
12 Counterfactual Thinking: Function and Dysfunction

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Counterfactual thinking—the capacity to reflect on what would, could, or should have been if events had transpired differently—is a pervasive, yet seemingly paradoxical human tendency. On the one hand, counterfactual thoughts can be comforting and inspiring (Carroll & Shepperd, Chapter 28), but on the other they can be anxiety provoking and depressing (Zeelenberg & Pieters, Chapter 27). Likewise, such thoughts can illuminate pathways toward better future outcomes (Wong, Galinsky, & Kray, Chapter 11), yet they can also promote confusion and lead us astray (Sanna, Schwarz, & Kennedy, Chapter 13). The first part of this chapter focuses on work that supports the prevailing zeitgeist in the counterfactual thinking literature: Counterfactual thinking is beneficial. The second part of the chapter, however, strikes a more cautionary tone by reviewing work that describes some deleterious consequences of counterfactual thinking. We conclude by offering a tentative reconciliation of these conflicting perspectives and suggesting directions for future research.

THE FUNCTIONAL SIDE OF COUNTERFACTUAL THINKING

With every mistake, we must surely be learning ...

The Beatles, *While My Guitar Gently Weeps*, 1968

SIMULATION DIRECTION

Early research on counterfactual thinking examined the cognitive rules that govern the availability of various counterfactuals (see also Byrne & Giroto, Chapter 10, this volume; Roese & Olson, 1995a). For example, research showed that people are more likely to imagine what might have been different about exceptional (i.e., surprising or unexpected) events than about normal events (Kahneman & Miller, 1986). In addition, counterfactual thinking was shown to influence both social judgments and feelings, including regret, victim compensation, and event causality (e.g., Landman, 1987; D. T. Miller & McFarland, 1986; Wells & Gavanski, 1989).

In addition to understanding the cognitive rules that govern counterfactual thinking, researchers also came to believe that a full understanding of counterfactual thinking processes requires consideration of how they might serve people's motives and goal states: What are the costs and benefits of imagining what could have been? Borrowing a theoretical distinction drawn in the social comparison literature between upward and downward comparisons (e.g., Collins, 1996; Taylor, Buunk, & Aspinwall, 1990; Wood, 1989), researchers (e.g., Markman, Gavanski, Sherman, and McMullen, 1993; McMullen, Markman, & Gavanski, 1995; Roese, 1994) classified counterfactuals on the basis of their direction of comparison. Specifically, *upward counterfactuals* construct imagined alternatives that improve on reality, whereas *downward counterfactuals* construct alternatives that worsen reality. In turn, possible functions of upward and downward counterfactual thoughts were identi-

fied. One is the affective function (e.g., McMullen, 1997; Roese, 1997; Taylor & Schneider, 1989), by which a given outcome is judged more favorably to the extent that a less-desirable alternative is salient. In this way, downward counterfactuals can enhance coping and well-being by highlighting how the outcome could easily have been worse. A second is the preparative function. Although upward counterfactuals may devalue the actual outcome and make one feel worse (e.g., Johnson, 1986; Landman, 1987; Mellers, Schwartz, Ho, & Ritov, 1997), simulating routes to better realities may help individuals improve on their outcomes in the future (Johnson & Sherman, 1990; Karniol & Ross, 1996; Markman & McMullen, 2003; for a related distinction, see Folkman & Lazarus, 1980).

Roese (e.g., 1994, 1997) has been particularly explicit about specifying the mechanisms underlying the preparative function. According to Roese, counterfactual thoughts may lead to causal inferences. For example, if Tom fails an exam and then realizes that he would have passed if he had read the textbook chapters more carefully, he has identified a causally potent antecedent action that may trigger an expectancy regarding the consequences of taking that action in the future. This realization should then heighten intentions to perform that action and thereby influence the manifestation of that action. Subsequent performance will be enhanced to the extent that the initial causal inference was at least partly correct (Parks, Sanna, & Posey, 2003; Roese & Olson, 1995b; Segura & Morris, 2005).

SIMULATION MODE

The first wave of research on counterfactual thinking assumed that *contrast-based* reactions to counterfactual generation—by which judgments are displaced away from the counterfactual standard—were the default: Upward counterfactuals elicit negative affect, whereas downward counterfactuals elicit positive affect (e.g., Larsen, McGraw, Mellers, & Cacioppo, 2004; Markman et al., 1993; Medvec, Madey, & Gilovich, 1995; Sanna, 1996; Wohl & Enzle, 2003; and a point still maintained by Roese, Sanna, & Galinsky, 2005). However, a second wave of work (e.g., Boninger, Gleicher, & Strathman, 1994; Landman & Petty, 2000; Markman, Elizaga, Ratcliff, & McMullen, 2007; Markman & Tetlock, 2000; McMullen, 1997; McMullen & Markman, 2000, 2002; McMullen et al., 1995; Sanna, 1997; Sanna & Meier, 2000; Teigen, 2005; Tetlock, 1998; Wayment, 2004) indicated that *assimilation-based* reactions to counterfactual generation—by which judgments are pulled toward the counterfactual standard—are also common, meaning that upward counterfactuals can also elicit positive affect, and downward counterfactuals can also elicit negative affect. Markman and McMullen (2003; see also Markman & McMullen, 2005; Markman, Ratcliff, Mizoguchi, Elizaga, & McMullen, 2007) developed a process model, the reflection and evaluation model (REM) of comparative thinking, that accounts for the elicitation of assimilative and contrastive responses to upward and downward counterfactuals, as well as the motivational and behavioral consequences of such responses. At the heart of the model is the assertion that two psychologically distinct modes of mental simulation operate during comparative thinking. The first of these modes is *reflection*, wherein one vividly simulates that information about the comparison standard is true of, or is part of, one's self-construal or present standing, and the second is *evaluation*, whereby the outcome of a mental simulation run is used as a reference point against which to evaluate oneself or one's present standing.

