

MOTIVATED BY US BUT NOT BY THEM: GROUP MEMBERSHIP INFLUENCES THE IMPACT OF COUNTERFACTUAL THINKING ON BEHAVIORAL INTENTIONS

Ryan J. Walker
Miami University

Rachel Smallman
Texas A&M University

Amy Summerville and Jason C. Deska
Miami University

Counterfactual thoughts about “what might have been” allow individuals to improve future outcomes based on insights from past events. Previous research has examined how counterfactuals about the self facilitate future improvement. The current research examined how group membership influences behavioral intentions developed from counterfactuals about another’s actions. Participants who read counterfactual-inducing vignettes formed stronger intentions relative to participants who read non-counterfactual-inducing vignettes; this effect was stronger for in-group targets than for out-group targets (Study 1). Furthermore, when group membership was manipulated experimentally, counterfactuals facilitated behavioral intention judgments for in-group targets but not out-group targets (Study 2).

We thank Daniel Bashore, Brittney Becker, Jamie Bourne, Daryl Brown, Ashantia Collins, Kris Colvin, Kyle Dickey, Kelly Dray, Mariel Gerry, Anthony Houston, Kaci Kelley, Sejin Kim, Haleigh Lindner, Matthew LoPiccolo, Marisa Murray, Victoria Pena, Hannah Rivas, McKenna Sklut, and Nicole Surginer for their help with data collection.

We declare no conflicts of interest with respect to the authorship and/or publication of this article. R. Smallman was responsible for the initial research concept. R. Smallman and R. J. Walker developed and designed both studies with input from A. Summerville and J. C. Deska. R. J. Walker programmed and analyzed Study 1 and R. Smallman programmed and analyzed Study 2. A. Summerville contributed to Study 1 and Study 2 analyses and R. J. Walker contributed to Study 2 analyses. R. J. Walker drafted the manuscript and R. Smallman, A. Summerville, and J. C. Deska provided critical revisions.

Correspondence concerning this article should be addressed to Rachel Smallman, Department of Psychology, Texas A&M University, 4235 TAMU, College Station, TX 77843; E-mail: rsmallman@tamu.edu.

Together, the current research demonstrates that group membership can influence the counterfactual-behavioral intention relationship.

Keywords: counterfactual thinking, behavioral intentions, group membership, motivation

Life is full of mistakes. Fortunately, individuals can gain insight from mistakes and develop strategies to improve future outcomes. *Counterfactual thinking*, “if only” thoughts in which individuals simulate an alternative reality (Roese, 1997), are a frequent response to these mistakes in daily life (Summerville & Roese, 2008), in part because they help individuals improve their future performance (Markman, Gavanski, Sherman, & McMullen, 1993) by facilitating behavioral intentions (Roese, 1994; Smallman, 2013). Self-focused counterfactuals are generally functional (Epstude & Roese, 2008), but it is less clear whether these same benefits occur when individuals generate counterfactuals about others. Indeed, counterfactuals about the self appear to differ in substantial ways from counterfactuals about others (Giroto, Ferrante, Pighin, & Gonzalez, 2007). Moreover, how individuals interpret others’ experiences is shaped by social relationships (Brewer & Gardner, 1996; Turner, Hogg, Oakes, Reicher, & Wetherell, 1987). The current research examines how group membership impacts behavioral intentions that are triggered by counterfactuals about another person’s negative experience.

FUNCTIONAL COUNTERFACTUAL THINKING

Counterfactuals, which are commonly evoked by negative outcomes (Roese, 1997), involve a mental representation of an alternative reality containing an antecedent describing an alternative scenario (e.g., “if only I had left earlier”) and a consequent specifying an alternative outcome (“then I would not have missed my flight”). Similar to a negative feedback loop or control system (e.g., Bargh, Gollwitzer, Lee-Chai, Barndollar, & Trötschel, 2001; Carver & Scheier, 1998), counterfactual thinking can highlight the discrepancy between the current negative state and the imagined better state, motivating the individual to increase activity level until such discrepancies are reduced. Thus, counterfactual thinking serves a behavior regulating function, termed *functional counterfactual thinking* (Epstude & Roese, 2008). In particular, counterfactual thought appears to increase the accessibility of relevant knowledge structures (e.g., generating a counterfactual about a failed exam activates knowledge about ways to improve academic performance) and facilitate the formation of behavioral intentions (Roese, 1994; Smallman & Roese, 2009). Counterfactuals thus predict heightened motivation and persistence (Markman, McMullen, & Elizaga, 2008) as well as changes in future behavior, both of which can improve future performance (Nasco & Marsh, 1999; Roese, 1994; Smallman, 2013).

In particular, thinking counterfactually can enhance the accessibility of relevant behavioral intentions and one’s motivational readiness to perform better in a future situation (Kruglanski, Chernikova, Rosenzweig, & Kopetz, 2014). For

instance, HIV-positive men who generated relevant counterfactuals (e.g., using protection) had stronger safe-sex intentions compared to participants who did not generate counterfactuals (Epstude & Jonas, 2015). Furthermore, counterfactual facilitation of behavioral intentions occurs relatively automatically. In reaction-time paradigms, counterfactuals about a negative event increase the cognitive accessibility of relevant behavioral intentions compared to control judgments (Smallman, 2013; Smallman & McCulloch, 2012; Smallman & Roese, 2009).

However, the functionality of counterfactuals relies on the utility of the knowledge activated by these thoughts. To the extent that counterfactuals instead activate knowledge that facilitates biased reasoning or interferes with accurate retrieval of memories, counterfactual thought may be deleterious. Counterfactuals can thus create memory distortions (Petrocelli, Seta, & Seta, 2013), increase hindsight bias (Petrocelli & Sherman, 2010; Roese & Olson, 1996), and lead to incorrect causal inferences, such as blaming the victim of an assault (Goldinger, Kleider, Azuma, & Beike, 2003; Sherman & McConnell, 1995). When this occurs, counterfactuals can lead to dysfunctional changes in behavior, which can interfere with subsequent learning and performance (Petrocelli, Seta, Seta, & Prince, 2012). The relevance and applicability of activated knowledge thus acts as an important boundary condition on the functionality of counterfactual thought.

Given that one key boundary condition to the utility of self-focused counterfactuals is their specificity to one's own circumstances (Epstude & Roese, 2008), counterfactuals about others should also be functional to the extent that individuals see the situation as self-relevant. Indeed, scholars have found consistent differences in the content of self-focused and other-focused counterfactuals (Giroto et al., 2007). In the current research, we focus on one particularly important and pervasive determinant of self-relevance: group membership.

