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Compensatory Conviction in the Face of Personal Uncertainty: Going to Extremes and Being Oneself

Ian McGregor
York University

Mark P. Zanna, John G. Holmes, and Steven J. Spencer
University of Waterloo

Study 1 participants' self-integrity (C. M. Steele, 1988) was threatened by deliberative mind-set (S. E. Taylor & P. M. Gollwitzer, 1995) induced uncertainty. They masked the uncertainty with more extreme conviction about social issues. An integrity-repair exercise after the threat, however, eliminated uncertainty and the conviction response. In Study 2, the same threat caused clarified values and more self-consistent personal goals. Two other uncertainty-related threats, mortality salience and temporal discontinuity, caused similar responses: more extreme intergroup bias in Study 3, and more self-consistent personal goals and identifications in Study 4. Going to extremes and being oneself are seen as 2 modes of compensatory conviction used to defend against personal uncertainty. Relevance to cognitive dissonance and authoritarianism theories is discussed, and a new perspective on terror management theory (J. Greenberg, S. Solomom, & T. Pyszczynski, 1997) is proposed.

> People are motivated to see themselves as adaptively and morally adequate, competent, good, coherent, unitary, stable, capable of free choice, capable of controlling important outcomes, and so on. I view these self-affirmation processes as being activated by information that threatens the perceived adequacy or integrity of the self and as running their course until this perception is restored. (Steele, 1988, p. 262)

How do people cope with awareness of personal inconsistency? For example, how might a young woman, Lynda, resolve the conflict between her value of personal freedom and the fact that she chooses to continue living with her controlling parents? Hundreds of cognitive dissonance experiments have found that people in Western cultures respond defensively to personal inconsistency. The typical finding is that when people find themselves in the predicament of freely doing something that goes against their attitudes, they resolve the inconsistency by changing their attitudes to justify the action. Thus, if Lynda continued to live at home, she might restore cognitive consistency (and eliminate cognitive dissonance) by claiming that personal freedom is not really all that important to her after all.

According to self-affirmation theory, people might also cope with personal inconsistency that threatens their global sense of self-integrity by engaging in "fluid compensation" processes (Steele, 1988, p. 267). Self-integrity is a broad superordinate concept that subsumes both self-consistency and self-worth. Fluid compensation refers to coping with any self-integrity threat by affirming some other unrelated aspect of the self. For example, according to self-affirmation theory, Lynda could continue to value personal freedom and to live in her controlling parents' basement without discomfort if she had some other coherent, valued, or esteemed self-aspect that she could focus on (e.g., success at work).

Indirect evidence that fluid compensation can eliminate dissonance has been found by Steele and his colleagues (Steele & Liu, 1983; Steele, Spencer, & Lynch, 1993). Defensive attitude change in "counterattitudinal advocacy" ("forced compliance") dissonance experiments was eliminated (and the threat associated with

Ian McGregor, Department of Psychology, York University, Toronto, Ontario, Canada; Mark P. Zanna, John G. Holmes, and Steven J. Spencer, Department of Psychology, University of Waterloo, Waterloo, Ontario, Canada.

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Correspondence concerning this article should be addressed to Ian McGregor, Department of Psychology, York University, 4700 Keele Street, Toronto, Ontario M3J 1P3, Canada. Electronic mail may be sent to ianmc@yorku.ca.

cognitive inconsistency presumably defused) if participants were given the chance to restore integrity by focusing on an important personal value that was unrelated to the original inconsistency (Steele & Liu, 1983). Similarly, in "free choice" ("spread of alternatives") dissonance experiments, defensive attitude change was eliminated if the experimenters restored participants' self-integrity by reminding them of their high self-esteem or by giving them self-affirming feedback about a bogus intelligence test (Steele et al., 1993).

The present research investigates a different kind of fluid compensation, compensatory conviction in the face of personal uncertainty. *Personal uncertainty* refers to an acute kind of identity crisis that can arise from awareness of having inconsistent or unclear self-relevant cognitions (cf. Baumeister, 1985). As such, it is akin to the dissonance construct but more explicitly pertains to important and self-relevant cognitions. Our main hypothesis is that when faced with the threat of personal uncertainty, participants cope by spontaneously emphasizing certainty and conviction about unrelated attitudes, values, personal goals, and identifications. A seemingly rigid and defensive way to do this might be to become more zealous about social attitudes and groups (i.e., going to extremes). Focusing on a circumscribed certainty "out there" might help to mask inner uncertainty. For example, one way for Lynda to mask her uncertainty and restore a sense of self-integrity might be to become a zealous political activist.

A seemingly more integrative, although still compensatory, response to uncertainty might be to focus on and emphasize a self-consistent set of values and personal goals (i.e., being oneself). Along these lines, Lynda might restore a sense of self-integrity in the face of her inconsistent predicament by reminding herself about how much she values helping others in need and by increasing her identification and commitment to the "helping-others" projects in her life. This would not address the original source of the uncertainty but might still restore a sense of personal integrity.

Studies 1 and 2 investigate the effects of dilemma-related personal uncertainty on the two proposed modes of compensatory conviction, going to extremes and being oneself. Studies 3 and 4 conceptually replicate the results of Studies 1 and 2 using two other uncertainty-related self-integrity threats, mortality salience and temporal discontinuity, and using different measures of compensatory conviction. Studies 1 and 3 focus on the going-to-extremes mode of compensatory conviction. Studies 2 and 4 focus on the being-oneself mode.

Study 1

We exposed participants to personal uncertainty to see whether they would respond with spontaneous fluid compensation efforts. We expected that they would attempt to mask the uncertainty by heightening their conviction about their attitudes toward social issues. Participants in the experimental condition spent 10 min elaborating on the conflicting values and possible selves associated with the poles of an important personal dilemma in their lives (manipulation adapted from Taylor & Gollwitzer, 1995). As such, the experimental manipulation confronted participants with important personal uncertainties. We expected that participants would respond to the heightened awareness of dilemma-related uncertainty by becoming defensively rigid about other unrelated attitudes. Following Kelly's (1955) reference to "hardening of the categories" after self-threat, we refer to the expected attitude rigidity response as *hardening of the attitudes*. We expected that the attitude hardening would serve as a fluid compensation and effectively eliminate the uncertainty associated with the initial self-threat.

As another test of the fluid compensation notion, we gave some participants the opportunity to complete an experimenter-provided integrity-repair exercise after the dilemma exercise. The integrity-repair exercise allowed participants to describe how their main values in life, their past behaviors, and their future plans were coherently integrated. If self-threats can be repaired by fluid compensations that restore a sense of global integrity, then completing the integrity-repair exercise after the dilemma exercise should neutralize the uncertainty threat and eliminate subsequent attitude hardening.

In summary, Hypothesis 1a was that the self-integrity threat of personal uncertainty would cause participants to compensate by hardening their attitudes toward social issues, as compared with nonthreatened control participants. Hypothesis 1b was that the expected attitude hardening would effectively mask the feelings of uncertainty arising from the original threat. Hypothesis 1c was that an integrity-repair exercise after the dilemma materials would eliminate compensatory attitude hardening. Hypothesis 1d was that the integrity-repair exercise after the dilemma materials would also eliminate the induced feelings of uncertainty. To investigate these hypotheses, five conditions were required (see Figure 1).

Method

Twenty-six male and 61 female undergraduates (age, M = 19) were given academic credit toward their introductory psychology course for participating in what was advertised as a study on personality, attitudes, and decisions. Materials for the five conditions were randomly shuffled and handed out from the top of the pile (by an experimenter who was unaware of the condition) to participants as they arrived. Data were collected in sessions ranging in size from 5 to 27 participants. It took an average of 45 min for participants to complete the materials. Participants first completed a packet of personality measures to bolster the cover story that the study was on personality, attitudes, and decisions. From this packet, the Rosenberg (1965) Self-Esteem Scale (RSE) and the Personal Need for Structure Scale (PNS; Thompson, Naccarato, & Parker, 1989; see also Neuberg &

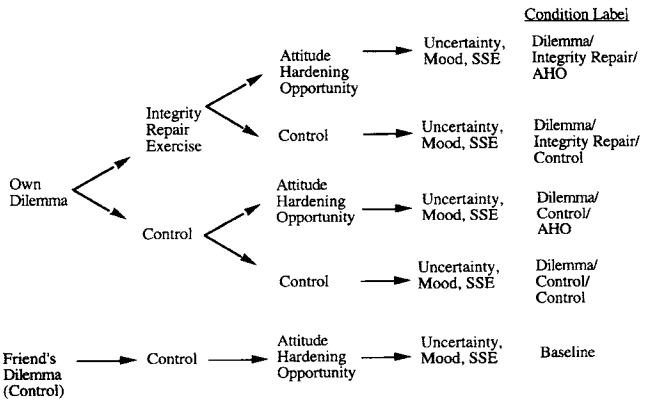

Figure 1. Order of materials and conditions in Study 1. AHO = attitude hardening opportunity; SSE = State self-esteem.

Newsom, 1993) were used as covariates to increase power in the main statistical analyses.[1] At the end of the study, we probed participants for suspicion and debriefed them orally and with a written follow up. They also received contact information for local counseling resources in case any of the materials had highlighted troubling thoughts or feelings. This debriefing procedure was followed in Studies 2–4 as well.

Dilemma salience as the uncertainty-related self-integrity threat. We adapted Taylor and Gollwitzer's (1995) deliberative mind-set materials to serve as the uncertainty-related self-integrity threat. Participants were asked to think of a personal dilemma that was not easy to solve and about which they had not already made a decision. The dilemma was to be a complex one about whether to leave a personal state of affairs the way it was or to strike out in a new direction that involved changing the status quo. After writing a short description of the dilemma, participants summarized the primary general value (for them) associated with each pole of the dilemma. A series of questions then led participants to deliberate about the advantages and disadvantages associated with each pole and to imagine the alternative possible selves associated with each pole. Thus, the questions directly confronted participants with inconsistencies among self-elements such as goals, values, and possible selves. As such, it was a direct manipulation of the salience of self-relevant uncertainty.

