactions with goals. In fact, one could argue that our results are particularly strong given they were obtained despite possible added participant variation.

GENERAL DISCUSSION

Our two studies clearly indicate that motivational goals, in interaction with moods, can influence the number and direction of counterfactual thoughts. This was shown for participants' performances after laboratory tasks (Study 1) and for students' reactions to their real-life exam performances (Study 2). In addition, our results were obtained with directly induced moods (Study 1) and with outcome valence (Study 2), and with both participant (Study 1) and judge-coded (Study 2) counterfactuals. Moreover, moods and outcomes interacted with two different goal manipulations, many vs. enjoy (Study 1) and preparative vs. affective (Study 2). Finally, taken together (Studies 1 and 2), participants found generating downward counterfactuals after good moods or outcomes especially enjoyable and they felt positively. Participants who were highly concerned with performance and preparation after bad moods or outcomes felt prepared.

The control conditions are also informative. In Study 1, participants generated more upward counterfactuals with performance goals in control-moods. This was similar in pattern to the negative-mood/performance condition. People may be predisposed to upward counterfactuals, if performance goals are adopted. Interestingly, past research in which upward counterfactuals are found more often has also generally used tasks in which performance goals are likely (e.g. anagrams, exams; Roese & Olson, 1997; Sanna, 1996). In Study 2, control-goal participants generated patterns of counterfactuals similar to preparative-goal participants after failure and to affective-goal participants after success. The control-goal was similar to instructions used typically in prior counterfactual research. This pattern suggests that preparative goals may be normally adopted after negative moods or outcomes, but that affective goals are normally adopted after positive moods or outcomes. Results relating to our control conditions are worthy of future research.

Valanced events and motivational functions

Valanced events, whether direct bad and good mood-manipulations (Study 1) or failure and success (Study 2), produced a highly consistent pattern, providing additional evidence that moods and outcomes may influence counterfactuals similarly. One reason for this may be that moods manipulated by movies and moods resulting from outcomes may serve as a source of information (Schwarz & Clore, 1996) to counterfactual thinking (Sanna *et al.*, 1998). Negative outcomes or

moods may be linked to self-improvement through a preparative function of counterfactuals. Upward counterfactuals are useful for self-improvement. Thinking about how things might be better can be a first step in planning to actually obtain superior outcomes. Moreover, if bad moods signal trouble (Schwarz, 1990), upward counterfactuals can suggest routes for alleviating problems. Although several motives conceivably are relevant, counterfactual and mental simulation research generally has centred on self-improvement and self-enhancement (Taylor & Schneider, 1989). But the present research adds to the growing evidence that linkages are more varied.

Upward simulations can indeed be used for self-improvement. Self-enhancement motives may be more complex. There may be many ways to parse self-motives. However, Sedikides and Strube (1997) have proposed that there are at least three varieties of self-enhancement: people can *repair*, *maintain* or *protect* a positive self-concept. This conceptualization fits the existing evidence well. Past research focused only on the restorative role of mental simulations. By thinking about how things might be worse after negative events or moods, downward simulations allow people to feel good by comparison, or *mood-repair* (Sanna *et al.*, 1998, 1999). However, people often want to prolong their pleasant affective states, and the present research now indicates that *mood-maintenance* can also be achieved by thinking about downward simulations when in good moods or after success. Self-enhancement may be accomplished further by protecting the self from threats, or *self-protection*. We (Sanna, 1999; Sanna & Meier, 2000) have shown recently that people can use upward simulations to 'buffer' or 'brace' for the worst before performing. Upward simulations allow one to think 'I knew it all along', lessening the blow if the worst does transpire.

Our studies add to prior research by indicating that downward counterfactuals after positive moods or outcomes may be used for mood-maintenance, an alternate affective function. This is further consistent with proposals that people in good moods aspire to prolong or even increase their pleasant state (Isen, 1987). But are downward counterfactuals after positive moods or outcomes functional? Perhaps a parallel may be drawn to the emotion literature. It has been proposed recently that positive emotions are functional because they broaden a person's thought-action repertoire, prompting the growth of physical, intellectual and social resources which can be drawn upon later (Fredrickson, 1998). It is intriguing to speculate that downward counterfactuals in good moods in part serve a similar purpose. Testing this possibility, and whether it translates into actual performance or coping changes, may be especially interesting.