Figure 12.1 depicts the interaction between simulation direction and simulation mode. To illustrate, consider the student who receives a B on an exam but realizes that an A was easily attainable with some additional studying. In the case of upward evaluation, the student switches attention between the outcome (a grade of B) and the counterfactual standard (a grade of A). According to the REM, the dual focus ("I got a B ... I could have gotten an A but instead I got a B") instigates evaluative processing that encourages using the comparison standard as a reference point (Mussweiler, 2003; Oettingen, Pak, & Schnetter, 2001; Pham & Taylor, 1999). In the case of upward reflection, however, the student's attention is only focused on the counterfactual. The single focus (see also Oettingen & Kappes, Chapter 26, this volume) instigates reflective processing in which the student

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Direction	Mode	
	Reflection	Evaluation
Upward	Positive Affect	Negative Affect
Downward	Negative Affect	Positive Affect

FIGURE 12.1 The interaction between simulation direction and simulation mode.

temporarily experiences the counterfactual as if it were real (“What if I had actually gotten an A?”). Phenomenologically, reflection “transports” the student into the counterfactual world (Green & Brock, 2000; Green & Donahue, Chapter 16, this volume). Likewise, consider the case of a driver who pulls away from the curb without carefully checking rear- and side-view mirrors and subsequently slams on the brakes as a large truck whizzes by. In the case of downward evaluation, the driver compares the counterfactual standard to the outcome (“I was fortunate not to have been hit by that truck”), whereas in the case of downward reflection, the driver only focuses on the counterfactual (“I nearly got hit by that truck”).

AFFECT AND MOTIVATION

The REM asserts that both upward and downward counterfactuals can have an energizing effect on subsequent behavior. A key assumption is that the initial impetus to act, or disinclination to change the status quo, is rendered by recognizing one’s internal affective state following counterfactual generation. Drawing on Schwarz and Clore’s (1983) feelings-as-information perspective (see also Martin, Ward, Achee, & Wyer, 1993), the REM posits that counterfactuals that elicit negative affect should encourage greater persistence than should counterfactuals that elicit positive affect. Moreover, any useful causal inferences that are derived from contemplation of the counterfactual will suggest specific behaviors that the individual might perform in the future (Roese, 1997). Thus, upward evaluation is more likely than upward reflection to heighten motivation. Conversely, the REM posits that downward reflection should heighten motivation, whereas downward evaluation should engender complacency. According to the model, the negative affect elicited by downward reflection raises an individual’s awareness of the possibility that a negative goal-state may be attained (see also Lockwood, Jordan, & Kunda, 2002; Wayment, 2004), whereas the positive affect elicited by downward evaluation suggests that a negative goal state has been successfully avoided.

An Empirical Test

To provide evidence for basic REM predictions regarding affect, motivation, and behavior, Markman, McMullen, and Elizaga (2008) had participants complete an initial set of anagrams and then gave them performance feedback. To manipulate simulation direction, participants were instructed to “think about how something different could have happened rather than what actually happened.” Those assigned to the upward counterfactual condition were told, “Think about how your performance on the anagrams might have turned out better than it actually did,” whereas those assigned to the downward counterfactual condition were told, “Think about how your performance on the anagrams might have turned out worse than it actually did.” Simulation *mode* was then manipulated. Evaluative mode instructions directed participants: “Think about your actual performance on the anagrams compared to how you might have performed better (worse). Vividly evaluate your

performance in comparison to how you might have performed better (worse)”; whereas reflective mode instructions directed participants: “Vividly imagine what might have been. Imagine how your performance on the anagrams might have been better (worse).” Participants then described these thoughts in writing and indicated their current mood. Subsequently, participants were given as much time as they liked to complete a second set of anagrams, and both persistence and performance on this second set were measured.

The general prediction was that upward evaluation would enhance motivation and performance to a greater extent than would upward reflection, whereas downward reflection would enhance motivation and performance to a greater extent than would downward evaluation. In addition, Markman et al. (2008) sought to examine the psychological mechanisms by which counterfactual thinking exerts effects on motivation and behavior. According to the REM, negative affect mediates the relationship between counterfactual thinking and persistence. Thus, upward evaluation should elicit more persistence than upward reflection because upward evaluation evokes negative affect, whereas downward reflection should elicit more persistence than downward evaluation because downward reflection evokes negative affect. Furthermore, however, it was posited that the mechanisms by which counterfactual thinking affects performance would differ for upward and downward counterfactuals. For both types of counterfactuals, it was predicted that persistence would enhance performance through affect. Notably, however, prior theorizing (e.g., Markman et al., 1993; Roese, 1997) contends that upward counterfactuals prepare for the future by suggesting specific courses of action (e.g., “If I had studied harder, I would have received a better grade; therefore, I will study harder next time”), whereas downward counterfactuals suggest no such specific routes to better performance and thus are not involved in future preparation. Thus, Markman et al. (2008) predicted that when upward counterfactuals were generated, evaluative processing would affect performance by dual mechanisms: (a) indirectly, vis-à-vis affect and enhanced persistence, and (b) directly, by eliciting useful inferences. On the other hand, it was predicted that when downward counterfactuals were generated, reflective processing would affect performance by a single mechanism: indirectly, vis-à-vis affect and persistence.

Results

Consistent with predictions, upward evaluation enhanced motivation and performance to a greater extent than did upward reflection, whereas downward reflection enhanced motivation and performance to a greater extent than did downward evaluation. Separate analyses were then performed on the upward and downward counterfactual thinking groups.

First examined was the prediction that affect would mediate the relationship between mode and motivation in the upward counterfactual condition. Mode predicted affect, $p = .002$, and (Set 2) persistence, $p < .001$, and when persistence was regressed on affect and mode, affect remained significantly related to persistence, $p < .001$, and mode remained significantly related to persistence, $p = .007$. Providing evidence for mediation, the relationship between mode and persistence was significantly reduced when affect was included as a mediator. Analyses were then conducted to determine how each of the study variables contributed to (Set 2) performance. As expected, persistence was significantly related to performance, $p = .05$, but mode *also* exerted a significant and independent effect on performance, $p = .05$.