In the control condition, participants completed identical materials, except that they deliberated about a dilemma a friend was having, about which they thought they knew what the friend should do.[2] This control procedure ensured that the complexity of the process of completing the materials was equivalent between conditions and that only the salience of self-relevant inconsistency varied. After the participants completed the dilemma-salience or control materials, we hoped to amplify their uncertainty by having them answer seven questions adapted from Campbell et al.'s (1996) Self Concept Clarity (SCC) Scale (e.g., "I have a clear sense of the kind of person that I am," "I know other people better than I know myself," and "I wonder about the kind of person I really am").

Integrity-repair exercise. Half of the participants in the dilemma-salience condition (see Figure 1) completed the integrity-repair exercise, which involved writing a paragraph about how their various self-elements were consistent. In contrast to the preceding integrity-threat manipulation designed to confront participants with identity-related inconsistencies and uncertainties, the integrity-repair exercise was designed to highlight self-consistency and certainty.

Participants first selected a value cluster that was most important to them from a list of six options: (a) business, economics, and money making; (b) art, music, and theater; (c) science and the pursuit of knowledge; (d) social life and relationships; (e) social action and helping others; and (f) religion and spirituality. We then instructed them to write "a paragraph that describes why this value is important to you and how you have acted consistently with this value in the past and plan to act consistently with it in the future." Participants in the control condition completed parallel materials that asked them to select the value that was least important to them and then describe how the value could be important for other people. We expected that the integrity-repair exercise would mask the feelings of uncertainty and preempt the compensatory conviction response (see below) to the self-integrity threat.

Compensatory conviction about social issues (hardening of the attitudes). Participants reviewed a list of 15 statements about the issue of capital punishment (e.g., "Capital punishment is absolutely never justified," and "A murderer deserves to die") and circled the attitude position that they agreed with most. They then answered four questions about their conviction for the position they selected, two consensus questions about their estimates of the extent to which they thought other people would agree with their position, and four questions assessing feelings of ambivalence about their position.

The conviction questions, rated on an 11-point scale ranging from 0 (*not at all*) to 10 (*very*) were as follows: "How firmly do you believe in this position?" "How willing would you be to defend this position in an argument?" "How strong is your conviction about this position?" and "How certain do you feel about this position?" The consensus questions were as follows: "What percentage of the population do you think would *agree most* with the statement that you circled?" and "What percentage of the population do you think would *agree* with the statement that you circled?" The ambivalence questions, rated on an 11-point scale from −5 (*extremely uncharacteristic of my attitude*) to 5 (*extremely characteristic of my attitude*), were taken from Jamieson's (1993) measure of felt ambivalence. Items were "I find myself feeling 'torn' between the two sides of the issue of capital punishment; my feelings go in both directions," "My head and my heart seem to be in disagreement on the issue of capital punishment," "I have strong mixed emotions both for and against capital punishment, all at the same time," and (reverse scored) "My gut feeling about capital punishment lines up perfectly with what my rational intellect tells me to do." After completing the materials for the issue of capital punishment, parallel materials assessed hardening of attitudes toward the issue of abortion.

We expected that participants whose self-integrity had been threatened by the own-dilemma materials would defensively harden their attitudes toward social issues. We expected that they would heighten their conviction about their attitudes, report less ambivalence about them, and inflate their estimates of the extent to which other people agreed with their position. For each social issue, we computed subindices of conviction, ambivalence, and consensus and converted them to z scores. We then averaged the z scores of the six subindices (with ambivalence reverse scored) and, in turn, standardized the average to yield the overall, standardized hardening-of-the-attitudes index.

As well as serving as the first dependent variable in this experiment, the hardening-of-the-attitudes materials also served as an independent variable for subsequent analyses. As shown in Figure 1, half of the participants in the own-dilemma conditions did not have the opportunity to harden their own attitudes but instead completed control materials that asked parallel questions about most politicians' attitudes. Thus, half of the own-dilemma participants had the opportunity to defuse the integrity threat by hardening their attitudes (i.e., attitude hardening opportunity; AHO), whereas the other half (control participants) did not (i.e., no AHO).

Our hypothesis was that in the face of uncertainty (after the dilemma materials), participants with the opportunity to harden their attitudes would do so and that doing so would subsequently make them feel less uncertain than were participants in the no-AHO condition, who would still be experiencing the uncertainty aroused by the dilemma materials. Such a result would indicate that compensatory conviction can be an effective defense in the face of uncertainty-related self-integrity threat (i.e., that it can mask uncertainty).

Positive affect, negative affect, felt uncertainty, and state self-esteem. Next, on a current feelings inventory, participants rated the extent to which their feelings at that moment matched 39 adjectives and phrases that referred to positive affect, negative affect, and felt uncertainty. Ratings were made on a 5-point scale ranging from 1 (*very slightly or not at all*) to 5 (*extremely*). Items included the 10 positive affect items (e.g., "proud," "enthusiastic," "inspired") and the 10 negative affect items (e.g., "upset," "scared," "ashamed") from the short version of the Positive and Negative Affect Scales (PANAS; Watson, Clark, & Tellegen, 1988). The felt uncertainty scale consisted of 19 items that we gleaned from several literatures relating to personal uncertainty, such as dissonance (Elliot & Devine, 1994), ambivalence (Cacioppo, Gardner, & Berntson, 1997; Jamieson,

[1] We used RSE and PNS as covariates in the present research because of their theoretical relation to conviction-related outcomes (Baldwin & Wesley, 1996; Harmon-Jones et al., 1997; Neuberg & Newsom, 1993). Neither measure interacted significantly with condition.

[2] The dilemma salience and control materials used in this study are available from Ian McGregor on request.

1993; Priester & Petty, 1996) and contradictory self-guides (Van Hook & Higgins, 1988). The 19 items were as follows: "mixed," "uneasy," "torn," "bothered," "preoccupied," "confused," "unsure of self or goals," "contradictory," "distractible," "unclear," "of two minds," "muddled," "restless," "confused about identity," "jumbled," "uncomfortable," "conflicted," "indecisive," and "chaotic."

After completing the mood scale, participants completed Heatherton and Polivy's (1991) 20-item State Self-Esteem Scale, which includes items such as "I feel confident about my abilities," "I feel good about myself," and (reverse scored) "I feel inferior to others at this moment." Participants rated the items according to "what you feel is true for yourself at this moment" on a scale from 1 (*very slightly or not at all*) to 5 (*extremely*). We hoped that dilemma salience would increase uncertainty (manipulation check) but not depress state self-esteem. Such a result would confirm that the dilemma-salience manipulation primarily targets uncertainty.

Results and Discussion

Preliminary analyses. The positive and negative affect modules of the PANAS had Cronbach's alpha reliability coefficients of .90 and .86, respectively. The felt uncertainty scale and the State Self-Esteem Scale both had Cronbach's alphas of .91. The three subscales of the hardening-of-the-attitudes measure were also reliable. Aggregated across capital punishment and abortion, the conviction, consensus, and ambivalence alphas were .80, .82, and .78, respectively. Although the three attitude-hardening subscales were not highly correlated with one another, results were stronger with the composite hardening scale than with the individual subscales, suggesting that the three subscales represent alternative and relatively orthogonal ways to bolster certainty about one's attitudes. The correlations between the subscales were as follows: conviction and consensus, $r = .07$, *ns*; conviction and reverse-scored ambivalence, $r = .39$, $p < .01$; consensus and reverse-scored ambivalence, $r = .07$, *ns*.

Responses on the dilemma-salience and integrity-repair materials. On the dilemma-salience materials, most participants deliberated about academic or relationship concerns. Forty percent deliberated about changing academic courses, academic majors, or career directions, and 36% deliberated about whether to terminate, begin, or change close personal relationships. Another 10% deliberated about a conflict that took the form of work versus a relationship. The remaining 14% deliberated about a variety of concerns (e.g., "my hair dilemma" and "Should I stop smoking marijuana?"). The dilemmas in the friend's-dilemma condition were similar in topic and tone.

On the integrity-repair exercise, most participants chose communal values as their most important. Thirty-five percent selected social life and relationships as their most important value; 21% selected social action and helping others; 18% selected religion and spirituality; 18% selected science and the pursuit of knowledge; 9% chose business, economics, and making money; and none selected art, music, and theater. Control participants who wrote about why their least important value could be important to others most often wrote about the art, music, and theater or business, economics, and making money value clusters.

Manipulation check. The design of this study is based on the assumption that the uncertainty threat (dilemma salience) introduces feelings of uncertainty. To check this assumption, we compared felt uncertainty in the baseline condition and in the own-dilemma/control/control condition, with PNS, RSE, and gender as covariates. (Felt uncertainty was positively correlated with PNS, $r = .40$, $p < .05$, and was negatively correlated with trait RSE, $r = -.35$, $p < .05$). Participants in the dilemma/control/control condition did indeed report more uncertainty ($M = 2.3$) than did participants in the baseline condition ($M = 1.8$), $F(1, 29) = 4.75$, $p < .05$.[3] It is important to note that this finding was unique for felt uncertainty and did not approach statistical significance for the State Self-Esteem Scale or the positive or negative affect measures (*p*s all >.19). Moreover, even when state self-esteem and positive and negative affect were held statistically constant in an analysis of covariance (ANCOVA) with the other three covariates, the felt uncertainty effect still held $F(1, 26) = 6.01$, $p < .05$. This important finding demonstrates discriminant validity of the felt uncertainty scale and suggests that we were successful in our attempt to target felt uncertainty with the dilemma manipulation.[4]

Compensatory conviction (hardening of the attitudes). There were three conditions in which participants had the chance to harden their attitudes about social issues (i.e., AHO conditions; see Figure 1). We hypothesized that participants in the dilemma/control/AHO condition would compensate by hardening their attitudes about important social issues (relative to participants in the baseline condition) to reduce their feelings of uncertainty and restore a sense of knowing themselves and what they stood for. We did not expect participants in the dilemma/integrity-repair/AHO condition to harden their attitudes, because the integrity threat would have already been defused by the integrity-repair exercise. Participants in the baseline condition did not complete the dilemma materials, so their motivation to harden their attitudes to reduce uncertainty was also expected to be low.