Other implications future directions

Mood and goal relations have other implications. There may be individual differences in chronic moods. For example, optimists and defensive pessimists (Sanna, 1996, 1998) or depressives (Markman & Weary, 1997) may react differently to various goals. In addition, there may be differences in chronic goals. For instance, low self-esteem persons may be more concerned with self-protection (Sanna & Meier, 2000), whereas high self-esteem persons may be more concerned

with mood-repair (Sanna *et al.*, 1998, 1999). This latter possibility may be particularly interesting. When affective goals were manipulated in Study 2, for example, participants considered 'Do I feel good about my exam performance and satisfied with my feelings?' Participants after failure answered 'no' and stopped sooner. According to the mood-as-input model, however, influences of moods are configural (Martin *et al.*, 1997). If, instead, participants had been asked to generate counterfactuals until they 'felt *better* about their exam performances', or something similar, then mood-repair effects might have been obtained. Optimists and high self-esteem persons, among other individual differences (Sanna, 2000), may naturally adopt characteristic goals more often, which may vary further in their intensity (Sanna & Turley-Ames, 2000).

Our studies are the first to test conditions under which *good* moods lead to more counterfactual thinking. Employing the mood-as-input (Martin *et al.*, 1993) paradigm also helps to further an understanding of motives. This is particularly true for positive moods and outcomes. In Study 1, when enjoyment goals were salient, good moods resulted in high numbers of downward counterfactuals. When performance goals were salient, participants did not generate high numbers of downward counterfactuals in good moods. This qualifies prior counterfactual research (Sanna *et al.*, 1998, 1999), in which good moods always led to downward counterfactuals. A similar pattern was obtained in Study 2 after success when affective and preparative goals were salient. The two studies thus provide strong evidence consistent with the argument that people in good moods (or after positive outcomes) generate downward counterfactuals to maintain good moods and that they find such mood maintenance to be particularly enjoyable. The mood-as-input model informs the performance and preparative relation as well. Upward counterfactuals have greater benefits in bad moods or after failures because they specify what can be done to improve, an argument consistent with functional views of counterfactuals, and with the distinction made between problem-focused and emotion-focused coping (Lazarus, 1991). Several studies (Markman *et al.*, 1993; Sanna *et al.*, 1998; Sanna & Turley, 1996) have shown that counterfactuals can be generated spontaneously; however, testing this explicitly within the present paradigm may also be useful.

Finally, it was not our purpose to distinguish among various models (Schwarz & Clore, 1996) of moods. It is our view that several processes may work in concert (Sinclair & Mark, 1992) to influence counterfactuals. Nevertheless, our research is consistent with notions that the implications of moods are mutable (Martin *et al.*, 1993, 1997), and alternate models may have some difficulty parsimoniously accounting for our findings. For example, suggestions that good moods bring to mind more diverse information to process more flexibly or to diffuse attention (Parkinson, Totterdell, Briner, & Reynolds, 1996) cannot by themselves account easily for why people in good moods generate many or few counterfactuals depending one's goals. Our results, however, are more compatible with the idea that feelings serve as information (Schwarz & Clore, 1996), an assumption shared by the mood-as-input model (Martin *et al.*, 1993, 1997). Good moods lead to more downward counterfactuals when they reflect enjoyment; bad moods lead to more upward counterfactuals when they reflect performance. Further supporting this

view, moods did not influence counterfactuals when they were attributed to irrelevant external sources (Sanna *et al.*, 1998), suggesting that it is not a simple memory or priming process. Distinguishing among possible mood models may be another question awaiting future research. We hope that researchers feel as good as we do about attempting to explicate the relationships between moods, goals and counterfactuals while simultaneously finding this to be an enjoyable and challenging task.

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