To further understand which aspects of upward evaluative processing influenced performance, the counterfactuals were coded for evidence of useful inferences. An example of a counterfactual that received a “not at all useful” code was, “Easily finding the unscrambled words amidst the jumble and writing down multiple correct answers,” and an example of a counterfactual that received a “quite useful” code was, “I can discover more words by finding commonly used words within the letters and then seeing if a prefix or suffix can be added. I also can try to find common letter combinations.” Analyses indicated that whereas upward evaluation elicited more useful inferences than did upward reflection, downward reflection and evaluation did not differ in this regard.

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Two separate regressions were performed to determine whether inference scores in the upward counterfactual condition were associated with persistence and performance. First, when inference scores were allowed to predict persistence while controlling for affect, the analysis revealed a marginally significant positive association between the usefulness of the inferences and subsequent persistence on the anagram task, $p = .10$. Second, when inference scores were allowed to predict performance while controlling for affect and persistence, the analysis revealed a significant positive association between the usefulness of the inferences and subsequent performance on the anagram task, $p = .05$. Thus, the usefulness of the inferences derived from upward evaluative processing accounted for enhanced performance above and beyond the influence of persistence vis-à-vis affect.

Second, in the downward counterfactual condition, mode predicted affect, $p = .02$, and persistence, $p = .003$; affect was significantly related to persistence, $p = .001$; and demonstrating mediation once again, the path from mode to persistence became nonsignificant when affect was included as a mediator, $p = .06$. Next, performance was regressed on mode, affect, and persistence. As expected, persistence was significantly related to performance, $p = .05$. In contrast to the analyses conducted in the upward counterfactual condition, however, mode did not exert a significant effect on performance when affect and persistence were controlled, $p = .38$. Rather, mode was found to indirectly affect performance through its influence on persistence (vis-à-vis affect).

THE MODERATING ROLE OF REGULATORY FOCUS

The REM also posits that the consequences of counterfactual generation should be moderated by whether individuals are focused on either promotion or prevention goals (see also Hur, 2000; Pennington & Roese, 2002; Roese, Hur, & Pennington, 1999). According to regulatory focus theory (Higgins, 1998), promotion-oriented individuals are focused on growth, advancement, and accomplishment and thus tend to pursue strategies aimed at approaching desirable outcomes. On the other hand, prevention-oriented individuals are focused on protection, safety, and responsibility and thus tend to pursue strategies aimed at avoiding undesirable outcomes. Thus, a promotion focus should encourage the development of strategies (e.g., putting more effort into schoolwork) that focus on achieving outcomes that are more favorable than the actual outcome, whereas a prevention focus should encourage the development of strategies (e.g., checking all rearview and side mirrors before pulling out of a parking space) that attempt to avoid outcomes that are less favorable than the actual outcome.

Research has shown that the manner in which an object is chosen can affect the object's perceived value (e.g., Camacho, Higgins, & Luger, 2003; Higgins, Idson, Freitas, Spiegel, & Molden, 2003), a finding that has been termed the *regulatory fit effect* (e.g., Higgins, 2000, 2005). According to regulatory fit theory, when people engage in decisions or choices with strategies that sustain their orientation, they "feel right" about what they are doing, and this "feeling right" experience then transfers to subsequent choices, decisions, and evaluations. For example, Avnet and Higgins (2003) found that participants offered more of their own money to buy the same chosen book light when the choice strategy they used fit their regulatory orientation than when it did not fit, and Higgins et al. (2003) found that participants assigned a price up to 40% higher for the same chosen coffee mug when their choice strategy fit their regulatory orientation than when it did not fit.

Regulatory fit theory also predicts that motivational strength will be enhanced when the manner in which people work toward a goal sustains (rather than disrupts) their regulatory orientation, and that this enhanced motivational strength should in turn improve efforts at goal attainment. Spiegel, Grant-Pillow, and Higgins (2004) applied this notion to the domain of mental simulation. These researchers hypothesized that people with a promotion focus who develop approach-oriented plans should perform better at a task than people with a promotion focus who develop avoidance-oriented plans, whereas people with a prevention focus who develop avoidance-oriented plans should perform better at a task than people with a prevention focus who develop approach-related plans. In

support. Spiegel et al. (2004, Experiment 1) found that participants with regulatory fit between their predominant regulatory focus and the type of plans they mentally simulated were 50% more likely to turn in a report on time than participants without regulatory fit.

In a similar vein, Markman, McMullen, Elizaga, and Mizoguchi (2006) posited that counterfactuals should enhance motivational strength to the extent that there is regulatory fit between the counterfactual and the predominant regulatory focus. The initial formulation of the REM (Markman & McMullen, 2003) predicted that upward counterfactuals should be more associated with promotion concerns, whereas downward counterfactuals (and downward reflection in particular) should be more associated with prevention concerns. In a refinement of this prediction, however, Markman et al. (2006) hypothesized that upward evaluation might be associated with both a promotion *and* a prevention focus. Roese (1997) characterized upward counterfactual thoughts as being “part of a virtual, rather than an actual, process of avoidance behavior” (p. 135), and Mandel and colleagues (e.g., Mandel, 2003; Mandel & Lehman, 1996) provided evidence that upward counterfactual thoughts are most commonly directed toward how an outcome could have been avoided and prevented. Thus, upward evaluation may focus one on how an actual negative outcome can be avoided in the future while also suggesting means by which one can approach a relatively more favorable future outcome.

Overall, Markman et al. (2006) hypothesized that whereas upward reflection provides a good regulatory fit with promotion focus because it gives rise to the eager simulation and development of approach-oriented plans (Spiegel et al., 2004), upward evaluation provides a good regulatory fit with both promotion and prevention foci because it focuses the individual on both the approach-related plans associated with the attainment of a desired end state (i.e., the counterfactual outcome) and the avoidance-related plans associated with the prevention of an undesired end state (i.e., the actual outcome). Thus, upward evaluation and upward reflection should both be motivating in a promotion context, whereas upward evaluation should be more motivating than upward reflection in a prevention context. Second, they hypothesized that downward reflection provides a good regulatory fit with prevention focus because it focuses the individual on the vigilant simulation and development of avoidance-related plans, whereas downward evaluation should not be motivating in any context as it merely focuses the individual on feeling better about the present state of affairs. Thus, whereas neither downward reflection nor downward evaluation should be motivating in a promotion context, downward reflection should be more motivating than downward evaluation in a prevention context.