GROUP MEMBERSHIP AND SIMILARITY

Membership in social groups plays a broad and important role in social cognition. People have a pervasive tendency to categorize others as in- or out-group members (Brewer & Gardner, 1996; Turner et al., 1987). This categorization occurs for real groups (e.g., same versus rival universities) and experimentally assigned minimal-groups that share some trivial similarity (Bernstein, Young, & Hugenberg, 2007; Tajfel, Billing, Brundy, & Flament, 1971). Perceivers include in-group members in their self-construal (Gardner, Gabriel, & Hochschild, 2002) and more readily compare themselves to similar versus dissimilar others when making self-evaluations (Suls & Miller, 1977). Moreover, individuals have stronger emotional reactions to in-group versus out-group members (Yzerbyt, Dumont, Wigboldus, & Gordijn, 2003). Specifically, Intergroup Emotions Theory states that individuals can experience emotions specifically through the lens of a group, rather than personal experience per se (Mackie, Smith, & Ray, 2008). Emotions may be shared among in-group members (e.g., collective pride experienced by non-athlete students after a tournament win or collective guilt experienced by members of an

oppressive group) and these emotions are experienced more intensely as identification increases (Mackie et al., 2008; Seger, Smith, & Mackie, 2009; Smith, Seger, & Mackie, 2007). Intergroup emotions can have similar effects on information processing as emotions experienced at the individual level. For example, intergroup anger can impair careful processing of persuasive messages (Rydell et al., 2008). Thus, groups have a pervasive effect on both affect and subsequent cognition.

The similarity that individuals feel toward other members of their in-groups is an important determinant of the effects of other people on affect, cognition, and behavior. Given that social groups commonly form around highly stable and meaningful dimensions, such as gender, race, caste, culture, and religion (Sherif, 1966; Sumner, 1906), in-group members truly are more similar to the self than out-group members as a consequence of their shared group membership. Therefore, not surprisingly, perceivers are generally more influenced by those they like (Cialdini, 2001; Kenrick, Neuberg, & Cialdini, 2010). That is, factors such as target similarity, familiarity, and even physical attractiveness can all lead a target to exert greater influence over a perceiver (Cialdini & Goldstein, 2004). For instance, when individuals perceive meaningful similarities (e.g., personality characteristics) or merely perceive incidental similarities between themselves and a target (e.g., similar name, birthdate, fingerprint), they evaluate the target more favorably, view the target as more likable, and are more willing to comply with the target's requests (Burger, Messian, Patel, del Prado, & Anderson, 2004; Garner, 2005; Strauss, Barwick, & Connerley, 2001). Furthermore, increasing liking between a perceiver and target via mere exposure (Burger, Soroka, Gonzago, Murphy, & Somervell, 2001) or via physical attractiveness (Lynn & Simons, 2000) can also lead a target to have greater influence over a perceiver (e.g., perceiver gives larger tips). Thus perceivers are more influenced by targets they like, particularly because of perceived similarity with the target. Because in-group members tend to be more similar to the self (Sherif, 1966; Sumner, 1906), they will generally exert greater influence over perceivers. The current research builds on the findings that group membership affects persuasion by examining how perceivers use information from a counterfactual inference based on a target's behavior. In other words, the current studies examine how observing others' behaviors and simulating alternative realities can change the accessibility of relevant behavioral intentions and motivational readiness for future situations.

Importantly, group membership and similarity specifically influence motivated behavior, as perceivers are more likely to automatically adopt an in-group member's goal (Loersch, Aarts, Payne, & Jefferis, 2008). Given counterfactuals' focus on improving goal-directed behaviors, group membership may be particularly important to counterfactual reasoning and intention generation. When watching a target make an error on a task, perceivers show an increased neural response when a target is closer to the self (Kang, Hirsh, & Chasteen, 2010). Since counterfactuals are typically activated by negative outcomes or errors, this differential increase in neural activity may make counterfactuals more salient for targets that are close to the self. Likewise, the increased strength of emotion in highly identified groups (Mackie et al., 2008; Seger et al., 2009; Smith et al., 2007) may also increase counter-

factual salience for in-group targets given the importance of affect as a trigger for counterfactual thoughts (Roese, 1997). Furthermore, the content of counterfactuals about in-group rather than out-group targets differs and exhibits a group-serving bias (McCrea, 2007).

In sum, when an in-group member experiences a negative event it elicits similar effects as if the individual personally experienced it (Gardner et al., 2002; Turner et al., 1987). Furthermore, when an in-group (versus out-group) member or similar other makes a bad decision, perceivers should have stronger reactions (Yzerbyt et al., 2003), should be more influenced by the target (Cialdini, 2001), and should adopt these goals for themselves (Loersch et al., 2008). We therefore predict that the effects of counterfactuals on behavioral intentions will be stronger for in-group rather than out-group targets.

THE CURRENT STUDIES

Across two studies, we investigated how group membership influences the effect of counterfactuals on behavioral intentions. In Study 1, we compared intentions generated for same-university versus rival-university targets about situations for which counterfactuals were relatively easy versus difficult to generate. We predicted an interaction in which intentions would be specifically facilitated for in-group targets in counterfactual-implicated situations. In Study 2, we used experimentally assigned minimal-groups to examine whether this in-group facilitation specifically involved the ability of counterfactuals to increase the accessibility of relevant intentions. Again, we predicted that in-group targets would produce a greater facilitation effect following counterfactual primes than out-group targets.

STUDY 1

Study 1 provided an initial test of our hypothesis that, for in-group targets, intentions would be stronger when a counterfactual was implied compared to when a counterfactual was not implied. Conversely, for out-group targets, we predicted that intentions would be similar in the counterfactual-implicated and non-counterfactual conditions, which would be consistent with past findings that perceivers' reactions are weaker for out-group targets (Yzerbyt et al., 2003). This predicted interaction would rule out a more general self-similarity explanation, which would predict a main effect of group membership but not an interaction with counterfactual thinking.

METHOD

Participants

G*Power 3.1 indicated that for uncorrelated measures in a 2×2 mixed model design and a moderate effect size ($.15 < f < .2$) at 80% power, we would need 102–178

participants; informal convention suggests 50 participants per cell in a fully between-subjects design ($N = 200$). We therefore set an a priori N of 150–200, with a stop rule of collecting data for as many whole weeks as it took to exceed 150 participants. Post hoc analysis with G*Power 3.1 indicates 87.9% obtained power.

A sample of 182 undergraduates (Age $M = 19.32$, $SD = 1.34$; 60.44% male) recruited from the Texas A&M (TAMU) Psychology participant pool received credit toward their Introductory Psychology research requirement. Five participants were removed prior to analysis: 3 accurately guessed the purpose of the study, 1 did not know what the Crimson Tide is, and 1 did not complete the study. The excluded participants were evenly distributed between the counterfactual-implies (3) and non-counterfactual (2) conditions.

Materials

Vignettes. Participants saw six vignettes (adapted from Goldinger et al., 2003) ostensibly written by past participants in a lab at TAMU (their in-group) or The University of Alabama (a rival out-group). The vignettes described how a target made a decision that led to a negative outcome (e.g., used a sunscreen brand that gave them a rash). We manipulated whether or not the vignette implied a counterfactual (Kahneman & Miller, 1986). In the counterfactual-implies condition, the negative outcome (e.g., the rash) occurred after the target did something unusual (e.g., this was the first time using this brand of sunscreen). In the non-counterfactual condition, the same actions were described as typical (e.g., this was their typical brand).