As anticipated, an ANCOVA with RSE, PNS, and gender as covariates revealed the most hardening of capital punishment and abortion attitudes in the dilemma/control/AHO condition (adjusted $M = .46$) and the least hardening in the dilemma/integrity-repair/AHO condition (adjusted $M = -.32$). Hardening in the baseline condition was between these two extremes (adjusted $M = -.16$). The overall ANCOVA was significant, $F(2, 46) = 3.30$, $p < .05$. Planned comparisons[5] revealed that there was more hardening in the dilemma/control/AHO condition than in either the baseline condition, $t(46) = 1.89$, $p < .05$, or the dilemma/integrity-repair/AHO condition, $t(46) = 2.44$, $p < .01$.

Thus, in support of Hypothesis 1a, when confronted with a self-integrity threat related to personal uncertainty, participants apparently compensated by hardening their attitudes about impor-

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[3] Participants in the baseline condition had the order of the hardening opportunity and affect measures counterbalanced. No differences emerged between counterbalance conditions, so they were collapsed into one group.

[4] Taylor and Gollwitzer (1995) have found decreases in self-esteem and mood after deliberative mind-set manipulations, but their number of participants per condition (about 32) was almost twice that of the present experiment ($N = 17$). It is possible that more statistical power in our analyses would have revealed similar effects (there were nonsignificant trends in that direction). For the purposes of the present research, however, the differential effects are quite informative and theoretically interesting.

[5] Planned comparisons are, by definition, directional, so one-tailed probabilities are used for planned comparisons throughout this article (see Rosenthal & Rosnow, 1991). Of the 18 planned comparisons reported in this article as significant at $p < .05$, one-tailed, 15 were significant at $p < .05$, two-tailed, as well, and two of the three that were not were significant at $p < .06$, two-tailed.

tant social issues. Furthermore, in support of Hypothesis 1c, when they had a chance to reconsolidate a sense of self-clarity with the integrity-repair exercise after the own-dilemma materials, they apparently felt no need to harden their attitudes. These findings suggest the intriguing conclusion that inner uncertainty can cause professed certainty and that when people feel like they know who they are and what they stand for, they can be less closed-minded and rigid.

Uncertainty reduction. The manipulation check demonstrates that dilemma salience makes participants feel uncertain, and the above results show that if given the chance and if they have not already had an integrity-repair opportunity, participants will harden their attitudes about social issues as a means of fluid compensation. Hypothesis 1b proposed that the attitude hardening would be an effective defense against the threat of uncertainty, meaning that it would eliminate felt uncertainty. Also, participants did not harden their attitudes in the dilemma/integrity-repair/AHO condition. Hypothesis 1d proposed that this would be because the integrity-repair exercise would neutralize the uncertainty associated with the dilemma exercise, thereby eliminating the need to respond defensively. To investigate these hypotheses, we assessed uncertainty in the five experimental conditions with the expectation that it would be highest in the dilemma/control/control condition (in which participants had no opportunity to reduce uncertainty by completing the integrity-repair exercise or by hardening their attitudes).

In a preliminary analysis with the full sample, the overall ANCOVA (with RSE, PNS, and gender as covariates) was marginally significant, $F(4, 79) = 2.50$, $p = .10$. The means for uncertainty were (a) $M = 1.8$ in the baseline condition, (b) $M = 2.3$ in the dilemma/control/control condition, (c) $M = 1.8$ in the dilemma/control/AHO condition, (d) $M = 2.1$ in the dilemma/integrity-repair/control condition, and (e) $M = 1.8$ in the dilemma/integrity-repair/AHO condition. Consistent with Hypothesis 1b, attitude hardening did indeed reduce participants' uncertainty to baseline levels ($M = 1.8$). Planned comparisons indicated that felt uncertainty differed significantly from the dilemma/control/control condition ($M = 2.3$) in all conditions but one: the dilemma/integrity-repair/control condition ($M = 2.1$).

To assess whether this unexpectedly elevated uncertainty in the dilemma/integrity-repair/control condition may have arisen because some participants in that condition were not able to complete the integrity-repair exercise according to instructions (which may have intensified their feelings of uncertainty rather than relieved them), two raters who were unaware of participants' scores on the felt uncertainty scale read the integrity-repair paragraphs and identified those in which participants either failed to provide any past actions or future plans that were consistent with their most important value or else explicitly mentioned that their actions or plans were not consistent with the important value they circled. Nine paragraphs were coded by both raters as either incomplete or inconsistent[6] : Six of these were in the dilemma/integrity-repair/control condition, and three were in the dilemma/integrity-repair/AHO condition. When these participants were removed from the analyses, the means for uncertainty were (a) $M = 1.8$ in the baseline condition, (b) $M = 2.3$ in the dilemma/control/control condition, (c) $M = 1.8$ in the dilemma/control/AHO condition, (d) $M = 1.8$ in the dilemma/integrity-repair/control condition, and (e) $M = 1.7$ in the dilemma/integrity-repair/AHO condition.

The overall ANCOVA (with RSE, PNS, and gender as covariates) was significant, $F(4, 69) = 2.66$, $p < .05$, and planned comparisons revealed that felt uncertainty was significantly higher (all $ps < .05$) in the dilemma/control/control condition than in any of the other four conditions (which did not differ from each other). Thus, in support of Hypotheses 1b and 1d, both compensatory attitude hardening and the integrity-repair exercise succeeded in eliminating the felt uncertainty arising from the dilemma exercise.

Further evidence that attitude hardening effectively quells uncertainty comes from the highly significant, negative within-cell correlation between attitude hardening and uncertainty in the dilemma/control/AHO condition ($r = -.61$, $p < .01$), which differed significantly from the correlation in the baseline condition ($r = .40$, *ns*), $z = 3.09$, $p < .005$.

These results indicate that attitude hardening can be an effective defensive strategy, at least in the short term, when self-integrity is threatened. When participants are confronted with self-relevant uncertainty, they appear to find solace by exaggerating unrelated certainties, an effect we call hardening of attitudes. Further evidence that this hardening of attitudes is a form of fluid compensation in the face of self-integrity threat comes from the integrity-repair results. When participants had a chance to write a relatively simple integrity-repair account about what their core values were and how their past and future actions and intentions were consistent with those values, felt uncertainty was eliminated, as was compensatory conviction.

Study 2

Study 1 demonstrates that one response to awareness of personal uncertainty is to defensively compensate by hardening one's attitudes. Participants reacted to personal uncertainty with more extreme conviction about their attitudes toward social issues. Study 1 also demonstrated, however, that such compensatory conviction did not occur if participants had the chance to complete an integrity-repair exercise that depicted their past actions and future goals as being consistent with their values. Expressing a unified and integrated self-summary seemed to eliminate uncertainty and defensiveness after a self-integrity threat. Study 2 investigates spontaneous personal integration efforts in the face of uncertainty. In other words, in Study 2, we look at whether personal uncertainty makes participants more inclined to want to be themselves by increasing conviction and consistency about their values and personal goals.

In Study 1, social issues were salient, so participants compensated by hardening their attitudes toward social issues to reflect greater personal conviction and consistency. In Study 2, we made elements of the self (personal values and goals) salient after the personal uncertainty induction and expected that participants would spontaneously attempt to adjust them to reflect heightened personal conviction and consistency. Specifically, Hypothesis 2a was that they would shift toward consistency and conviction about their value priorities. Hypothesis 2b was that they would plan on engaging in personal goals that were more personally important

[6] There was a significant correlation, $r(35) = .46$, $p < .01$, between the coded quality of participants' integrity-repair paragraphs (1 = *adequate*, 0 = *incomplete or inconsistent*) and their SCC scores.

and consistent with their values and identifications. Thus, whereas Study 1 investigated compensatory conviction about social issues in the face of uncertainty, Study 2 investigated compensatory conviction about the self.

Method

Fifty-two female and 11 male undergraduates (age, $M = 21.9$) received credit toward their introductory personality psychology course for participating. The study was described as a personality research study in which participants would answer questions about their life, personality, and feelings and describe the personal goals that characterize their everyday life.

Following the procedure in Study 1, we introduced the self-integrity threat by having participants write about a personal dilemma and the conflicting values and possible selves associated with the dilemma. In the control condition, participants wrote about a friend's dilemma. Participants were randomly assigned to either the own-dilemma condition or the control condition.[7] After the own-dilemma or control materials, participants rated the personal importance of several values as guiding priorities in their lives. We expected that participants in the own-dilemma condition would use the values exercise as an opportunity to express more consistent and pronounced value priorities (Hypothesis 2a). We thought that doing so would essentially allow them to claim, "I stand for X!" which would help to restore a sense of identity clarity in the face of uncertainty.

However, personal consistency and conviction involve more than just expressing clear and unambiguous value priorities. We expected that if asked about their personal goals and plans, participants in the own-dilemma conditions would also plan to engage in activities that were more personally important and congruent with their values and identifications. In other words, we expected that the values shift would be accompanied by an attendant shift toward self-consistent behavioral intentions. Such motivated shifts in the real-life personal plans of participants would attest to the motivational strength of personal uncertainty and the real-world relevance of compensatory conviction.

Assessment of thematic consistency of personal values. We used 21 items from Schwartz's (1992; 56-item scale) values scale to assess thematic consistency among participants' values. Participants rated each value on a scale from 1 (*very slightly or not at all*) to 5 (*extremely*) according to the personal importance of each as guiding priorities in their lives. Seven of the values were communal in theme: "sense of belonging (feeling that others care about me)," "mature love (deep emotional, spiritual intimacy)," "true friendship (close, supportive friends)," "loyalty (faithfulness to my friends, group)," "helpfulness (work for the welfare of others)," "responsibility (dependability, reliability)," and "social recognition (respect, approval by others)." These seven items were aggregated into a communal values index that had a Cronbach's alpha reliability of .76.

Five of the values were hedonistic in theme: "pleasure (gratification of desires)," "an exciting life (stimulating experiences)," "creativity (uniqueness, imagination)," "a varied life (filled with challenge, novelty, and change)," and "curiosity (interest in everything, exploration)." These five items were aggregated into an hedonistic values index that had a Cronbach's alpha reliability of .74.

Five of the values were agentic in theme: "wealth (material possessions)," "independence (self-reliance, self-sufficiency)," "ambition (hard working, aspiring)," "influence (having an impact on people and events)," and "success (achievement of goals)." These five items were aggregated into an agentic values index that had a Cronbach's alpha reliability of .61.