Like Markman et al. (2008), participants completed an initial set of anagrams, received performance feedback, generated either upward or downward counterfactuals about their performance, and then engaged in either reflection or evaluation. Participants then completed a second set of anagrams, and the incentive for completing these was framed either in terms of gaining or not gaining an extra dollar for the promotion focus (from a starting point of \$4) or in terms of losing or not losing a dollar for the prevention focus (from a starting point of \$5; see Shah, Higgins, & Friedman, 1998). Consistent with predictions, (a) upward counterfactual thinking elicited a larger increase in persistence than did downward counterfactual thinking under promotion framing; (b) upward evaluation elicited a larger increase in persistence than did upward reflection under prevention framing; and (c) downward reflection elicited a larger increase in persistence than did downward evaluation under prevention framing (see Figures 12.2 and 12.3).

These results have intriguing implications for decision making because they suggest that the generation of counterfactuals enhances the likelihood that individuals will choose courses of action that fit with their preferred (chronically or contextually determined) orientation—eagerness means for promotion, vigilance means for prevention. To illustrate, a promotion-oriented student who is seeking strategies for improving class performance would best be served by generating upward counterfactuals because they fit with the student’s habitual orientation. Not only should the student be more likely to select promotion-oriented strategies (e.g., studying over a longer period of time, asking more questions in class), but also the student should pursue such strategies with greater vigor

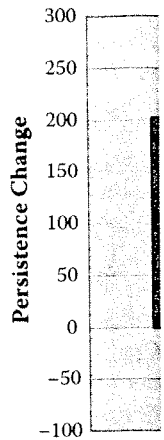


FIGURE 12.2 Persistence Change (Promotion mode).

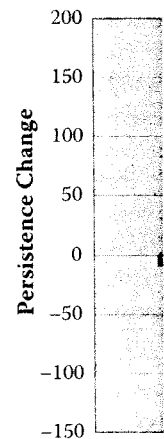


FIGURE 12.3 Persistence Change (Prevention mode).

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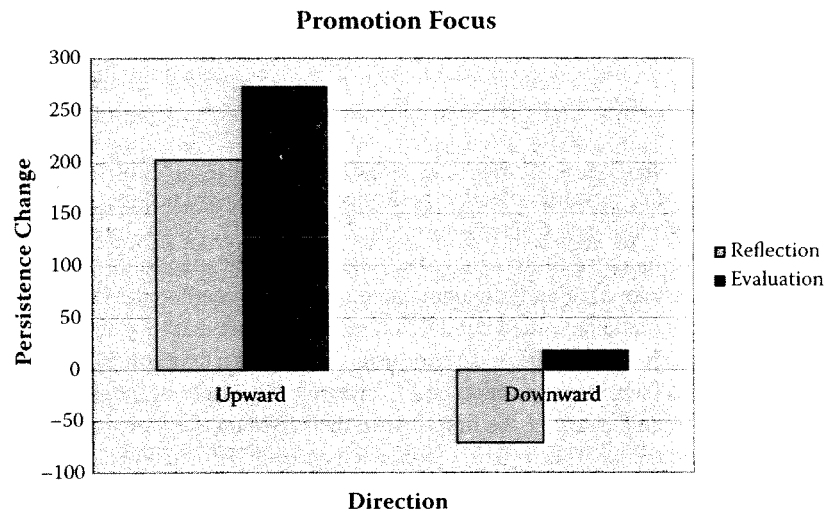


FIGURE 12.2 Persistence change under promotion focus as a function of simulation direction and simulation mode.

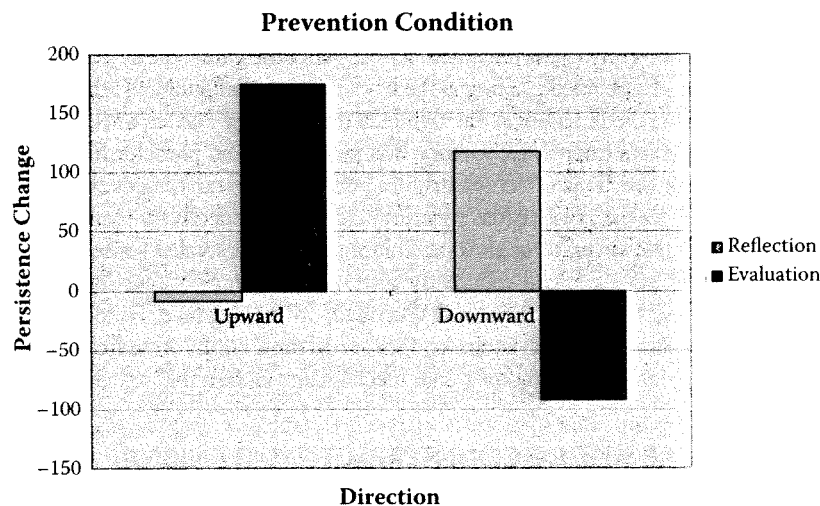


FIGURE 12.3 Persistence change under prevention focus as a function of simulation direction and simulation mode.

because the experience of regulatory fit enhances engagement strength. On the other hand, a prevention-oriented student would be well served by generating either upward evaluative or downward reflective counterfactuals. In addition to enhancing the likelihood of selecting prevention-oriented strategies (e.g., getting more sleep, socializing less), regulatory fit should also enhance the strength of the student's engagement in such strategies.