Targets. Participants were told that a photo of the author would appear above their story with their university affiliation. Six gray-scale photographs of White college-age males displaying neutral expressions (Bernstein et al., 2007) were presented with the school logo and university name (see Figure 1). The pairing of targets with university were counterbalanced across participants so that each face appeared as an in-group student and an out-group student, and photographs were counterbalanced with the vignettes.

Intention Measure. Participants used a slider-scale initially set to the midpoint of 0 (*very unlikely*) to 100 (*very likely*) to indicate how likely they would be to perform the relevant behavior that might prevent the negative event from happening to them (e.g., “In the future, how likely are you to use [this brand of] sunscreen?”). Half the questions were reverse-scored, such that not engaging in the behavior would make the negative outcome less likely (e.g., not using the sunscreen brand that caused a rash).

Target Inclusion of Other in the Self. Participants rated their Inclusion of Other in the Self (IOS) for each of the three in-group ($\alpha = .67$) and three out-group ($\alpha = .70$) targets (Aron, Aron, & Smollan, 1992).

Group Identity Measures. Identification with the in-group ($\alpha = .93$) and the out-group ($\alpha = .77$) were each assessed with five items: four questions from Smith et al. (2007), using a 1 (*do not agree*) to 7 (*agree completely*) scale, and one rating of IOS with the school (Aron et al., 1992).

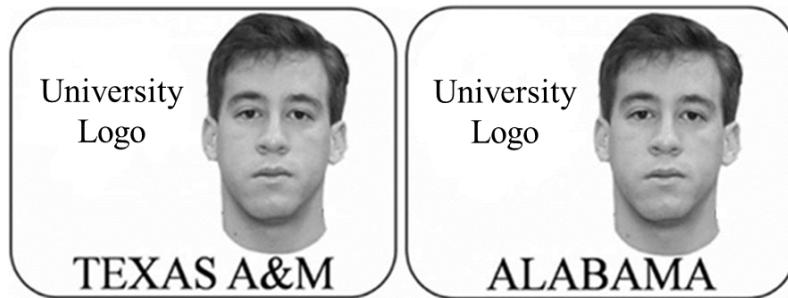


FIGURE 1. Example stimuli used in Study 1. Color versions of the official University logos were used in the study stimuli.

Interpersonal Reactivity Index. Because differences in dispositional empathy can reduce in-group bias (Galinsky & Moskowitz, 2000), participants completed the Interpersonal Reactivity Index (IRI), a measure of dispositional empathy (Davis, 1983). The subscales of empathic concern ($\alpha = .81$), perspective-taking ($\alpha = .77$), personal distress ($\alpha = .82$), and fantasy ($\alpha = .82$) were not significant covariates for the observed effects of interest ($F_s < .92$, $p_s > .34$) and are not discussed further.

Procedure

Participants came to the lab for a study about “reading comprehension and how people react to different events.” The entire study took place on a computer. After providing informed consent, participants were randomly assigned to the counterfactual-implied or non-counterfactual condition. Participants read one vignette at a time in a randomized order. The vignette first appeared with the target picture above it. After 20 seconds, the “continue” button appeared. After clicking “continue,” a new screen appeared, and the vignette and target were re-presented with the intention question. This was repeated six times until three in-group and three out-group targets had been presented. Participants then completed the target IOS ratings, six vignette reading comprehension questions, the group identity measures, the IRI, and a funneled debriefing.

RESULTS

As expected, preliminary analyses revealed that participants felt closer to in-group targets ($M = 2.69$, $SD = 1.16$) compared to out-group targets ($M = 2.42$, $SD = 1.17$), $t(176) = 2.98$, $p < .01$, $d = .23$. Similarly, participants showed greater identification with the in-group ($M = 5.91$, $SD = 1.26$) than the out-group ($M = 1.64$, $SD = .72$), $t(176) = 39.37$, $p < .001$, $d = 3.07$.

In order to test the central prediction that individuals would show a greater facilitation of intentions by counterfactuals for in-group than out-group targets, we conducted a 2 (Group: in-group/out-group) \times 2 (Condition: counterfactual-implied/non-counterfactual) mixed-model ANOVA. There was no main effect of group, $F(1, 175) = .01$, $p = .91$, $n_p^2 < .001$. However, there was a significant main

effect of condition, $F(1, 175) = 23.64, p < .001, n_p^2 = .12$, such that participants in the counterfactual-implies condition had stronger intentions than participants in the non-counterfactual condition ($M = 70.37, SD = 11.69$ vs. $M = 61.64, SD = 12.17$). More importantly, we obtained the predicted Group \times Condition interaction, $F(1, 175) = 3.77, p = .05, n_p^2 = .02$. Subsequent pairwise comparisons between the counterfactual and control conditions for each group indicated that the effect of counterfactual (vs. control) was stronger for in-group versus out-group targets. Specifically, when the target was an in-group student, participants in the counterfactual-implies condition had significantly stronger intentions ($M = 72.11, SD = 15.04$) than participants in the non-counterfactual condition ($M = 59.67, SD = 19.47$), $t(175) = 4.74, p < .001, d = .72$. Conversely, the difference between intentions in the counterfactual-implies condition ($M = 68.62, SD = 17.28$) compared to the non-counterfactual condition ($M = 63.61, SD = 17.58$) was marginal when the target was an out-group student, $t(175) = 1.91, p = .06, d = .29$ (Figure 2).¹

We then tested if IOS ratings and condition (counterfactual-implies vs. non-counterfactual) also interacted to influence intentions. To account for repeated IOS measurements across multiple trials, a multilevel modeling approach was used, nesting trials within participants to predict intentions. As expected, IOS ratings were a significant predictor of intentions, $\gamma = 0.11, t(173) = 2.62, p = .01$, such that as IOS ratings increased (i.e., participants felt closer to the target), intentions also increased. Similarly, condition was a significant predictor of intentions, $\gamma = 0.29, t(173) = 4.97, p < .001$, such that counterfactual-implies vignettes predicted stronger intentions. However, the IOS \times Condition interaction was not significant, $\gamma = -.09, t(173) = -1.49, p = .14$.

We also tested if the group identity measures predicted intentions. The group identity measures (TAMU and UA) were not related to intentions, $ps > .31, \Delta R^2s < .01$. Likewise, the Condition \times Group identity interactions were not significant, $ps > .11, \Delta R^2s < .02$.

DISCUSSION

The central goal of this research was to examine whether counterfactuals about others' negative outcomes can strengthen related personal intentions, and whether this effect was moderated by group membership. Study 1 supported both predictions. Participants who read vignettes with easily mutable outcomes formed stronger intentions than participants who read vignettes without such possible mutations. Crucially, this was moderated by group membership: this effect was stronger when the target was identified as a same university compared to a rival university student.