Finally, four of the values were religious or spiritual in theme: "a spiritual life (emphasis on spiritual not material matters)," "respect for tradition (preservation of time-honored customs)," "self-discipline (self-restraint, resistance to temptation)," and "detachment (from worldly concerns)." These four items were aggregated into a spiritual and religious values index that had a Cronbach's alpha reliability of .53.

The instructions on the values questionnaire asked for ratings of the extent to which each of the 21 values were guiding priorities in participants' lives. Hypothesis 2a was that in the face of uncertainty, participants would shift toward greater thematic consistency in their value priorities, as opposed to the relatively more dissipated mix of priorities in the control condition. Because participants responded to the value questions by rating the relative importance and priority of each value listed, we did not expect all value scores to increase (everything cannot be top priority). Instead, we expected that participants would become more thematically consistent in the values that they endorsed as top priority. Given the finding that communal values are most consensually shared and considered important (McGregor, 1992, 1994), we expected that the shift toward value consistency would be reflected in normatively higher communal value scores in the own-dilemma condition than in the control condition.

Personal project integrity: An index of self-consistency. We assessed participants' personal goals with an adapted version of Little's (1983) personal projects analysis materials. All participants were given the following instructions:

> We are interested in studying the kinds of activities and concerns that people have in their lives. We call these personal projects. All of us have a number of personal projects at any given time that we think about, plan for, carry out, and sometimes (though not always) complete.

Participants were then given nine examples of personal projects (e.g., "complete my English essay," "overcome my fear of meeting new people," "redecorate my apartment," "clarify my religious beliefs," and "get groceries") that referred to agentic, communal, hedonistic, spiritual, and mundane concerns. They then took 10 min to write down as many of their personal projects as they could think of, with the further instruction that the projects need not be formal or important.

Each participant was then instructed to select the 10 projects from the list produced that together provided the most complete and informative overview of their life at present. Each participant then rated each project on a 6-point scale ranging from 0 (*not at all*) to 5 (*extremely*) according to each of the following four rating dimensions: (a) importance: "How important is

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[7] Study 1 found that an integrity-repair exercise eliminated uncertainty and attitude hardening. We assigned twice the number of participants to the experimental condition ($N = 41$) than to the control condition ($N = 22$) to see whether spontaneous compensatory conviction about value priorities would similarly eliminate uncertainty and attitude hardening. To check this, after they completed the values scale, we gave participants in the control condition and half of those in the own-dilemma condition a chance to harden their attitudes (using the same materials as were used in Study 1). The other half of the participants in the own-dilemma condition completed the politicians' attitudes materials (also from Study 1) and so had no opportunity to harden their attitudes. As expected, there was no more attitude hardening in the own-dilemma condition (among the half of the participants in that condition with the opportunity to harden their attitudes) than in the control condition, $t(41) < 1$. This null finding suggests that participants had already reconsolidated a sense of self-integrity with compensatory conviction about their values.

After the attitude hardening opportunity or politicians' attitude materials, participants rated their felt uncertainty (using the same scale as in Study 1). As in Study 1, the friend's dilemma control condition served as the baseline reference for felt uncertainty (because in that condition, no self-relevant uncertainty had been induced in the first place). We expected a null effect, such that uncertainty in the own-dilemma condition would be equal to that in the friends' dilemma control condition. We expected that the compensatory conviction about values in the own-dilemma condition would have eliminated felt uncertainty just as compensatory conviction about attitudes did in Study 1. This null expectation was also supported, $t(62) < 1$.

this project to you at the present time?" (b) self-identity: "To what extent does this project feel distinctly 'you'—like a personal trademark—as opposed to feeling alien to you?" (c) value congruency: "To what extent is this project consistent with the core values that guide your life?" and (d) meaningfulness: "Some projects contribute to a sense of meaning in life while others feel meaningless. How personally meaningful is this project?"

Each participant's 40 ratings on these dimensions (4 dimensions × 10 projects) were averaged to yield an index of project integrity for each participant (as in McGregor & Little, 1998). Thus, the project integrity index represents the extent to which one's personal projects are construed as being consistent with other important self-elements (values, identifications, and meanings). The Cronbach's alpha reliability of the index was .66. Hypothesis 2b was that the expected heightening of values in the own-dilemma conditions would translate into higher personal project integrity.

Results and Discussion

Values (Hypothesis 2a). The first prediction of Study 2 was that participants in the own-dilemma condition would spontaneously shift toward thematic consistency in their values, as compared with participants in the control condition. We did not expect values to be heightened across the board. Rather, we expected that participants would consolidate their values around the communal theme. A preliminary analysis revealed that, as we expected, value scores in general were not significantly higher in the experimental than in the control condition. We conducted four t tests to compare the strength of the four specific kinds of values across the experimental and control conditions. As we expected, communal values were significantly higher in the own-dilemma condition ($M = 4.01$) than in the control condition ($M = 3.69$), $t(61) = 2.21$, $p < .05$. Unexpectedly, hedonistic values were also significantly higher in the own-dilemma condition ($M = 3.85$) than in the control condition ($M = 3.49$), $t(61) = 2.30$, $p < .05$. Neither agentic values nor spiritual and religious values differed between the own-dilemma and control conditions ($t < 1$ for both). These findings support the hypothesis that participants will spontaneously sharpen and clarify their most important values after an uncertainty-related self-integrity threat if values are made salient.

Personal project integrity. We expected that the spontaneous clarification of personal values would translate to greater personal project integrity. People must know what they value before they can feel like their personal projects are consistent with their values. Indeed, preliminary analyses revealed significant correlations between all four value indices and personal project integrity: $r(61) = .39$, $p < .005$, for communal values; $r(61) = .39$, $p < 005$, for hedonistic values; $r(61) = .41$, $p < .001$, for agentic values; and $r(61) = .28$, $p < .05$, for spiritual and religious values. (Two participants from the own-dilemma condition failed to complete the personal projects portion of the materials, so they were dropped from these analyses.) The main analysis revealed that personal project integrity was significantly higher in the own-dilemma condition ($M = 3.93$) than in the control condition ($M = 3.65$), t(degrees of freedom adjusted to 28.23 because of unequal variances) $= 2.14$, $p < .05$. Thus, in the face of uncertainty, participants construed their real-life plans and activities as being more consistent with their values, identifications, and other important and meaningful self-elements.

Taken together with the greater thematic consistency of personal values, the shift toward personal project integrity in the face of uncertainty suggests that when the self is salient after an integrity threat, participants will spontaneously strive for clearer and more self-consistent values and priorities. Just as uncertainty heightened participants' conviction and clarity about social issues when social issues were salient in Study 1, uncertainty heightened participants' conviction and clarity about their values and goals when values and goals were salient in Study 2. Thus, in both studies, after an uncertainty-related self-integrity threat, participants responded with fluid compensation. In Study 1, they responded with compensatory conviction about social issues. In Study 2, they responded with compensatory conviction about the self.

Study 3

According to self-affirmation theory (Steele, 1988), when the adaptive adequacy of the self is threatened, individuals engage in fluid compensation efforts to reestablish a sense of global self-integrity. Past research on self-affirmation theory has demonstrated that self-integrity threat (usually in cognitive dissonance paradigms) can be defused by interventions that affirm participants' values (Steele & Liu, 1983) or worth (Steele et al., 1993). Studies 1 and 2 extend self-affirmation theory by demonstrating that participants will engage in spontaneous compensatory conviction about attitudes, values, and goals as a means of fending off uncertainty-related self-integrity threat. Affirming clarity and conviction about salient issues or the self appears to effectively restore a sense of self-integrity.

We designed Studies 3 and 4 to investigate whether the increase in intergroup bias and rigidity about issues related to one's values that occurs after mortality salience might represent the same kind of compensatory conviction. Greenberg, Solomon, and Pyszczynski (1997) have found in many experiments that reminding participants about their mortality causes a variety of outcomes that seem similar to the compensatory conviction responses we investigated in Studies 1 and 2. When personal mortality is salient, people become more favorable toward others who share their opinions and worldview and more unfavorable and hostile toward those with dissenting opinions and worldviews.

According to the terror management theory of Greenberg et al. (1997), such worldview defense responses represent attempts to achieve symbolic immortality by identifying with death-transcendent culture and values. Adhering more rigidly to a culturally shared worldview provides a sense of security, or a "cultural anxiety buffer." In several experiments, Greenberg et al. found that other kinds of aversive thoughts and nonmortality-related self-threats, such as failure on a bogus intelligence test, thinking about important exams, worries about life after college, thoughts of intense pain and dental procedures, thinking about giving a speech in public, or imagining the death of a loved one, did not cause the same kind of heightened worldview defense. On the basis of such findings, Greenberg et al. (1997) concluded that "a very strong case can now be made that mortality salience effects are indeed uniquely driven by thoughts of mortality" (pp. 98–99) and that

> the effects observed in these studies appear to be specific to the problem of death and are not due to activating negative affect or a

more general category of aversive events. The specificity of these effects to contemplation of mortality eliminates the possibility that these effects could be accounted for by theories (e.g., Sales, 1972; Steele, 1988; Tajfel & Turner, 1979) that might be able to explain why self-relevant or economic threats would increase cultural affiliation and defense. (pp. 98–99)

We wondered, however, whether the nonmortality-related self-threats used by Greenberg et al. (1997) to rule out the self-threat hypothesis may have just not been poignant enough. We wondered whether the impressive intergroup bias and worldview defense effects that have been reported by mortality salience researchers may represent compensatory conviction responses in the face of a powerful self-integrity threat. Mortality salience may threaten self-integrity in a number of ways simultaneously. Thinking of one's own inevitable death may be a humbling check on one's sense of significance and self-worth. It may introduce the threat of separations from close others. It may also highlight the uncertainty and confusion associated with thinking about what it means to die and regret and existential guilt about the life lived (and not lived). Contemplating mortality may also prompt individuals to look at their lives as a whole and face confusing existential uncertainties about what to value in life and what kind of person to be (cf. Yalom, 1980).

Studies 1 and 2 demonstrate that a powerful self-integrity threat that has nothing to do with mortality salience but that is related to important personal uncertainties can cause compensatory conviction outcomes that seem related to worldview defense effects. To further investigate the possibility that such worldview defense effects in the face of mortality salience may represent compensatory conviction in the face of personal uncertainty, in Study 3 we compare participants' uncertainty and intergroup bias responses to mortality salience and another existential self-integrity threat, temporal discontinuity, that poses many of the same threats as does mortality salience.