THE SENSE-MAKING FUNCTION OF COUNTERFACTUAL THINKING

In addition to the preparative and affective functions afforded by counterfactual thinking, Galinsky, Liljenquist, Kray, and Roesse (2005) have speculated that counterfactual *mutability* (i.e., the ability to alter or change multiple aspects of reality to create new and imagined realities) serves a more general sense-making function. According to these authors:

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Mutability provides the cognitive raw materials with which the sense-making process can construct alternative worlds juxtaposed against reality. The fact that alternative paths existed, but one path ultimately prevailed, makes the particular features of one's life all the more extraordinary, all the more significant, and thus all the more meaningful. (p. 114)

Sense-making cognitions can be triggered by either downward or upward counterfactuals. For instance, a clear instance of downward reflection is the near-death experience (e.g., vividly imagining perishing in one of the World Trade Center towers on September 11, 2001). Interestingly, however, switching to an evaluative mode of thinking can help ascribe significance to the event as well as to the individual's life as a whole: That an individual came so close to death and "defied the odds" (i.e., downward evaluation; they could have died but did not) makes the fact that they survived all the more impressive and gives rise to a sense of fate or determinism, facilitating a psychological conversion from "what might have been" to "what was meant to be." Conversely, a number of individuals were reportedly visiting the World Trade Center for the first time in their lives on the morning of September 11, 2001, and thus easily could not have been (and "should not have been") killed during the attacks (i.e., an upward evaluative counterfactual). As Galinsky et al. (2005) noted, "Whether lives were lost or saved due to the pairing of routine-violating behaviors and this unexpected attack, in both cases one may sense a mysterious force conjoining this pairing, rendering fate as a compelling explanation" (p. 116).

In a study designed to provide empirical support for the notion that mutability can trigger sense-making cognitions that imbue improbable events with greater meaning, Lindberg and Markman (2008) had participants read an account of a 1942 football game played between heavily favored Boston College and Holy Cross in which Holy Cross prevailed, 55–12. After the game, the dejected Boston College players decided not to spend a planned evening at the Coconut Grove nightclub. Half of the participants then learned that 500 people died in a fire at the nightclub that evening. Participants who read about the fire indicated that Holy Cross's improbable victory was more fated and predetermined than did those who did not read about the fire. This effect is intriguing because, logically, an event (i.e., the fire) that transpires after a target event (i.e., Holy Cross's victory) cannot retrospectively increase the chances of the target event occurring. However, through some combination of motivated sense making and magical thinking, such a posttarget event can apparently give rise to feelings of fate and predetermination (for related discussions, see Brickman, Ryan, & Wortman, 1975; McClure, Hilton, & Sutton, 2007; Spellman, Kincannon, & Stose, 2005; Tykocinski, Pick, & Kedmi, 2002). Research is currently being conducted to explore the cognitive and motivational mechanisms underlying this phenomenon.

THE DYSFUNCTIONAL SIDE OF COUNTERFACTUAL THINKING

You can spend your time alone re-digesting past regrets, oh
or you can come to terms and realize
you're the only one who cannot forgive yourself, oh
makes much more sense to live in the present tense

Pearl Jam, *Present Tense*, 1996

Although lab research employing problem-solving tasks has provided clear evidence for the performance-enhancing effects of counterfactual thinking (e.g., Markman, Lindberg, Kray, & Galinsky, 2007; Roese, 1994; Wong et al., Chapter 11, this volume), it is also important to consider data that indicate more "dysfunctional" responses. The second part of this chapter explores the potentially dysfunctional implications of downward and upward counterfactual thinking.

DOWNWARD COUNTERFACTUALS

In addition to the complacency-inducing influence of downward counterfactuals, such counterfactuals can also lower personal expectations and standards. Markman, Mizoguchi, and McMullen

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(2008) speculated that even when counterfactuals elicit clear contrastive effects on outcome evaluations, expectations regarding future outcomes may still assimilate to the counterfactual standard. In other words, counterfactual generation may shift the standard by which future outcomes are evaluated. Thus, although upward counterfactual thinking (e.g., "I got a B ... if only I had gotten an A") may elicit negative outcome evaluations via contrast, the standard by which future outcomes are evaluated may be elevated—the individual now perceives oneself as a potential A student. Similarly, although downward counterfactual thinking (e.g., "At least I didn't get a C") may elicit positive outcome evaluations via contrast, the standard by which future outcomes are evaluated may be lowered—the individual now perceives oneself as a C student who was fortunate to have obtained a B. Markman et al. (2008) examined this possibility within the context of the Abu Ghraib prison scandal.

The Abu Ghraib Study

In January 2004, an internal criminal investigation was launched by the U.S. Army in response to accounts of abuse and torture of prisoners that had allegedly occurred in the Abu Ghraib prison in Iraq. The acts were committed by personnel of the 372nd Military Police Company, Central Intelligence Agency (CIA) officers, and contractors involved in the occupation of Iraq. Reports of the abuse, as well as graphic pictures showing American military personnel in the act of abusing prisoners, came to public attention when a *60 Minutes* news report broke the story on April 28. Ultimately, the Department of Defense removed 17 soldiers and officers from duty, and 7 soldiers were charged with dereliction of duty, maltreatment, aggravated assault, and battery.

Arguably, the resulting political scandal damaged the credibility of the United States and its allies with regard to their ongoing military operations in the Iraq War. In an effort to lessen the rising tide of criticism being leveled against the Bush administration, a number of individuals, some employed by newspaper, radio, and television media and others by the U.S. government itself, drew a comparison in public statements between American treatment of Iraqi prisoners at Abu Ghraib and the even more severe treatment these prisoners "would have" received if former Iraqi president Saddam Hussein had still been in power. For instance, during a U.S. Senate Armed Services Committee hearing on the treatment of Iraqi prisoners, Senator James Inhofe (R, Oklahoma) remarked:

I have to say that when we talk about the treatment of these prisoners that I would guess that these prisoners wake up every morning thanking Allah that Saddam Hussein is not in charge of these prisons. When he was in charge, they would take electric drills and drill holes through hands, they would cut their tongues out, they would cut their ears off. We've seen accounts of lowering their bodies into vats of acid. All of these things were taking place. (Washingtonpost.com, 2004)

To examine the possible deleterious consequences of considering the "it would have been worse under Saddam" argument, Markman et al. (2008) asked study participants to read a packet of materials that began with a paragraph describing a *60 Minutes* television broadcast from April 2004 that showed photographs of the "abuse and humiliation of Iraqi prisoners" by a small group of U.S. soldiers at Abu Ghraib prison in Iraq. After reading this paragraph, participants in the control condition were prompted to describe their reaction to the event in writing. In a downward counterfactual condition, participants read an additional paragraph that described how thousands of political prisoners had been tortured and executed at Abu Ghraib during Saddam Hussein's tenure as Iraqi president and were prompted to "make an argument that being at Abu Ghraib under Saddam's control would be worse than being there under U.S. control." On the other hand, participants in an upward counterfactual condition read a paragraph that described the ethical treatment of Iraqi prisoners by a small contingent of Danish soldiers in a military prison based in the city of Al Quma and were prompted to "make an argument that the ethical standards employed by the Danish in their treatment of Iraqi prisoners were better than the standards employed by the U.S. in treating Iraqi prisoners."