1. There was not a significant difference in intentions between the in-group and out-group targets within the non-counterfactual condition, $t(90) = -1.34, p = .18, d = -.16$, nor was there a significant difference in intentions between the in-group and out-group targets in the counterfactual-implies condition, $t(85) = 1.44, p = .15, d = .16$.

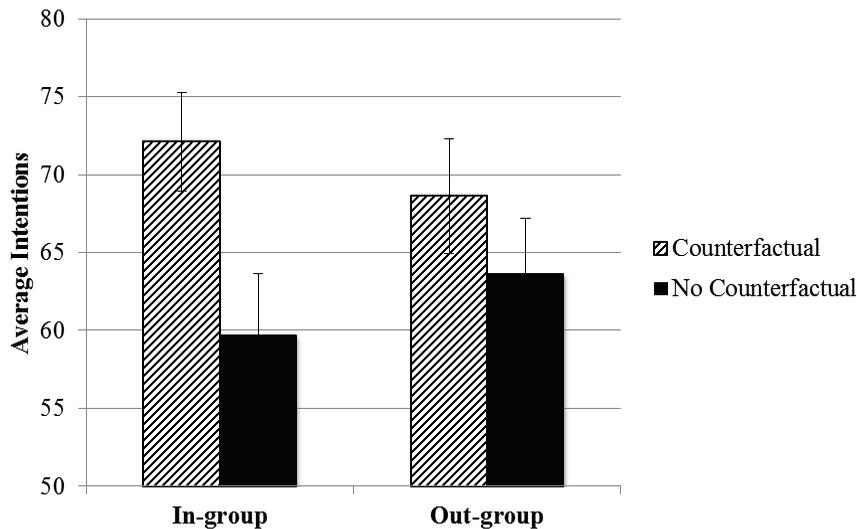


FIGURE 2. Average intentions for counterfactual-implied and non-counterfactual vignettes as a function of university affiliation in Study 1. Error bars represent 95% confidence intervals.

Although our predictions were supported, there were several limitations to Study 1 that we sought to resolve in Study 2. First, because we used pre-existing groups, there are practical reasons why students might be more influenced by events that occurred to fellow students than students at another university. For example, one of the six vignettes involved a bag stolen at the campus gym, which would be the same campus gym that the participant might frequent. However, the remaining five vignettes were not campus specific (e.g., getting food poisoning at a chain restaurant in a major city between the two campuses; borrowing an item from a friend that breaks) and were therefore equally applicable to participants regardless of whether the target was an in-group or out-group student. Additionally, the scenarios did not actually contain counterfactual statements, so it is possible that this effect was due to differences in whether or not participants generated counterfactuals rather than the ability of counterfactuals to subsequently influence intention formation. To address these limitations, in Study 2 we induced group membership experimentally and manipulated counterfactual activation.

For each condition in Study 1, intention ratings were predominantly above the scale midpoint (all means > 59 on a 100-point scale; 82.5% of individual responses were at or above the scale midpoint). Consistent with the functional perspective that counterfactuals influence motivational readiness by increasing activation of relevant responses, this pattern of means indicates that the observed effects are due to group membership and counterfactuals interacting to determine the extent to which an intention is activated and endorsed, rather than changing whether or not it is endorsed. In Study 2, we therefore turned to an established reaction-time paradigm to more directly test the influence of group membership on the ability of counterfactuals to activate stored knowledge of relevant intentions.

STUDY 2

In Study 2, we used a sequential priming paradigm (Smallman, 2013; Smallman & McCulloch, 2012; Smallman & Roese, 2009) to examine whether counterfactuals about in-group and out-group members would similarly facilitate self-focused behavioral intention reaction times (RTs). As in prior research (Smallman, 2013; Smallman & McCulloch, 2012; Smallman & Roese, 2009), we interpreted facilitation of reaction times as evidence of a relatively automatic increase in the accessibility in relevant intentions as a response to counterfactual thoughts. That is, if counterfactual thinking facilitates responding to behavioral intentions, it is evidence of one's motivational readiness to improve a future situation (Kruglanski et al., 2014).

Prior research has ruled out various alternative explanations for these facilitation effects and provided preliminary evidence that, similar to other sequential priming paradigms (Cameron, Brown-Iannuzzi, & Payne, 2012), the current paradigm can have an impact on downstream behavioral consequences (Smallman, 2013, Experiment 5). First, past work has provided evidence that counterfactual thinking increases the cognitive accessibility of behavioral intentions (Smallman, 2013; Smallman & McCulloch, 2012; Smallman & Roese, 2009). Second, Smallman and Roese (2009) found that this effect occurred only for relevant behavioral intentions (but not for non-relevant behavioral intentions), thus ruling out the interpretation that either counterfactual mindset or general motivation influenced the effect. Third, previous research demonstrated that this effect was apparent only for behavioral intention judgments, but not for a different semantically related target judgment (Smallman & Roese, 2009). Finally, Smallman (2013) found that reaction times were similar on a basic cognitive target task (Go/Stop Task) when it was preceded by either a counterfactual or a control prime, thus ruling out the possibility that the effect was due to an interference factor slowing down control trials relative to counterfactual trials.

In the current research, we compared counterfactual and control primes that were identified as behaviors of an in-group or an out-group target. In order to ensure that group membership was rapidly identifiable, and to rule out the potential confounds introduced by real social groups, we used an established minimal-groups manipulation (Bernstein et al., 2007) to identify targets as in-group or out-group members. We expected counterfactuals focused on in-group but not out-group members to facilitate behavioral intentions.

METHOD

Participants

Previous research using this paradigm (Smallman, 2013; Smallman & McCulloch, 2012; Smallman & Roese, 2009) used a sample size of approximately 50 participants. Therefore, we set an a priori N of 50, with a stop rule of collecting data for

as many whole weeks as it took to reach a minimum of 50. Post-hoc analyses using G*Power 3.1 indicates 99.9% obtained power.

A sample of 53 undergraduates (Age $M = 18.73$, $SD = .91$; 64.15% female) recruited from the Miami University Psychology participant pool received credit toward their Introductory Psychology research requirement. Five participants were removed: 1 was missing all RT data, 2 were missing half their RT data and subsequent dependent measures, and 2 responded “no” to at least half of the target judgments.

Materials

Target Inclusion of Other in the Self. Participants completed IOS ratings (Aron et al., 1992) for the four in-group ($\alpha = .96$) and four out-group ($\alpha = .92$) targets.

Interpersonal Reactivity Index. Participants completed the IRI (Davis, 1983). The subscales of empathic concern ($\alpha = .85$), perspective-taking ($\alpha = .85$), personal distress ($\alpha = .79$), and fantasy ($\alpha = .77$) were not significant covariates for the observed effects ($F_s < 2.5$, $p_s > .12$) and are not discussed further.