The temporal discontinuity manipulation we used involves contemplating one's fading and transient personal past from a future perspective. We expected that the sense of being a different person in the future than the person one used to be in the past would violate Steele's (1988) "unitary self" criterion for self-integrity and pose a self-integrity threat. In summary, the main hypothesis of Study 3 is that both mortality salience and temporal discontinuity manipulations will similarly cause uncertainty and a heightening of intergroup bias.

Method

Fifty-eight male and 59 female participants (age, $M = 19$) were given academic credit toward their introductory psychology course for participating. The data were collected during what was the first semester of university for most participants. Materials for the three conditions in the experiment were randomly shuffled and handed out from the top of the pile to participants as they arrived (by an experimenter who was unaware of the condition). Materials were administered in groups averaging 4 participants in size (ranging between 1 and 6 participants). On average, participants took 20 min to complete the materials in all conditions. Materials followed a larger packet of personality questionnaires from an unrelated study, including the PNS and the RSE, which bolstered the cover story that the study was a pilot test of some questionnaires for a study on attitudes and personality. Participants completed either temporal discontinuity materials, mortality salience materials, or control materials,[8] followed by the dependent measure of compensatory conviction that assessed relative preference for in-group over out-group individuals and essays. Three participants in the mortality salience condition and 1 in the control condition did not fully complete the materials, and their data were not included in the analyses.

Independent variable. Mortality salience, temporal discontinuity, and control condition materials were introduced to participants as innovative, projective personality assessment devices that were diagnostic of respondents' personalities (instructions from J. Greenberg, personal communication, May 1995).

In the mortality salience condition, we gave participants nine lines to answer each of two questions that have frequently served as the mortality salience induction in research by Greenberg and his colleagues (1997):

> 1. Please jot down, as specifically as you can, what you think will happen to your body as you physically die and once you are physically dead. 2. Please briefly describe the emotions that the thought of your own death arouses in you.

In the temporal discontinuity condition, participants were given nine lines to answer each of the following two questions:

> 1. Please briefly describe the events, people, and location associated with an important, vivid memory from your childhood or adolescence. 2. Jot down how you imagine the scene of this above memory might be changed if you revisited it in the year 2035 (be as specific as possible). How does it make you feel to imagine this?

Emphasis was placed on the physical scene of the memory to anchor participants in vivid memories from their past and to mirror the concrete nature of the mortality salience manipulation used. Simon et al. (1997) found that more concrete, experiential manipulations caused more pronounced mortality salience effects than abstract, cognitive ones did. It is important to note that the focus in the temporal discontinuity condition was on childhood, which is in the opposite temporal direction from death.

In the control condition, participants were given nine lines to answer each of two questions:

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[8] Mortality salience effects are most pronounced if a short distraction precedes the dependent variable (see Greenberg et al., 1997, for review and rationale). In the present study, all the participants in the control condition and a random half of the participants in the experimental (mortality salience and temporal discontinuity) conditions completed distraction materials between the independent variable and the dependent variable. Twice the number of participants were allocated to the mortality salience and temporal discontinuity conditions to facilitate separate comparisons between the control condition and the distraction and no-distraction experimental conditions.

The distraction materials included 41 items from three self-related personality scales, followed by a 21-item mood measure. The scale items that composed the first part of the distraction manipulation were taken from Thompson et al.'s (1989) Personal Fear of Invalidity Scale, Feningstein, Scheier, and Buss's (1975) Self Consciousness Scales, and Campbell et al.'s (1996) Self-Concept Clarity Scale. The personality scale items in the distraction manipulation were included to distract participants from the content of the mortality salience and temporal discontinuity materials but to maintain self-focus and thereby maintain the influence of the self-integrity threat over time. The mood measure also provided the basis for a manipulation check that the self-integrity threat was indeed uncertainty related.

1. Please jot down, as specifically as you can, what you think happens to you physically as you watch television. 2. Please briefly describe the emotions that the thought of watching television arouses in you.

This is a commonly used control condition in mortality salience research (Greenberg et al., 1997).[9]

Felt uncertainty (manipulation check) and positive and negative affect. Mortality salience researchers have repeatedly reported no changes in positive and negative affect after mortality salience inductions. We suspect that this may be because the discomfort associated with mortality salience is specifically related to cognitive inconsistency and personal uncertainty. As such, measures of generalized negative affect may not be appropriate. Indeed, in pilot studies, content analyses of participants' responses on the mortality salience materials revealed that uncertainty and regret were much more frequently mentioned than were fear, pain, or anything resembling annihilation terror. On the basis of these pilot findings, we expected that the most potent active ingredient in the self-integrity threat associated with mortality salience (and also with temporal discontinuity) would be felt uncertainty.

We included a 6-item index to assess felt uncertainty. Three of the 6 items have been associated with cognitive inconsistency in self-report dissonance experiments: "bothered," "uneasy," and "uncomfortable" (Elliot & Devine, 1994). We took the other 3 items, "aroused," "anxious," and "excited," from an 18-item measure of positive and negative affect (Diener & Emmons, 1984) that we also included to contrast the effects of the independent variable on uncertainty and positive and negative affect. The three items from the Diener and Emmons scale relate to the arousal properties of cognitive inconsistency (Elkin & Lieppe, 1986; Losch & Cacioppo, 1990).

The remaining 15 positive and negative affect adjectives from the Diener and Emmons scale included "happy," "joyful," "bored," and "angry." Participants rated the extent to which they felt each of the 21 affect adjectives at that moment on a 7-point scale ranging from 1 (*not at all*) to 7 (*extremely much*). We computed separate indices of uncertainty, positive affect, and negative affect.

Dependent variable: Intergroup bias. In response to the temporal discontinuity and mortality salience manipulations, we expected that participants would respond with heightened intergroup bias, as compared with participants in the control condition. Intergroup bias is at the intersection of the attitude hardening and value extremity responses found in Studies 1 and 2 and also reflects the normative shift toward communal values found in Study 2. The operationalization of intergroup bias was adapted from Greenberg et al.'s (1990) assessment of the polarization of American students' evaluations of authors who had written essays that either criticized or praised the United States. Greenberg et al. have found that after mortality salience, participants exaggerate their preference for pro-American authors over anti-American authors. In the present study, we assumed that most participants would identify with the "being a Waterloo student" in-group, because all were in their first semester at the University of Waterloo. Thus, for a measure of intergrouop bias, we assessed the relative preference for pro-Waterloo authors over anti-Waterloo authors.

All participants read the same two 200-word essays in counterbalanced order. One essay was written by an author who was highly favorable toward the University of Waterloo, Waterloo students, and university students in general. The other author was highly unfavorable. Thus, the two essays represented in-group and out-group positions. After reading each essay, participants answered five questions that evaluated the author and opinions expressed on an 11-point scale ranging from 0 (*not at all*) to 10 (*very much*). The questions were as follows: (a) "How much do you think you would like this person?" (b) "How intelligent do you think this person is?" (c) "How knowledgeable do you think this person is?" (d) "How much do you agree with this person's opinion of university?" and (e) "From your perspective, how true do you think this person's opinion of university is?" We assessed an overall measure of intergroup bias by taking the difference between participants' evaluations of the out-group author and opinion and their evaluation of the in-group author and opinion.

Results and Discussion

Preliminary analyses. About half of the memories described in the temporal discontinuity condition were positive, and about half were negative in affective tone. There was no effect of memory valence on intergroup bias, $F < 1$. Responses on the mortality salience materials emphasized the physical process of death and decomposition, as per our instructions.

The six-item felt uncertainty manipulation check had a Cronbach's alpha reliability of .73. The overall ANOVA with condition as the independent variable and felt uncertainty as the dependent variable was marginally significant, $F(2, 67) = 2.84$, $p = .07$[10]; however, a t test comparing uncertainty in the control condition ($M = 2.2$) with uncertainty in both threat conditions combined ($M = 2.8$) was significant, $t(68) = 2.32$, $p < .05$. Planned comparisons revealed that, as compared with uncertainty in the control condition ($M = 2.3$), there was significantly more uncertainty in the mortality salience condition ($M = 2.9$), $t(67) = 2.29$, $p < .05$, and in the temporal discontinuity condition ($M = 2.8$), $t(67) = 1.67$, $p < .05$. In contrast to the significant effects for uncertainty, there were no between-conditions differences in negative affect ($F < 1$) or positive affect ($F < 1$). These null results for general negative and positive affect occurred despite the superior reliability of the positive and negative affect indices (for both, $\alpha = .89$), as compared with the uncertainty index ($\alpha = .73$).

With respect to the main dependent measure of intergroup bias, the five questions evaluating the in-group author and opinion had a Cronbach's alpha reliability of .83. The five questions evaluating the out-group author and opinion had a Cronbach's alpha reliability of .85. Four participants did not complete the intergroup bias materials, so they were dropped from the analyses. The main analyses below (of effects of condition on intergroup bias) were conducted with gender, self-esteem, PNS, and essay order entered (simultaneously) as covariates to decrease the error variance and to increase statistical power. Gender and self-esteem were significantly associated with intergroup bias. Women ($M = 5.2$) showed more intergroup bias than men did ($M = 4.0$), $t(112) = 2.78$, $p < .01$, and higher self-esteem was associated with more intergroup bias, $t(112) = 2.31$, $p < .05$.

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[9] Similar effects have been found in experiments that have used questions that ask about dental pain as the control condition. Our pilot experiments indicated that thinking about death did not generally prime thoughts of pain but instead were more focused on uncertainty and life-review concerns. Furthermore, our temporal discontinuity manipulation generally did not elicit memories of physical pain (indeed, half were positive memories). For these reasons, television salience seemed like the more appropriate control.

[10] Only participants in the distraction conditions (see Footnote 8) are included in this analysis, leaving the number of participants in the control, mortality salience, and temporal discontinuity conditions as 25, 23, and 22, respectively.

Main analyses. Intergroup bias differed among the conditions, $F(2, 106) = 3.43, p < .05$.[11] Planned comparisons revealed that, as compared with intergroup bias in the control condition ($M = 3.9$), there was more bias in the mortality salience condition ($M = 5.2$), $t(106) = 2.60$, $p = .005$, and in the temporal discontinuity condition ($M = 4.8$), $t(106) = 1.96$, $p < .05$. Intergoup bias did not differ between the two experimental conditions, $t < 1$.