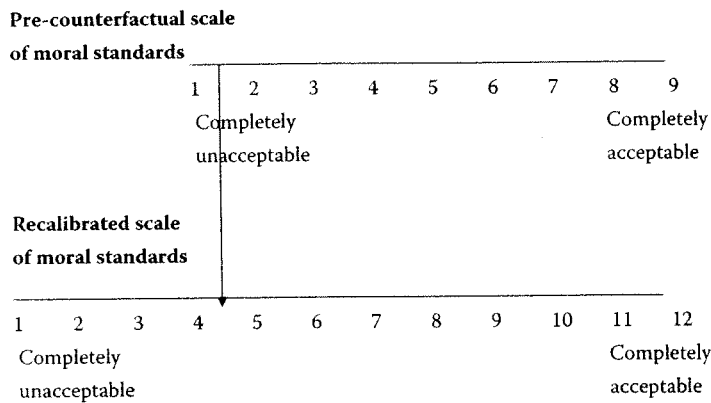


FIGURE 12.4 How comparison to a counterfactual reference point recalibrates a scale of moral standards.

Participants then responded to items (on a 7-point scale) that assessed their feelings toward the events that transpired at Abu Ghraib (e.g., “I am morally outraged by the events that took place at Abu Ghraib”), as well as their attitudes (on a 7-point scale) toward how the United States should treat prisoners of war in the future (e.g., “In future conflicts, to what extent should the U.S. employ interrogation tactics that include the use of torture?”). Consistent with the notion that counterfactual thinking can elicit shifting standards, it was predicted that in comparison to generating upward counterfactuals or no counterfactuals at all, generating downward counterfactuals would lead participants to feel better about Abu Ghraib, thereby evidencing contrast, but would also lower ethical standards regarding how the United States should treat prisoners of war in the future, thereby evidencing assimilation.

As predicted, participants in the downward condition indicated feeling better about the treatment of prisoners at Abu Ghraib ($M = 3.38$) than did participants in either the control condition ($M = 2.50$) or the upward condition ($M = 1.85$). On the other hand, and consistent with the predicted standard-lowering assimilation effect, participants in the downward condition indicated lower standards with respect to human rights ($M = 3.44$) than did participants in either the control condition ($M = 4.34$) or the upward condition ($M = 5.60$). Thus, considering how the treatment of Iraqi prisoners at Abu Ghraib could have been worse had the effect of lowering participants’ standards regarding how the United States should treat their prisoners of war in the future.

This effect is consistent with the types of shifting standards models proposed by Biernat and others (e.g., Biernat, 2005; Biernat & Manis, 2007; Parducci, 1963; Upshaw, 1962), which assume that when called on to render judgments along subjective rating scales, individuals fix the end-points of the rating scale to reflect the expected distribution of targets on the judgment dimension. As depicted in Figure 12.4, consideration of the downward (i.e., “it would have been worse under Saddam”) counterfactual may lead individuals to recalibrate their scales of moral standards and enhance the relative standing of a range of behaviors that they may have previously deemed unethical. In this way, behaviors that seriously violate default standards of moral behavior may come to be seen as relatively benign in light of the new standard and thereby lower expectations regarding how the United States should treat prisoners of war in the future.

The consequences of the argument that it would have been worse are insidious. Although it is likely that individuals understand the intent of the argument—to mitigate the harsh criticism that has been directed against the American soldiers and the Bush administration more generally—they may be less aware of the subtle yet significant effect that the promulgation of such an argument can have on lowering personal standards. Just as exposure to violence can desensitize subsequent reactions to violence (e.g., Geen, 1991), consistent and chronic exposure to downward counterfactual arguments of this kind may have a numbing or dampening effect on the likelihood of expressing

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negative attitudes toward human rights violations in the future. In other words, the consideration of such arguments might have the effect over time of raising thresholds for expressing moral outrage.

UPWARD COUNTERFACTUALS

As we have described, currently prevailing models of counterfactual thinking (e.g., Markman & McMullen, 2003; Roese, 1997; Sanna, 2000; Tykocinski & Steinberg, 2005) suggest that although upward counterfactuals may devalue actual outcomes and elicit feelings of disappointment and regret, by simulating routes to imagined better realities one may learn to improve on outcomes in the future. Other researchers, however, argue that regret is an emotion that ultimately yields greater costs than benefits for the individual. For instance, in a study about reactions to miscarriages, Calender, Brown, Tata, and Regan (2007) found a positive association between upward counterfactual thoughts and anxiety and no relationship between counterfactual thinking and positive outcomes. Furthermore, individuals who ruminate on their regrets are more likely to report reduced life satisfaction and to experience difficulty coping with negative life events (e.g., Lecci, Okun, & Karoly, 1994; Schwartz et al., 2002).

Counterfactual Thinking and Self-Blame

Naturalistic studies have also documented a pervasive tendency among individuals who have encountered negative, unexpected events such as sexual assault, spinal cord injury, and traumatic loss of a spouse or child to blame themselves (e.g., Arata, 1999; Branscombe, Wohl, Owen, Allison, & N'gbala, 2003; Davis, Lehman, Silver, Wortman, & Ellard, 1996; Janoff-Bulman, 1979; A. K. Miller, Markman, & Handley, 2007). Self-blame among sexual assault victims is associated with distress (Arata, 1999), and a large-scale review of causal attributions following traumatic life events found that self-blame was 5.2 times more likely to be associated with poor outcomes than all other attribution categories (Hall, French, & Marteau, 2003). According to Hall et al., "When the consequences of events are severe, any potential benefit conferred by self-blame may be outweighed by the severity of consequences of making these attributions" (p. 526).