Procedure

After providing informed consent, participants completed a minimal-groups assignment. Following Bernstein and colleagues (2007), we artificially constructed social categories in the lab by having participants complete a bogus personality test. Participants were told the personality test “...has been found to be very good at predicting future success both socially and monetarily” and is used in industry and research. Upon completion, a “calculating” screen appeared as the computer ostensibly calculated the participant’s personality type. After 7 seconds, participants were randomly assigned to a personality group by being told that “the results of this personality questionnaire revealed that you have a ‘red’ (‘green’) personality.” Participants were given no other information about this ostensible personality type. The assignment to personality group thus artificially created an in-group (those with the same personality type) and an out-group (those with the other personality type) that participants would make judgments about during the RT paradigm.

Participants then moved on to the RT paradigm. Similar to previous research (e.g., Smallman, 2013), participants completed 5 practice trials, were prompted for questions, and began the experiment. Participants completed 40 trials in each of the counterfactual and control conditions. Within each condition, the trials were split evenly between in-group and out-group targets. Participants completed eight blocks of 10 trials, with each block focused on one target. Participants were instructed that the statement’s author would appear in a photo at the beginning of each block, and the photo’s background would signify their personality type. Each trial’s block, condition, order, group membership, and target photo was fully randomized.

The first screen of each block manipulated group membership. Participants saw a picture of a White college-age male (as in Study 1) presented with either a red or a green background and label, and were informed that this indicated the target's personality type. Participants were told they would read about ten events that the person had listed during a previous study and make some judgments about them. The target-personality type pairings were counterbalanced across participants.

In each trial, participants made two judgments in succession: the prime (action) judgment and the target (intention) judgment. As the trial began, participants first saw the block's target and a brief description of a negative event that happened to that individual (e.g., "got a bad sunburn"; see Smallman & Roese, 2009). Participants were asked to imagine the event happening to the pictured individual. Two seconds later, the prime task (a judgment related to this particular negative event) appeared. The prime judgment appeared below the event description and consisted of a judgment cue and an action statement. There were two prime conditions, manipulated on a within-subject basis: counterfactual versus control. The manipulation hinged on the judgment cue that preceded this action statement (i.e., counterfactual versus control). Thus, the cue contained either a counterfactual marker ("could have") versus a control marker focusing on factual aspects of the statement that followed, which held constant the informational content of the priming judgment.

In the counterfactual trials, a counterfactual cue was paired with the action statement. For example, if the negative event was "got a bad sunburn," then a counterfactual cue would be paired with a relevant action (e.g., "Should have" + "worn sunscreen"). Participants decided if this action (e.g., wearing sunscreen) was something that could have changed the outcome of the event (e.g., getting a bad sunburn). Participants pressed a key labeled "yes" or "no" to indicate their decision. To rule out the interpretation that effects depended on particular syntax, one of two cues was randomly inserted prior to the action statement ("could have" or "should have").

In the control trials, a factual cue was paired with the action statement. The control trials involved a typicality judgment. For example, if the event was "got a bad sunburn," then a control cue would be paired with a relevant action (e.g., "Common behavior" + "worn sunscreen"). Participants decided whether, in general, this was a typical or common action. As in the counterfactual trials, participants pressed a key labeled "yes" or "no" to indicate their decision.

Between the prime and target task, a blank screen appeared, asking participants to press a key to continue. This "pause-screen" was included to eliminate the influence of motor facilitation on RTs (i.e., remove the effect of successive identical key presses).

The second judgment, the target task, was a behavioral intention judgment. Participants made a judgment about possible future actions, which were always related to the negative event included in the prime task (e.g., getting a bad sunburn). Unlike the prime task, which focused on the pictured person, the target task specifically asked the participant to focus on his or her own likelihood of doing the action in the future. The target task consisted of a target cue and a future action.

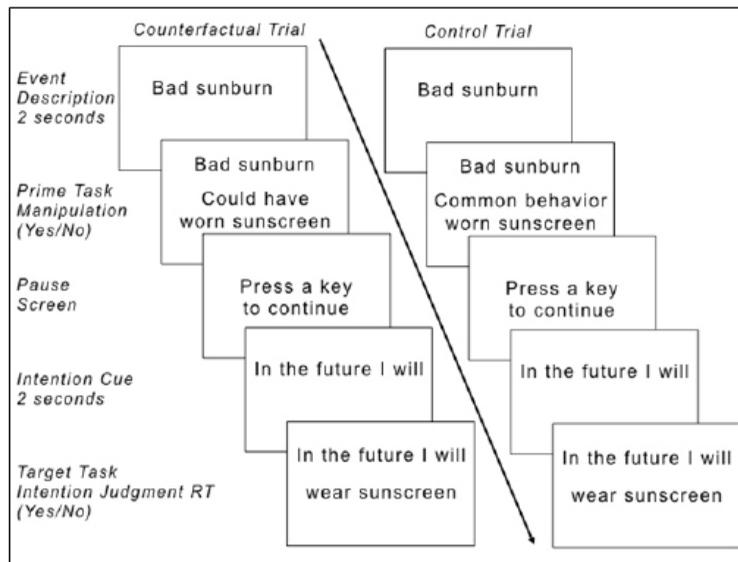


FIGURE 3. Overview of sequential priming paradigm. Group membership is manipulated on block basis (10 trials per block) by a screen at the beginning of the block showing an image of the picture of a red or green personality member, with instructions stating that the following 10 trials (that block) described events happened to that particular person.

On each trial, the target cue “In the future I will” appeared first on the screen. After a 2 second delay, the relevant action appeared directly below the target cue (e.g., “wear sunscreen”). Participants decided whether they would be likely to perform the action in the future (e.g., “In the future I will wear sunscreen”), pressing a key labeled “yes” or “no” to indicate their decision. Thus, this procedure permitted a within-subject manipulation of counterfactual thinking that controlled for similarity in content across counterfactual and control trials (see Figure 3). Finally, participants completed the target IOS ratings, the IRI, and funnel debriefing.

RESULTS

Preliminary analyses of the IOS revealed that participants felt closer to the in-group targets (same personality; $M = 2.42$, $SD = 1.40$) compared to the out-group targets (different personality; $M = 2.15$, $SD = 1.10$), $t(38) = 2.32$, $p < .05$, $d = .22$.

Following procedures outlined in previous research (e.g., Smallman, 2013), outlier RTs, defined on a within-subject basis as RTs $> 2.5 SDs$ above the within-condition mean, RTs $< 2.5 SDs$ below the within-condition mean, or RTs < 200 ms, were deleted (4.9% of RTs). Within each type of group membership, outliers were distributed evenly across the counterfactual and control conditions within each type of group membership. Consistent with the published literature using this paradigm (Smallman, 2013; Smallman & McCulloch, 2012; Smallman & Roesse,

2009), only RTs for intention judgments in which participants responded “yes” were examined. Because the focus was on whether counterfactuals facilitated activation of a relevant intention and motivational readiness, the effect depends on subjects considering the intention plausible and desirable. Additionally, focusing on the “yes” responses provides a measure of strength and accessibility of the behavioral intention, which more closely aligns with Study 1. The subset of intention RTs with “yes” responses (85% of all trials) is within the expected range based on previous research using this paradigm (78%–85% of all trials) and was distributed evenly across the counterfactual and control conditions within each type of group membership. Data were log-transformed to correct for skewed distribution; untransformed means are presented for clarity.