A conceptual replication of the temporal discontinuity effect. Study 3 results are consistent with results of a study (McGregor, 1998) that investigated the effects of the temporal discontinuity manipulation (as compared with the television salience control) on another commonly used outcome measure in mortality salience research—suggested punishment for a prostitute. In several experiments summarized in Greenberg et al. (1997), mortality salience has been shown to cause harsher punishment recommendations (bond amounts) for prostitutes. According to Greenberg et al., people become more punitive toward prostitutes after mortality salience, because prostitutes deviate from and thereby threaten the consensual cultural values that underlie individuals' sense of security (symbolic immortality) in the face of death.

From our perspective, harsher punishment recommendations after mortality salience represent fluid compensation after a self-integrity threat. Compensatory conviction about one's attitudes and values masks the uncertainty threat. As in Study 3, we investigated whether temporal discontinuity, an uncertainty-related self-integrity threat that has nothing to do with mortality, could cause uncertainty and mortality salience effects. A manipulation check revealed marginally more uncertainty in the temporal extension than in the control condition, at $p = .07$. (A meta-analysis[12] of the effects of temporal discontinuity on uncertainty across Study 3 and the conceptual replication revealed an overall effect with a significance level of $z = 2.01$, $p < .05$.) Also, as we expected, punishment recommendations for a prostitute were significantly more severe in the temporal discontinuity than in the control condition.

Is the temporal discontinuity manipulation just a subtle mortality salience induction? One possibility might be that even though the temporal discontinuity manipulation only asks participants to imagine themselves in the year 2035 (when most would be about 58 years old), it is a subtle reminder of impending death—after all, it is over time that people grow old and die.[13] To investigate this possibility, McGregor, Zanna, and Holmes (1998) assessed whether the temporal discontinuity manipulation would prime death thoughts. Greenberg, Pyszczynski, Solomon, Simon, and Breus (1994) reported that mortality salience makes participants more likely to complete the word stems *coff_ _*, *sku_ _*, *gra_ _*, *cor_ _ _*, *de_ _*, or *sti_ _* as *coffin*, *skull*, *grave*, *corpse*, *dead*, and *stiff*.

We used the same procedure to assess whether the temporal discontinuity manipulation used in Study 3 and the conceptual replication would prime death thoughts. Consistent with Greenberg et al. (1994), we found significantly more death-related word stem completions in the mortality salience condition than in the television salience (control) condition. Death-related word stem completions did not differ between the temporal discontinuity and control conditions, however. These results rule out the possibility that the outcomes resulting from temporal discontinuity in Study 3 and the conceptual replication could have been mediated by death thoughts and, together with the results of Studies 1 and 2, demonstrate that mortality salience is sufficient but not necessary to cause the compensatory conviction responses that have been found in past mortality salience research.

Summary. The finding that another self-integrity threat that is not related to mortality can cause worldview defense outcomes suggests a new perspective on the worldview defense effects found by mortality salience researchers. Given that both the mortality salience and the temporal discontinuity outcomes caused uncertainty-related discomfort, the results of Study 3 suggest that worldview defense outcomes may represent a response to any self-threat poignant enough to shake one's sense of self-clarity. Together with the results of Studies 1 and 2, the results of Study 3 suggest that individuals respond to uncertainty-related self-integrity threats with compensatory conviction, and raise the possibility that the impressive worldview defense effects found by terror management researchers may, at least in part, represent compensatory conviction repsonses in the face of personal uncertainty.

Study 4

In Studies 1 and 2, self-integrity threat (dilemma salience) caused two kinds of outcomes. In Study 1, when social issues were salient, participants became more extreme in their conviction about their attitudes toward social issues. In Study 2, when the self was salient, participants shifted toward being themselves in terms of self-consistency among their values and personal goals. One of the purposes of Studies 3 and 4 was to provide a conceptual replication for the results of the first two studies using different manipulations of uncertainty-related self-integrity threat. Study 3 demonstrated an attitude-hardening response to mortality salience and temporal discontinuity. Participants became more extreme in their attitudes toward in-group and out-group members and opinions. Study 4 was designed to test whether participants would shift toward being themselves with self-integrative responses after mortality salience and temporal discontinuity if the self was salient, as they did after the dilemma materials in Study 2.

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[11] Mortality salience and temporal discontinuity effects were similar regardless of whether participants completed the distraction materials before the dependent variable. The results reported are collapsed across distraction condition. Overall numbers of participants in the control, mortality salience, and temporal discontinuity conditions were 24, 43, and 46, respectively. ANCOVAs (with the same covariates as in the main analysis) revealed significant between-conditions differences in intergroup bias after distraction, $F(2, 61) = 2.40$, $p < .05$ (one-tailed), and also after no distraction $F(2, 62) = 3.37$, $p < .05$.

One explanation for the lack of a distraction effect (which is typically found in mortality salience research) might be that even though there was no formal distraction in the no-distraction condition, there was still a delay that may have served as a distraction. After the independent variable, participants waited for the slowest person in the group to complete his or her initial materials, waited for the second set of materials (including the dependent measure) to be handed out, and listened to oral instructions about how to complete the materials that followed the independent variable materials.

[12] We used the Mosteller and Bush (1954) method of weighted *z*s, as described in Rosenthal (1978).

[13] We thank Jeff Greenberg (personal communication, November 8, 1995) for this suggestion.

As an initial test of our claim that the changes in values, goals, and identifications represent the quest for self-integration and coherence, we included an identity-seeking scale in the present study. Hypothesis 4a was that self-integrity threat (temporal discontinuity and mortality salience) would raise participants' identity-seeking scores. According to Hypothesis 4b, we further expected that participants would attempt to restore a sense of self-consistency by planning to engage in personal projects that were more consistent with values, identifications, and other important and meaningful aspects of the self, as we found in Study 2. Finally, on the basis of the shift toward communal values in Study 2, Hypothesis 4c was that participants would become more clearly identified with their communal personal projects.

Method

In total, 26 male and 13 female participants (age, $M = 20$) participated. Twenty-nine received academic credit toward their introductory psychology course for participation. Another 10 volunteers were recruited after being approached in a large student lounge on campus. Materials for the three conditions in the experiment were randomly shuffled and handed out from the top of the pile to participants as they arrived on a first come, first served basis (by an experimenter who was unaware of the condition). Participants recruited at the lounge were simply handed the materials and instructed individually how to proceed. Participants recruited from the psychology class came to the laboratory and completed the materials in groups averaging 3 participants in size (ranging between 1 and 5 participants). On average, participants took 45 min to complete the materials.

Participants first completed either mortality salience, temporal discontinuity, or control materials (as in Study 3). They then completed a 60-item positive and negative affect scale (PANAS, Watson et al., 1988) that is typically used by mortality salience researchers as a filler between the independent variable and the dependent variable (mood effects are typically not found). Next, participants completed the PNS Scale (Neuberg & Newsom, 1993; Thompson, Naccarato, & Parker, 1989), followed by an identity-seeking scale (Seeking of Noetic Goals Scale; Crumbaugh, 1977) that measures the desire to consolidate a stable and meaningful identity. Finally, all participants completed a personal goals exercise that was an adaptation of Little's (1983) personal projects analysis methodology, as in Study 2. Responses on this exercise were used to assess the integrative shift toward self-consistent goals and communal identifications.

Identity-seeking scale. Crumbaugh's (1977; Reker & Cousins, 1979) Seeking of Noetic Goals scale is based on Frankl's (1963) concept of noogenic neurosis, which refers to the desire to find a stable purpose and direction in life. Some items refer to the awareness of uncertainty regarding how to live life (e.g., "I seem to change my main objective in life" and " I have experienced the feeling that while I am destined to accomplish something important, I cannot quite put my finger on just what it is"). Some items refer to the wish to find a unifying purpose and meaning (e.g., "Over my lifetime I have felt a strong urge to find myself," "I feel myself in need of a new lease on life," and "I daydream of finding a new place for my life and a new identity"). Other items refer to both (e.g., "I feel the lack of, and a need to find a real meaning and purpose in my life").[14] Participants rated their agreement with 13 items on a 6-point scale ranging from 1 (*strongly disagree*) to 6 (*strongly agree*).

Personal projects. Following the procedure described in Study 2, participants each listed 10 personal projects and rated each project on eight rating dimensions, using an 11-point scale ranging from 0 (*not at all*) to 10 (*extremely*). Four of the rating dimensions were the integrity dimensions from Study 2: value congruence, self-identity, importance, and meaningfulness.[15] Two dimensions referred to communal themes: togetherness and others' benefit. Two referred to agentic themes: self-benefit and self-worth. As in Study 2, each participant's 40 ratings on the 4 integrity dimensions (4 dimensions × 10 projects) were averaged to yield an index of project integrity—the degree to which their personal projects were consistent with other important self-elements. We expected higher scores in the temporal discontinuity and mortality salience conditions than in the control condition. As found in Study 2, we expected an integrity shift toward heightened self-consistency (i.e., among goals, values, and identifications) as a fluid compensation response in the face of self-integrity threat.

Furthermore, in keeping with the shift toward more communal values in Study 2, we expected that after the self-integrity threat, participants would also reconstrue their more communal projects as being more self-defining. In other words, we expected their identities to become more clearly communal in theme. To assess this, we computed within-person correlations for each participant between how self-consistent their projects were rated as being (on the integrity dimensions) and how communal their projects were rated as being (on the communion dimensions). We used these correlations as the basis for measuring how communal participants' identities were (as per McGregor & Little, 1998).

First, we computed average project-integrity scores for each project for each person by averaging the value congruence, self-identity, importance, and meaningfulness ratings for each project. This yielded 10 project-specific integrity scores per participant (1 for each project). We similarly computed an average communion score for each project for each person by averaging the togetherness and others' benefit ratings for each project. This yielded 10 project-specific communion scores per person (1 for each project). As an index of the degree to which participants' identities were communal in theme, we computed within-person correlations between each participant's 10 project-specific integrity scores and their 10 project-specific communion scores. Thus, 1 correlation per participant resulted, representing the extent to which participants identified with their more communal projects. This correlation was then transformed using Fisher's r–z transformation to normalize the distribution.