Critically for the present analysis, a host of studies have demonstrated a clear connection between the generation of counterfactuals and subsequent imputations of self- and other blame (e.g., Branscombe, Owen, Garstka, & Coleman, 1996; Catellani, Alberici, & Milesi, 2004; Davis et al., 1996; Goldinger, Kleider, Azuma, & Beike, 2003; Mandel & Dhami, 2005; McGill & Tenbrunsel, 2008; Nario-Redmond & Branscombe, 1996; Turley, Sanna, & Reiter, 1995; Zeelenberg, van der Plicht, & de Vries, 2000). By generating "if only" inferences (e.g., "if only I had not gone to that party") in an effort to understand how a negative experience might have been prevented, an individual may identify multiple counterfactual instances when the event may not have occurred had they behaved differently (Connolly & Zeelenberg, 2002). Yet, as Sherman and McConnell (1995) cautioned, counterfactuals that improve on past negative outcomes may be dysfunctional insofar as they lead to incorrect causal inferences, overwhelming negative affect, and disproportionate self-blame. Discussing rape victims, they argued that, "It is clearly irrational for one to take blame for behaviors that in foresight would not have reduced the probability of the event's occurrence," and, "the despair ... that can result from this kind of counterfactual thinking can be devastating" (p. 213; see also Gilovich, 1983; D. T. Miller & Gunasegaram, 1990; Sherman & McConnell, 1996). Moreover, D. T. Miller and Turnbull (1990) noted that counterfactuals can lead to misplaced sympathies in which "innocent" bystanders who are not the direct target of an attack are afforded greater sympathy than are the intended victims.

Depression

Recent work suggests that upward counterfactual thinking may be less functional for individuals suffering from depression. Markman and Miller (2006) grouped participants according to non-

depressed, mild-to-moderately depressed, and severely depressed symptom categories and asked them to describe negative academic events and make upward counterfactuals about those events. According to the results, moderate depressives were particularly likely to engage in controllable counterfactual thinking (i.e., to generate counterfactuals about objectively controllable aspects of events; see also Markman & Weary, 1998). However, although nondepressives experienced a boost in retrospective control perceptions (e.g., "I believe that I was in control of the events that led to the academic outcome"), to the extent that they engaged in controllable counterfactual thinking, moderate depressives did not experience a concomitant boost in retrospective control perceptions following controllable counterfactual thinking. In a way, then, such individuals were merely "spinning their wheels" by devoting inordinate attention to how they could have prevented an outcome without experiencing any clear psychological benefit from doing so. Finally, the results suggest that severe depressives might best be served by avoiding upward counterfactual generation entirely. The counterfactuals they generated were clearly dysfunctional in nature—more uncontrollable and more characterological (cf. Janoff-Bulman, 1979)—and to the extent that they did engage in controllable counterfactual thinking, their subsequent retrospective control perceptions actually decreased. Moreover, the controllable counterfactuals generated by severe depressives were typically less reasonable and feasible (e.g., "I could have memorized all of the chapters") than were those generated by individuals experiencing less-severe depression levels, a thought process that should in theory only serve to exacerbate self-blame and worsen depressive symptoms.

Future and Lost Opportunities

There is ample evidence to indicate that counterfactuals have short-term beneficial effects on problem solving and performance (e.g., Parks et al., 2003; Roese, 1994; Wong et al., Chapter 11, this volume), and that negative affect mediates relationships between counterfactual thinking and both persistence and performance (Markman et al., 2008; McMullen & Markman, 2000). However, Roese and Summerville (2005) argued for a more general *opportunity principle*, suggesting that opportunity breeds regret, and that feelings of disappointment and dissatisfaction are strongest when the chances for corrective action are clearest. Specifically, Roese and Summerville (2005) noted that, "By opportunity, we mean an open rather than a closed door to further action in the service of correction, advancement, and betterment, defined in terms of the individual's perception of situational features or personal talents that enable such pursuit" (p. 1273).

To provide evidence for the opportunity principle, Roese and Summerville (2005) described a study conducted by Markman et al. (1993) in which participants played a computer-simulated blackjack game. In this study, participants who believed they would be playing again generated a greater proportion of upward to downward counterfactuals in comparison to those who believed they would only be playing once (see also Gilbert & Ebert, 2002; Linder, Cooper, & Jones, 1967). On the basis of this and other studies, we agree that regret, or, inferences derived from acknowledging how one could have made a better choice or decision, spur corrective action in the short run. Thus, the opportunity principle is sensible for those events that are (or are perceived to be) repeatable in the foreseeable future. However, it is unclear whether regret has long-term beneficial consequences for nonrepeatable events.

First, it is important to note that regret and counterfactual thinking are not the same. Rather, the former is an emotional response elicited by the latter—an explicit comparison between factual reality and an imagined better reality. Interestingly, Roese (1997) argued for a dissociation between counterfactual thinking and its emotional consequences. Specifically, he noted that, "Under normal conditions ... most individuals seem adept at inhibiting counterfactual ruminations before they become chronically debilitating, thereby canceling the negative affect deriving from contrast effects, while preserving the inferential benefits deriving from the causal-inference mechanism" (p. 144; see also Taylor, 1991). However, if it is indeed the case that negative affect is typically minimized over time, and that it is the inferences derived from counterfactual thinking that ultimately

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benefit the individual, then it would seem that the experience of intense, long-term regret would not ultimately benefit the individual and thereby reflects a failure of the minimization system.