We predicted that counterfactuals would produce faster behavioral intention judgments relative to control statements for in-group targets but not out-group targets. To test this prediction, we conducted a 2 (Group: in-group/out-group) \times 2 (Prime: counterfactual/control) repeated-measures ANOVA. As in Study 1, there was no main effect of group, $F(1, 47) = .04, p = .84, n_p^2 < .001$. However, there was a significant main effect of prime, $F(1, 47) = 5.02, p = .03, n_p^2 = .10$, such that counterfactuals produced faster intention judgments relative to control ($M = 489.02, SD = 1.25$ vs. $M = 515.95, SD = 1.28$). Critically, this was qualified by the predicted Group \times Prime interaction, $F(1, 47) = 4.48, p = .04, n_p^2 = .09$. Subsequent pairwise comparisons revealed that when the target was an in-group member, counterfactuals produced faster intention judgments relative to control, $t(47) = 3.04, p < .01, d = .38$. However, when the target was an out-group member, counterfactuals did not produce faster intention judgments relative to control, $t(47) = .42, p = .68, d = .05$ (see Figure 4). Thus, as in Study 1, the interaction indicated that the effect of counterfactual versus control statements was stronger for in-group relative to out-group targets. The aggregate IOS ratings of the in-group and out-group targets did not significantly predict intention judgment speed, $ps > .11, \Delta R^2s < .07$.²

DISCUSSION

The goal of Study 2 was to examine if counterfactual statements facilitated behavioral intention judgments relative to control statements for experimentally created in-group but not out-group targets. As expected, counterfactuals facilitated intention judgments relative to control statements. More importantly, this was qualified by group membership: this facilitation occurred only when the target was an in-group member. Importantly, Study 2 also ruled out potential alternative explanations for Study 1 by using novel rather than pre-existing groups, directly manipulating counterfactual thoughts rather than implying them, and using a relatively automatic intention activation measure rather than explicit intention endorsement.

2. There was not a significant difference in intention judgment RT between in- and out-group targets in the control trials, $t(47) = 1.03, p = .31, d = .15$, nor was there a significant difference in intention judgment RT between in- and out-group targets in the counterfactual trials, $t(47) = -1.39, p = .17, d = .21$.

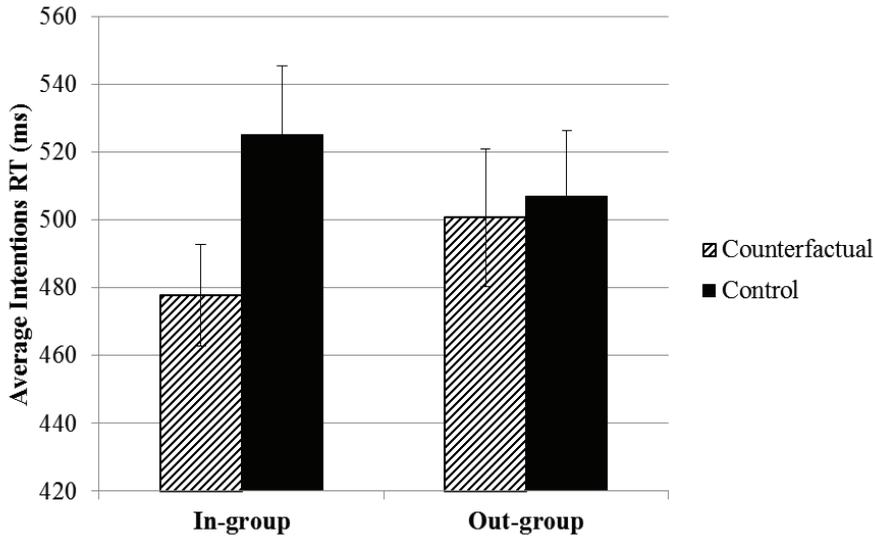


FIGURE 4. Average intention RTs as a function of prime judgment task and minimal-group manipulation. Error bars represent 95% confidence intervals.

GENERAL DISCUSSION

This work explored the impact of counterfactual thinking about others on behavioral intentions. In Study 1, we found that participants who read vignettes about an in-group target with an implied counterfactual formed stronger intentions than participants who read vignettes without an implied counterfactual, but that this pattern was weaker if the target was an out-group member. In Study 2, we found that counterfactuals facilitated behavioral intention judgments, but only for in-group targets. Together, this suggests that counterfactuals about others can have functional effects, but these effects are contingent on the group membership of the target.

IMPLICATIONS OF THE CURRENT RESEARCH

The current research extends the understanding of functional counterfactual thinking by demonstrating that other-focused counterfactuals can help perceivers recognize effective behavior that might improve future outcomes (Epstude & Roese, 2008). However, the current research also demonstrates that this process is dependent on the group membership of the target, such that these counterfactuals have a greater effect (i.e., facilitate behavioral intentions for the self) when the target is considered an in-group member. Although past work has shown that the self-other distinction influences counterfactual content (Giroto et al., 2007; McCrea, 2007), we extend this by revealing that group membership impacts the extent to which an individual is motivated to change his or her future behavior. Future work should examine other conditions that affect whether other-focused

comparisons are beneficial for the self, such as whether the target is a relatable other (Lockwood & Kunda, 1997). Because the current research only compared in-group versus out-group others, future research should also directly contrast other-focused to self-focused counterfactuals to determine whether counterfactuals about in-group targets are comparable to self-focused counterfactuals.

The current research also demonstrates a novel way in which in-groups provide social utility. Correll and Park (2005) argue that in-groups are a valuable social resource, providing acceptance, affiliation, social identity, and self-enhancement. Our work provides evidence that in-group members additionally serve as guides for enhancing perceivers' willingness to perform useful future behaviors. To the extent that an individual generates a counterfactual thought after watching an in-group member experience a negative event, our work shows that he or she will strengthen behavioral intentions designed to produce better outcomes for the self. Although this work suggests another benefit people derive from in-groups, it also suggests that individuals fail to acknowledge and use potentially beneficial information from out-group targets. In the current studies, participants were less likely to activate or strengthen behavioral intentions when the target was an out-group member, even though it remained entirely possible that a similar event could happen to them. Thus, when forming intentions from counterfactuals, group membership is a double-edged sword. Whereas people seem willing and able to use information based on the mistakes of in-group members, people seem to selectively ignore potentially useful information simply because of group membership. Future research should continue to investigate the role of group processes in counterfactual thinking, with particular attention paid to understanding the mechanisms underlying the selective blindness people may show toward out-group members.