We hypothesized that these ipsative communal-identity correlations would be higher for participants in the temporal discontinuity and mortality salience conditions than for participants in the control condition. We followed the same procedure to compute average project-agency scores and correlations representing the extent to which participants identified with their agentic projects (assessed by the self-benefit and self-worth dimensions). On the basis of the results of Study 2, we did not expect the ipsative agentic-identity correlations to differ among conditions.

Results and Discussion

Positive and negative affect. As has been found in past mortality salience research (Greenberg et al., 1997), there was no effect of condition on positive or negative affect, Fs < 1.

Identity-seeking scale. An ANCOVA with gender and PNS as covariates revealed a significant effect of condition on identity seeking, $F(2, 34) = 4.41, p < .05$. (The effects of gender and PNS on the identity-seeking scale were nonsignificant, Fs < 1.) As shown in Table 1 and in support of Hypothesis 4a, planned comparisons revealed that identity seeking (Cronbach's $\alpha = .85$) was significantly higher in the mortality salience condition ($M = 49$) than in the control condition ($M = 32$), $t(35) = 2.30, p < .05$.

[14] All items in this paragraph are from "Factor Structure, Construct Validity, and the Reliability of the Seeking of Noetic Goals (SONG) and Purpose in Life (PIL) Tests," by G. T. Reker and J. B. Cousins, 1979, *Journal of Clinical Psychology, 35*. Copyright 1979 by Wiley. Reprinted by permission of John Wiley & Sons, Inc.

[15] The wording for the meaningfulness dimension was different than in Study 2. In this study it was, "Imagine reflecting on each goal from your deathbed. How important do you think each would seem from that perspective?"

Table 1
Personal Integration as a Function of Mortality Salience and Temporal Discontinuity

Personal integration measure	Condition		
	Control	Mortality salience	Temporal discontinuity
Identity-Seeking Scale	35	49	42
Personal project integrity	7.0	8.1	8.0
Identity clarity (communal)	−0.05	0.27	0.40

Identity seeking was also marginally higher in the temporal discontinuity condition (M = 42) than in the control condition, $t(35) = 1.38$, $p = .09$. The identity-seeking effect may have been relatively weak because the identity-seeking scale is a trait scale, not a state scale.

Personal project integrity: An index of self-consistency. One person in each of the control and mortality salience conditions failed to complete the personal projects analysis materials, and their data were not included in the personal projects analyses. The Cronbach's alpha reliability of the personal project integrity index was .77. (For each participant, the 10 project ratings for each dimension were averaged, yielding four dimensional scores. The reliability analysis was conducted on these four scores.) The projects of women (M = 8.2) were significantly higher in integrity than those of men were (M = 7.4), $t(35) = 2.31$, $p < .05$.

An ANCOVA with gender and PNS as covariates revealed a significant effect of condition on project integrity, $F(2, 32) = 5.26$, $p = .01$. As shown in Table 1 and in support of Hypothesis 4b, planned comparisons revealed that participants in the mortality salience condition intended to engage in personal projects that were more self-consistent (i.e., higher in project integrity; M = 8.1) than did participants in the control condition (M = 7.0), $t(33) = 2.87$, $p < .01$. A similar difference was present in the temporal discontinuity condition (M = 8.0), $t(33) = 2.56$, $p < .05$. These differences replicate the effects of a different kind of self-integrity threat (dilemma deliberation) in Study 2 and suggest that as well as influencing conviction about social issues, values, and in-group/out-group targets (as found in Studies 1 and 3), self-integrity threat can also influence the way participants think about their everyday goals. Self-integrity threat appears to increase one's conviction to act in accordance with one's values and identifications. As in Study 2, such motivated shifts in the real-life personal plans of participants attest to the strength of the personal uncertainty manipulation and the real-world relevance of the compensatory conviction response.

Shift toward more communal identifications. Preliminary analyses revealed that the correlation between participants' average ratings on the two agency dimensions (self-benefit and self-worth) was $r = .20$, and that the correlation between the two communion dimensions (togetherness and others' benefit) was $r = .71$. Participants' mean ratings of project agency and communion (i.e., averaged across each participants' 10 projects) did not differ among conditions.

An ANCOVA with gender and PNS as covariates (neither covariate was significantly related to the strength of communal identity themes) revealed a significant shift toward communal identifications, $F(2, 31) = 4.44$, $p < .01$. (One participant had no variance in her project-identity consistency ratings, so her communal identity correlation could not be calculated.) As shown in Table 1 and in support of Hypothesis 4c, planned comparisons revealed that, as compared with control participants (mean $r = -.05$), participants in the mortality salience condition (mean $r = .27$), $t(32) = 1.95$, $p < .05$, and in the temporal discontinuity condition (mean $r = .40$), $t(32) = 2.88$. $p < .01$, construed their identities as more clearly communal. In contrast, and mirroring the absence of a normative shift toward agentic values in Study 2, there were no significant differences in agentic identity theme across conditions.

It is important to note that mean communal content of personal projects—that is, mean communion ratings—did not differ significantly across the three conditions. It was only the within-person correlations between participants' communion scores and self-consistency scores that changed.[16] This result indicates that participants reconstrued their more communal projects as more consistent with their selves (and less communal projects as less consistent with their selves) in response to the self-integrity threat manipulations.

The findings in Study 4 provide a conceptual replication of our Study 2 findings and demonstrate that not only is self-integrity threat capable of making participants go to extremes by hardening their attitudes and heightening intergroup bias (as found in Studies 1 and 3) but it can also heighten efforts to be oneself if participants are focused on their personal goals and values after the threat. Both self-integrity threat manipulations (temporal discontinuity and mortality salience) caused at least marginally higher scores on a trait identity-seeking scale, a significant integrity shift in personal plans for the future, and a reconstrual of identities as more clearly communal in theme. In summary, participants shifted toward greater self-consistency and conviction.

General Discussion

Our findings demonstrate that three self-integrity threats that are related to personal uncertainty can motivate compensatory conviction responses. Studies 1 and 3 demonstrated compensatory conviction about social issues and groups (going to extremes), and Studies 2 and 4 demonstrated compensatory conviction about the self (being oneself).

More specifically, in Study 3, temporal discontinuity and mortality salience caused uncertainty and more polarized evaluations of in-group and out-group essays and authors. In Study 1, dilemma salience caused uncertainty and a compensatory hardening of the attitudes that involved more conviction, less ambivalence, and exaggerated consensus estimates about social issues. Moreover, Study 1 showed that compensatory conviction can be an effective compensation in the face of self-integrity threat, at least in the short term, in that it reduced uncertainty to baseline levels. Thus, the threat of personal uncertainty appears to cause a kind of situational authoritarianism involving exaggerated intergroup bias

[16] Participants' communal identity theme scores were correlated ($r = .31$, $p = .07$) with their average project communion rating, but even with project communion entered as a covariate, the effect of condition on communal identity theme still remained significant at $F(2, 31) = 3.16$, $p = .06$.

and attitude hardening that provides immediate relief in the face of the threat.

In contrast to the demonstrations in Studies 1 and 3 that self-integrity threat can cause compensatory conviction about social issues and groups, Studies 2 and 4 demonstrated that it can also cause shifts toward heightened conviction about the self. When self-elements were salient after the threat, participants shifted toward greater self-consistency and conviction about their values, goals, and identifications. In Study 2, dilemma salience caused participants to shift toward more clearly defined value priorities (communal and hedonistic) and to plan on engaging in personal projects that were more consistent with their values and identifications. In Study 4, temporal discontinuity and mortality salience caused similar shifts toward self-consistency. Participants planned on engaging in personal goals that were more consistent with personal values and identifications. They also identified more clearly with the communal themes in their personal projects. That personal uncertainty can motivate changes in participants' idiosyncratic, real-life personal goals and identifications is particularly remarkable, and it attests to the relevance of compensatory conviction responses to real-world phenomena.

Together, these four experiments suggest that compensatory conviction, about social issues or about the self, can serve as a defense in the face of an uncertainty-related self-integrity threat. Moreover, the results of Study 1 suggest that there may be a dynamic relation between these two modes of fluid compensation. In Study 1, when participants completed an integrity-repair exercise after the threat, uncertainty and the seemingly authoritarian attitude hardening about social issues were eliminated.

Why Is Uncertainty Threatening and How Does Compensatory Conviction Help?

Cognitive dissonance theory (Festinger, 1957) contends that inconsistent cognitions, especially those that are important (or that pertain to the self; cf. E. Aronson, 1968) are psychologically aversive. Hundreds of social psychology experiments show that individuals are indeed motivated to maintain personal consistency. We submit that cognitive inconsistency is aversive because it implies the prospect of self-regulatory breakdown. If "thinking is for doing" (Fiske, 1992, p. 877), then uncertain thinking implies uncertainty about action. An adaptive function of the discomfort arising from cognitive inconsistency may be that it helps to discourage debilitating ambivalence and prompts unconflicted action (Brehm & Cohen, 1962; Harmon-Jones, in press; McGregor, 1998). From the feedback control perspective (Powers, 1973; Scheier & Carver, 1988), self-regulation would break down if self-related cognitions were contradictory or uncertain. Unstable self-conceptions would not provide clear direction for subordinate goals and behaviors in the feedback control cycle. In summary, self-relevant inconsistency and the uncertainty it implies may threaten one's global sense of self-integrity by signaling self-regulatory impairment.[17]

The present studies depart from conventional cognitive dissonance research in that the mechanism for coping with inconsistency, compensatory conviction, is indirect. In conventional dissonance studies, participants restore cognitive consistency by adjusting their initial attitude to make it consistent with the behaviorally implanted one. One of the most intriguing aspects of the present research is that, along the lines of the self-affirmation theory notion of fluid compensation (Steele, 1988), participants masked the discomfort arising from induced uncertainty by emphasizing conviction in other domains. Shifting toward being a know it all, jingoist, or zealot helped provide solace in the face of uncertainty. Past research on self-affirmation theory has demonstrated that self-worth affirmations and reminders about personal values can serve as fluid compensations to eliminate dissonance discomfort (Steele & Liu, 1983; Steele et al., 1993). The present research provides the first evidence that compensatory conviction can serve the same purpose and also that participants spontaneously shift their attitudes, values, and goals toward greater conviction to restore the integrity of the self that has been threatened in another domain.