Second, there is insufficient empirical evidence for the functionality of long-term regrets. Roese and Summerville (2005) performed a meta-analysis on nine published journal articles and found that education was the most commonly reported life regret, accounting for 32.2% of all reported regrets. According to Roese and Summerville, this finding supports the opportunity principle because, "Education is open to continual modification throughout life. ... You can always go back to school" (p. 1274). In our view, however, this line of reasoning is questionable because windows of opportunity are often quite bounded and finite. Courses end, college ends, and interpersonal relationships are often irrevocably terminated, at which point the present and the future are shunted to the past, and the possibility for corrective action is lost. Thus, we believe that when older individuals indicate that their greatest life regrets center around lost educational opportunities, what they are actually ruing are *lost* opportunities. They will never have the opportunity to be 19 years old again, attend college, and make educational decisions that might impact their choice of career or general intellectual development.

In support of this supposition, Beike, Markman, and Karadogan (2008; see also Karadogan & Markman, in press) asked 68 individuals, ranging in age from 40 to 73, to indicate the extent (on a scale of 1 = low opportunity to 7 = high opportunity) to which they felt that they would have future opportunities to better or improve themselves in each of 12 life domains: education, career, romance, parenting, self, leisure, finance, family, health, friends, spirituality, and community (i.e., the most frequently reported life regret domains in Roese and Summerville's meta-analysis). If Roese and Summerville are correct in assuming that education is a domain in which individuals see high opportunities for future improvement, then education should come out near the top of the list in terms of high-opportunity ratings. However, the data indicated exactly the opposite. Whereas spirituality ($M = 5.5$) and self ($M = 4.9$) were perceived as offering the highest opportunity for future improvement, career ($M = 3.7$) and education ($M = 3.7$) were perceived as offering the lowest opportunity for future improvement. In our view, these data suggest that education is not the most frequently reported life regret because individuals believe that they will have opportunities to take corrective action in this domain. Rather, we would argue that it is the most frequently regretted life domain precisely because it represents a lost opportunity (see also Wrosch & Heckhausen, 2002).

Beike et al. (2008) also experimentally manipulated perceived opportunity in two separate studies to examine whether greater regret was felt when opportunity was perceived as high versus low. One study employed a scenario vignette about a hypothetical individual, and a second study asked participants to recall their own negative life events. In both studies, participants who considered nonrepeatable negative events felt more regret than did those who considered repeatable negative events, findings that once again run contrary to Roese and Summerville's (2005) framework.

Rumination and State Orientation

Recent work in the clinical literature (e.g., Ehlers & Clark, 2000; El Leithy, Brown, & Robbins, 2006; Watkins & Baracaia, 2002) has noted that although counterfactual thinking following negative events may further emotional processing and understanding, there are circumstances under which the balance of costs and benefits can shift such that a preoccupation with what might have been can actually contribute to the development and maintenance of traumatic stress reactions and what Lyubomirsky and Nolen-Hoeksema (1993) term "ruminative responses to depressed mood." One of the critical challenges facing the counterfactual thinking literature will be to define conditions under which counterfactuals serve an adaptive function as opposed to when they merely perpetuate a negative mood state.

A promising research avenue draws on Kuhl's (1994) distinction between action and state orientation. According to Watkins and Baracaia's (2002) analysis, rumination is a mode of thinking that reflects a state orientation characterized by a preoccupation with simulating alternative plans

and by the evaluation of past successes and failures that tend to work against the initiation of new actions (in this volume, see also Faude, Wuerz, & Gollwitzer, Chapter 5; Oettingen & Kappes, Chapter 26). On the other hand, action orientation is characterized by action planning and effective self-monitoring. Importantly, Watkins and Baracaia reported data indicating that inducing an action orientation in a sample of depressed individuals who had initially tended to respond with a state orientation improved problem-solving performance (see also McElroy & Dowd, 2007; Seta, McElroy, & Seta, 2001).

In light of these findings, what would constitute an adaptive response to a negative and non-repeatable event? According to recent work (e.g., Koole & Jostmann, 2004; Kuhl, 2000), under stressful conditions action-oriented individuals mobilize central executive systems and engage in downregulation of negative affect, and to the extent that downregulation is successful (e.g., via downward counterfactual thinking, distraction, etc.) action-oriented individuals display mood improvements and facilitated self-regulation. On the other hand, state-oriented individuals respond to stressful situations by engaging in ineffective forms of affect regulation that result in persistent negative affect, negative rumination, and inhibited self-regulation. Thus, action-oriented individuals appear better equipped to deal with negative and nonrepeatable events than do state-oriented individuals because the former have the capacity to minimize their negative affect even though they have been stripped of their ability to initiate future ameliorative action. Nevertheless, the picture remains far from rosy. Individuals who are depressed, traumatized, or state oriented are vulnerable to persistent and perhaps even tormenting counterfactual thoughts. And, although action-oriented individuals may be able to buffer their immediate affective reactions, it is likely that many of them still suffer from wistful (Gilovich, Medvec, & Kahneman, 1998) and perhaps gnawing feelings of regret stemming from opportunities lost and foreclosed (Beike et al., 2008).

CONCLUSION

A substantial body of research indicates that counterfactual thinking can be beneficial (e.g., Grieve, Houston, Dupuis, & Eddy, 1999; Markman, Lindberg, et al., 2007; Nasco & Marsh, 1999; Sanna, 1998). On the other hand, real-world instances of dysfunctional counterfactual thinking are abundant. Although much work is needed to uncover the conditions under which counterfactual thinking may be more or less functional, we suggest that repeatability is a critical moderator. Counterfactual thinking appears to be beneficial for potentially repeatable events because it can spur corrective action and reduce the intensity of felt regret. However, research also indicates that an earmark of healthy cognitive functioning is a system that effectively downregulates negative emotional experiences while preserving useful inferential benefits (e.g., Kuhl, 1994; Roese, 1997; Watkins & Baracaia, 2002). To the extent that this system breaks down during the consideration of long-term, nonrepeatable events, the result may be depressive rumination (Lyubomirsky & Nolen-Hoeksema, 1993) that perpetuates a self-defeating cycle of self-blame. Overall, we believe that the proposition that counterfactual thinking and the concomitant emotion of regret are beneficial for the individual requires additional research to establish boundary conditions on what is currently seen as a general principle (e.g., Roese, 2005; Zeelenberg, 1999).

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