Recent research may provide some additional insight into the above questions. Converse and Reinhard (2016) revealed that the rival versus non-rival distinction of a competitor influences goal pursuit. Compared to non-rival competitors, thinking about rival competitors causes people to pursue their own goals in a more eager and less cautious manner. In our Study 1, we used a rival university as the established out-group. Had we selected a non-rival university as the out-group, the findings of Converse and Reinhard (2016) suggest that the difference in intentions between the counterfactual-implied and non-counterfactual condition may have been smaller. People may selectively ignore potentially useful information even more when the out-group is a non-rival compared to a rival, which likely has implications for counterfactual generation and subsequent behavioral intentions.

FURTHER QUESTIONS

Although these studies demonstrated that group membership influences the effect of counterfactuals on behavioral intentions, additional questions remain. Importantly, the current research did not examine the mechanism for this effect. One

possibility is that because individuals have weaker and/or different affective responses when the target is an out-group rather than in-group member (Kang et al., 2010; Mackie et al., 2008; Yzerbyt et al., 2003), and counterfactuals are triggered by negative affect (Roese, 1997), only in-group targets produce a sufficient affective response necessary for counterfactuals to trigger intentions. Future work should explore this broader question of the necessary conditions for counterfactuals to facilitate intentions. Alternatively, although the effect of group membership occurred even when participants were provided with counterfactuals in Study 2, counterfactuals about out-group members may be less salient than those about in-group members. Accordingly, future work should also examine whether group membership impacts the likelihood of spontaneously generating counterfactuals. Finally, the current research focuses on how group membership influences the extent to which counterfactuals strengthen and increase the accessibility of behavioral intentions. Although previous research has shown that the strength of behavioral intentions are a good predictor of behavior (e.g., Theory of Planned Behavior; Ajzen, 1991) and that increasing the accessibility of behavioral intentions can have behavioral consequences (Smallman, 2013), it is yet unknown how group membership might impact these effects. Future research should directly test how group membership influences the relationship between functional counterfactual thinking and future behavior.

The current research examined one of the two routes by which counterfactuals influence behavior, the *content-specific pathway*. There is also a *content-neutral pathway* in which counterfactuals can influence a future behavior indirectly by increasing persistence and motivation in a context unrelated to the counterfactual content (Epstude & Roese, 2008; Markman & McMullen, 2003; Markman et al., 2008). Future work should examine the role that group membership plays in the content-neutral pathway. For instance, if an in-group member fails, a given task may seem more challenging and more resources may be mobilized when a perceiver attempts it than when an out-group member fails (Brickman & Bulman, 1977).

CONCLUSION

In sum, the current research demonstrates that other-focused counterfactuals can provide useful reminders about ways to avoid negative outcomes. However, not all other-focused counterfactuals are equal. Counterfactuals about others facilitate the endorsement of behavioral intentions to a greater extent when a target is an in-group rather than out-group member. Although individuals are capable of using information based on another person's mistakes, whether they do so depends on the social context.

REFERENCES

- Ajzen, I. (1991). The theory of planned behavior. *Organizational Behavior and Human Decision Processes*, 50, 179-211.
- Aron, A., Aron, E. N., & Smollan, D. (1992). Inclusion of Other in the Self (IOS) scale and the structure of interpersonal closeness. *Journal of Personality and Social Psychology*, 63, 596-612.
- Bargh, J. A., Gollwitzer, P. M., Lee-Chai, A., Barndollar, K., & Trötschel, R. (2001). The automated will: Nonconscious activation and pursuit of behavioral goals. *Journal of Personality and Social Psychology*, 81, 1014-1027.
- Bernstein, M. J., Young, S. G., & Hugenberg, K. (2007). The cross-category effect: Mere social categorization is sufficient to elicit an own-group bias in face recognition. *Psychological Science*, 18, 706-712.
- Brewer, M. B., & Gardner, W. (1996). Who is this "we"? Levels of collective identity and self representations. *Journal of Personality and Social Psychology*, 71, 83-93.
- Brickman, P., & Bulman, R. J. (1977). Pleasure and pain in social comparison. In J. Suls & R. L. Miller (Eds.), *Social comparison processes: Theoretical and empirical perspectives* (pp. 149-186). Washington, DC: Hemisphere.
- Burger, J. M., Messian, N., Patel, S., del Prado, A., & Anderson, C. (2004). What a coincidence! The effects of incidental similarity on compliance. *Personality and Social Psychology Bulletin*, 30, 35-43.
- Burger, J. M., Soroka, S., Gonzago, K., Murphy, E., & Somervell, E. (2001). The effect of fleeting attraction on compliance to requests. *Personality and Social Psychology Bulletin*, 27, 1578-1586.
- Cameron, C. D., Brown-Iannuzzi, J., & Payne, B. K. (2012). Sequential priming measures of implicit social cognition: A meta-analysis of associations with behavior and explicit attitudes. *Personality and Social Psychology Review*, 16, 330-350.
- Carver, C. S., & Scheier, M. F. (1998). *On the self-regulation of behavior*. New York: Cambridge University Press.
- Cialdini, R. B. (2001). *Influence: Science and practice* (4th ed.). Boston: Allyn and Bacon.
- Cialdini, R. B., & Goldstein, N. J. (2004). Social influence: Compliance and conformity. *Annual Review of Psychology*, 55, 591-621.
- Converse, B. A., & Reinhard, D. A. (2016). On rivalry and goal pursuit: Shared competitive history, legacy concerns, and strategy selection. *Journal of Personality and Social Psychology*, 110, 191-213.
- Correll, J., & Park, B. (2005). A model of the ingroup as a social resource. *Personality and Social Psychology Review*, 9, 341-359.
- Davis, M. H. (1983). Measuring individual differences in empathy: Evidence for a multidimensional approach. *Journal of Personality and Social Psychology*, 44, 113-126.
- Epstude, K., & Jonas, K. J. (2015). Regret and counterfactual thinking in the face of inevitability: The case of HIV-positive men. *Social Psychological and Personality Science*, 6, 157-163.
- Epstude, K., & Roeser, N. J. (2008). The functional theory of counterfactual thinking. *Personality and Social Psychology Review*, 12, 168-192.
- Galinsky, A. D., & Moskowitz, G. B. (2000). Perspective-taking: Decreasing stereotype expression, stereotype accessibility, and in-group favoritism. *Journal of Personality and Social Psychology*, 78, 708-724.
- Gardner, W. L., Gabriel, S., & Hochschild, L. (2002). When you and I are "we," you are not threatening: The role of self-expansion in social comparison. *Journal of Personality and Social Psychology*, 82, 239-251.
- Garner, R. (2005). What's in a name? Persuasion perhaps. *Journal of Consumer Psychology*, 15, 108-116.
- Giroto, V., Ferrante, D., Pighin, S., & Gonzalez, M. (2007). Postdecisional counterfactual thinking by actors and readers. *Psychological Science*, 18, 510-515.
- Goldberg, L. R. (1993). The structure of phenotypic personality traits. *American Psychologist*, 48, 26-34.
- Goldinger, S. D., Kleider, H. M., Azuma, T., & Beike, D. R. (2003). "Blaming the victim" under memory load. *Psychological Science*, 14, 81-85.
- Kahneman, D., & Miller, D. T. (1986). Norm theory: Comparing reality to its alternatives. *Psychological Review*, 93, 136-153.
- Kang, S. K., Hirsh, J. B., & Chasteen, A. L. (2010). Your mistakes are mine: Self-other overlap predicts neural response to