We submit that compensatory conviction may be preferred over direct modes of coping with uncertainty, because it allows the individual to escape from awareness of the offending cognitions. Thinking about self-elements such as one's attitudes toward important social issues and emphasizing conviction about them may be an especially attractive way to reduce uncertainty because it may help to simultaneously distract the individual from the inconsistencies and make them seem relatively trivial. Distraction and trivialization are effective dissonance reduction strategies (Brock, 1962; McGregor, Newby-Clark, & Zanna, 1999; Simon, Greenberg, & Brehm, 1995). Indeed, if given a choice, participants prefer to restore self-integrity after threat by disidentifying with the problematic domain and affirming the self in an unrelated domain (J. Aronson, Blanton, & Cooper, 1995).

Authoritarianism

> For the fascist potential to change, or even to be held in check, there must be an increase in people's capacity to see themselves and to be themselves. (Adorno, Frenkel-Brunswik, Levinson, & Sanford, 1950, p. 975)

The link between self-uncertainty and seemingly defensive, authoritarian responding has long been proposed by developmental and clinical theorists. According to the compensatory theories of Rogers (1951) and Kelly (1955), extremism and attitudinal rigidity may help people feel like they know who they are and what they stand for. Consistent with Steele's (1988) notion of fluid compensation, both Rogers and Kelly proposed that awareness of personal inconsistency can induce systemic compensatory rigidity, not just heightened conviction about a particular problematic belief (as seen in dissonance research). According to Rogers, "an experience which is inconsistent with the organization or structure of the self may be perceived as a threat and the more of these there are the

[17] In addition to the possible normative organismic threat to self-integrity posed by personal inconsistency and uncertainty, it may also be aversive because of the value that Western culture places on being consistent. Appearing inconsistent or uncertain may make one feel bad in light of the prevailing Western virtues of knowing oneself and being true to oneself. Indeed, recent research (Campbell et al., 1996; Heine & Lehman, 1999; Suh, 1999) indicates that the association between self-inconsistency and depressed well-being (Campbell, 1990; Donahue, Robins, Roberts, & John, 1993) is lower, although still significant, for individuals from more collectivist cultures.

more rigidly the self-structure is organized to maintain itself" (p. 515). Kelly (1955) similarly proposed that individuals respond to threats to the organization of the self (i.e., their personal constructs) with the tendency to "harden their categories"—that is, when a personal construct is invalidated, one adheres more insistently to the rest.

According to Fromm (1941), when people have a poorly developed sense of self, choice is unbearable, so people defensively turn to rigid and conforming patterns of thinking and acting. As a substitute for a personal identity as a reliable intrinsic guide for choice, people cleave to authority and majority norms and derogate minority and disadvantaged groups that represent alternative values and orientations. Adorno et al. (1950) similarly concluded that authoritarianism erupts when children are raised in strict, rule-bound environments that do not allow for the vulnerable process of self-discovery. In lieu of a healthy identity to guide one's behavior, one relies on black and white thinking and the rigid dictates of authority figures and dominant social groups. According to Fromm and to Adorno et al., authoritarianism is the developmental default when healthy personal identity is compromised.

Such developmental assumptions are difficult to assess empirically, but by adopting an experimental social psychological approach, the present research provides some support for them by showing the link between personal uncertainty and a kind of situational authoritarianism. Uncertainty-related threat caused intergroup bias and hardening of the attitudes, outcomes that are central to the definition of authoritarianism (Altemeyer, 1994). The relation between identity malaise and authoritarianism is further supported by the Study 1 finding that after integrity repair, attitude hardening and uncertainty were eliminated. These results are consistent with the contention of early clinical and developmental theorists who proposed that authoritarian rigidity can be rooted in uncertainty about the self.

A Compensatory Conviction Interpretation of Terror Management Theory

Dozens of published experiments have demonstrated that reminding participants about their mortality can cause them to be more rigid and extreme in their social judgments and behaviors relating to target individuals, groups, and symbols that pertain to participants' attitudes and values (Greenberg et al., 1997). Indeed, such worldview defense effects have been found to be most pronounced for authoritarian individuals (Greenberg et al., 1990). Two findings in the present research shed new light on worldview defense responses to mortality salience. First, two self-integrity-threat manipulations that share theoretical links to uncertainty but not to mortality caused outcomes that were the same as or related to those that have been found after mortality salience in past research. Second, although the present research replicated the finding that mortality salience does not influence conventional positive and negative affect measures (Greenberg et al., 1997), all the manipulations (including mortality salience) did cause elevations in uncertainty-related discomfort. Taken together, these findings suggest that uncertainty-related self-integrity threat may be an active ingredient in mortality salience interventions and that the intergroup bias and worldview defense effects found in terror management research may, at least in part, be a manifestation of compensatory conviction in the face of personal uncertainty.

Future Research

One question not addressed by the present research is whether the compensatory conviction response is specific to uncertainty. Like self-worth, conviction may be another general self-affirmational resource that people can use to fend off other various self-integrity threats as well, such as threats to self-worth, control, or belongingness. Distraction and trivialization, the proposed mechanisms for how compensatory conviction eliminates uncertainty, could presumably ameliorate all kinds of self-integrity threats by reducing the accessibility and importance of the offending cogntions. Alternatively, it is also plausible that there may be some normative preference for coping with an uncertainty-related threat with a certainty-related response. Future research should investigate whether compensatory conviction defuses other kinds of self-integrity threat and whether personal uncertainty causes other forms of spontaneous self-affirmation.

Another remaining question is whether compensatory conviction is a form of "need for non-specific closure" (Kruglanski, 1989, p. 13) and whether personal uncertainty is a situational factor that induces need for closure. Situational factors such as time pressure and ambient noise can motivate individuals to forego careful thinking and to "seize" and "freeze" on closed-minded judgments. Situationally induced need for closure is associated with a variety of outcomes related to heuristic processing, heightened confidence, increased desire for consensus, stereotypic judgments, intergroup bias, resistance to persuasion, and rejection of opinion deviates (see Kruglanski & Webster, 1996, for review; Shah, Kruglanski, & Thompson, 1998). Future research should determine whether personal uncertainty can cause the same kinds of outcomes and whether situational factors like time pressure and ambient noise can cause the compensatory conviction responses investigated in the present research. If so, then compensatory conviction might be viewed as another manifestation of need for nonspecific closure.

Another possibility to be addressed in future research is that compensatory conviction is a form of repression. Rigidly focusing on one domain of important self-relevant cognitions may be an effective way to reduce awareness of (i.e., repress) uncertain cognitions. According to Wegner (1994), the best way to not think about one thing is to actively think about something else. If compensatory conviction is such a defense, then it should be more pronounced for those most inclined to defensively protect the self, such as high-self-esteem individuals (Baumeister, Boden, & Smart, 1996; Dodgson & Wood, 1998) and repressors (Boden & Baumeister, 1997; Weinberger & Davidson, 1994).

Concluding Comments

> Decision, especially an irreversible decision, is a boundary situation in the same way that awareness of "my death" is a boundary situation. Both act as a catalyst to shift one from the everyday attitude to the "ontological" attitude—that is, to a mode of being in which one is mindful of being. (Yalom, 1980, p. 319)

We are not the first to propose that personal uncertainty can pose a poignant self-threat. In one of the first systematic empirical investigations in the social sciences, Durkheim (1897/1952) concluded that the uncertainty associated with life choices can be aversive enough to cause anomic and egoistic suicide. From an

existentialist perspective, coping with uncertainty about how to live in an absurd world is considered to be the fundamental human challenge. Sartre described this dizzying prospect as causing nausea (Barnes, 1973). Similarly, Fromm (1941) referred to the "torture of doubt" about the meaning of one's life and the kind of person to be as the "worst of all pains" (p. 155). These perspectives emphasize the ubiquity of uncertainty about what to prioritize and value in life and the extreme psychological discomfort that can be experienced in the face of such uncertainty. In the present research, we empirically examined the effects of personal uncertainty on how people view themselves and others.

We have shown that participants respond to personal uncertainty with two varieties of compensatory conviction: going to extremes (hardening of attitudes about social issues and groups) and being oneself (integrating values, goals, and identifications). In Studies 1 and 3, participants became more zealous in the face of uncertainty. They exaggerated their intergroup bias and hardened their attitudes about social issues. Although going to extremes in this way provided relief from uncertainty, it seems plausible that repeatedly responding to personal uncertainty with such seemingly authoritarian expressions could gradually shape one's self-perceptions and bolster extreme attitudes, fanatical devotion, entrenched prejudices, and closed-mindedness.

On the other hand, the results of Studies 2 and 4 suggest that induced uncertainty, in conjunction with a subsequent focus on the self, can facilitate spontaneous efforts toward the construction of more integrated identities. In addition to the relation between this kind of integrity and personal well-being (McGregor & Little, 1998), the Study 1 finding that personal integration decreased defensive responding raises the possibility that repeated integration efforts might ultimately eliminate the need to go to extremes in the face of uncertainty. If so, one way to reduce the prevalence of authoritarian closed-mindedness and related antisocial phenomena may be to develop and promote technologies and interventions to help individuals nurture and maintain the integrity of their identities.

It is important to acknowledge possible drawbacks of personal integration efforts as well, however. Constructing an integrated "truth" about oneself may eventually set one free from defensiveness, but the required self-focus could conceivably cause ruminative depression (Nolen-Hoeksema, 1991) or a heightened desire to foreclose on a rigid and oversimplified identity. Simplistic, foreclosed identities may leave individuals vulnerable to shattered illusions (Janoff-Bulman, 1989) and depressed well-being after failure because "all [their] cognitive eggs [are] in one basket" (Linville, 1985, p. 94). In any case, given that most people have no access to technologies for facilitating personal integration and given the cacophony of influences vying for inclusion in the postmodern self (Baumeister, 1987; Gergen, 1991), compensatory conviction may partially explain a number of enigmatic social phenomena. The evening news reliably features stories about people killing for causes, going to extremes, and derogating and aggressing against others who represent religions, causes, cultures, ethnicities, or lifestyles that differ from their own. We propose that one reason for the prevalence of such phenomena may be that compensatory conviction is a common first line of defense against the fundamental uncertainty inherent in the human condition.

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