- observed errors. *Journal of Experimental Social Psychology*, 46, 229-232.
- Kenrick, D., Neuberg, S., & Cialdini, R. (2010). *Social psychology: Goals in interaction* (5th ed.). Boston: Allyn and Bacon.
- Kruglanski, A. W., Chernikova, M., Rosenzweig, E., & Kopetz, C. (2014). On motivational readiness. *Psychological Review*, 121, 367-388.
- Lockwood, P., & Kunda, Z. (1997). Superstars and me: Predicting the impact of role models on the self. *Journal of Personality and Social Psychology*, 73, 91-103.
- Loersch, C., Aarts, H., Payne, B. K., & Jefferis, V. E. (2008). The influence of social groups on goal contagion. *Journal of Experimental Social Psychology*, 44, 1555-1558.
- Lynn, M., & Simons, T. (2000). Predictors of male and female servers' average tip earnings. *Journal of Applied Social Psychology*, 30, 241-252.
- Mackie, D. M., Smith, E. R., & Ray, D. G. (2008). Intergroup emotions and intergroup relations. *Social and Personality Psychology Compass*, 2, 1866-1880.
- Markman, K. D., Gavanski, I., Sherman, S. J., & McMullen, M. N. (1993). The mental simulation of better and worse possible worlds. *Journal of Experimental Social Psychology*, 29, 87-109.
- Markman, K. D., & McMullen, M. N. (2003). A reflection and evaluation model of comparative thinking. *Personality and Social Psychology Review*, 7, 244-267.
- Markman, K. D., McMullen, M. N., & Elizaga, R. A. (2008). Counterfactual thinking, persistence, and performance: A test of the reflection and evaluation model. *Journal of Experimental Social Psychology*, 44, 421-428.
- McCrea, S. M. (2007). Counterfactual thinking following negative outcomes: Evidence for group and self-protective biases. *European Journal of Social Psychology*, 37, 1256-1271.
- Nasco, S. A., & Marsh, K. L. (1999). Gaining control through counterfactual thinking. *Personality and Social Psychology Bulletin*, 25, 557-569.
- Petrocelli, J. V., Seta, C. E., & Seta, J. J. (2013). Dysfunctional counterfactual thinking: When simulating alternatives to reality impedes experiential learning. *Thinking and Reasoning*, 19, 205-230.
- Petrocelli, J. V., Seta, C. E., Seta, J. J., & Prince, L. B. (2012). "If only I could stop generating counterfactual thoughts": When counterfactual thinking interferes with academic performance. *Journal of Experimental Social Psychology*, 48, 1117-1123.
- Petrocelli, J. V., & Sherman, S. J. (2010). Event detail and confidence in gambling: The role of counterfactual thought reactions. *Journal of Experimental Social Psychology*, 46, 61-72.
- Roese, N. J. (1994). The functional basis of counterfactual thinking. *Journal of Personality and Social Psychology*, 66, 805-818.
- Roese, N. J. (1997). Counterfactual thinking. *Psychological Bulletin*, 121, 133-148.
- Roese, N. J., & Olson, J. M. (1996). Counterfactuals, causal attributions, and the hindsight bias: A conceptual integration. *Journal of Experimental Social Psychology*, 32, 197-227.
- Rydell, R. J., Mackie, D. M., Maitner, A. T., Claypool, H. M., Ryan, M. J., & Smith, E. R. (2008). Arousal, processing, and risk taking: Consequences of intergroup anger. *Personality and Social Psychology Bulletin*, 34, 1141-1152.
- Seeger, C. R., Smith, E. R., & Mackie, D. M. (2009). Subtle activation of a social categorization triggers group-level emotions. *Journal of Experimental Social Psychology*, 45, 460-467.
- Sherif, M. (1966). *In common predicament: Social psychology of intergroup conflict and cooperation*. New York: Houghton Mifflin.
- Sherman, S. J., & McConnell, A. R. (1995). Dysfunctional implications of counterfactual thinking: When alternatives to reality fail us. In N. J. Roese & J. M. Olson (Eds.), *What might have been: The social psychology of counterfactual thinking* (pp. 199-231). Hillsdale, NJ: Erlbaum.
- Smallman, R. (2013). It's what's inside that counts: The role of counterfactual content in intention formation. *Journal of Experimental Social Psychology*, 49, 842-851.
- Smallman, R., & McCulloch, K. C. (2012). Learning from yesterday's mistakes to fix tomorrow's problems: When functional counterfactual thinking and psychological distance collide. *European Journal of Social Psychology*, 42, 383-390.
- Smallman, R., & Roese, N. J. (2009). Counterfactual thinking facilitates behavioral

- intentions. *Journal of Experimental Social Psychology*, 45, 845-852.
- Smith, E. R., Seger, C. R., & Mackie, D. M. (2007). Can emotions be truly group level? Evidence regarding four conceptual criteria. *Journal of Personality and Social Psychology*, 93, 431-446.
- Strauss, J. P., Barrick, M. R., & Connerley, M. L. (2001). An investigation of personal-ity similarity effects (relational and perceived) on peer and supervisor ratings and the role of familiarity and liking. *Journal of Occupational and Organizational Psychology*, 74, 637-657.
- Suls, J. M., & Miller, R. L. (1977). *Social comparison processes: Theoretical and empirical perspectives*. Oxford, England: Hemisphere.
- Summerville, A., & Roese, N. J. (2008). Dare to compare: Fact-based versus simulation-based comparison in daily life. *Journal of Experimental Social Psychology*, 44, 664-671.
- Sumner, W. G. (1906). *Folkways: A study of the sociological importance of usages, manners, customs, mores, and morals*. Boston: Ginn.
- Tajfel, H., Billig, M., Brundy, R., & Flament, C. (1971). Social categorization and intergroup behavior. *European Journal of Social Psychology*, 1, 149-178.
- Turner, J. C., Hogg, M. A., Oakes, P. J., Reicher, S. D., & Wetherell, M. S. (1987). *Rediscovering the social group: A self-categorization theory*. Cambridge, MA: Basil Blackwell.
- Yzerbyt, V., Dumont, M., Wigboldus, D., & Gordijn, E. (2003). I feel for us: The impact of categorization and identification on emotions and action tendencies. *British Journal of Social Psychology*, 42, 533-549.