

**To Fight Calamity or Forfeit Humanity:
Coping with the Terror of Total Termination**

**Kristin Donnelly
University of Arizona**

Abstract

Previous research in TMT reveals that mortality salience (MS; or a death reminder) increases pro-social giving tendencies and consumerism, both serving to shield death-related concerns. However, little is known about response to the extinction of humanity, which may to some degree operate as a mortality reminder. Using global warming as an extinction prompt, we will investigate the effects of communal extinction on preferences for environmentally-friendly products that may combat the extinction threat. Preferences for environmentally friendly aspects of consumer products as influenced by the experimental manipulation is predicted to be moderated by individual differences in locus of control. Internal locus of control was predicted to generate greater value for environmentally-friendly characteristics that have been socially valued to minimize global warming. Because external locus of control involves a perception of diminished personal influence on the external world, global mortality salience was predicted to trigger a decreased concern for “green” product characteristics among individuals subscribing to this viewpoint. However, we found Mortality Salience to be the biggest catalyst for favoring green-oriented consumer items above and beyond the extinction prompt of Global Warming.

Man-- his origin, his growth, his hopes and fears, his loves and his beliefs are but the outcome of accidental collocations of atoms; that no fire, no heroism, no intensity of thought and feeling can preserve an individual life beyond the grave; that all the labor of the ages, all the devotion, all the inspiration, all the noonday brightness of human genius are destined to extinction, and that the whole temple of Man's achievement must inevitably be buried beneath the debris of a universe in ruins.

— *Bertrand Russell (1903, pg. 107)*

Humans generally avoid the concept of their own death. We prefer to grab at shadows of the real thing with our pop cultured hands, watching glamorized fatality, realistically destructive video games and listening to morbidly fascinated music lyrics. It's safer that way, because the inevitability of one's own demise generates anxiety when brought to conscious awareness. The end of life marks the beginning of total uncertainty, uncharted territory and often an inexplicable dread of potential nothingness, collectively representing the ego's greatest fear. However, the ego is not without internal armor. Terror management theory (TMT; Greenberg, Pyszczynski, & Solomon, 1986) posits that humans are equipped with psychological mechanisms (e.g., a cultural worldview and self-esteem) that defend the ego from the threat of the annihilation of self.

TMT suggests that we each individually develop particular ways of dealing with our own mortality. We internalize a particular cultural worldview and these internalized beliefs function to minimize death-related concerns (Greenberg, Simon, Pyszczynski, Solomon, & Chatel, 1992). Cognitive and behavioral adjustments resulting from MS priming secure the ego from the uncertainty and fear primed by the thought of self-termination. Prior mortality salience investigations have revealed heightened inclinations towards pro-social charitable giving (Jonas et al, 2002). Additionally, MS has exposed increases in consumerism and materialism (Solomon et al, 2004). This forms a peculiar juxtaposition of the selflessness of giving and the selfishness

of consuming, both enhanced by the same stimulus of death. It follows logically that mortality salience would increase preference for pro-social qualities as well as initial product purchase, as the ego finds comfort in valuing behaviors that elevate its moral worth as well as its social status. Valuing environmentally friendly or “green” traits provides the opportunity to enhance personal value both ethically and monetarily, so these characteristics should be even more appealing under MS induction. If these products present the solution to combating the threat of MS entirely, their desirability may be further amplified.

However, different people may employ different defense strategies, potentially reflecting their beliefs about the world and their place in the framework. In this project, individual difference in locus of control was the variable predicting consumer preferences. Individual differences in external locus of control (Rotter, 1954) were used to predict responses to mortality-related threats (individual vs. collective; Agustin, 2009) on environmental and more self-centered aspects of consumer products. This particular research project focuses on two hypotheses derived from TMT: (a) mortality salience (MS; or a death reminder) should increase the value placed on environmentally friendly aspects of consumer products when the participants score low on external locus of control; and b) making salient the end of world due to global warming should increase the value placed on environmentally friendly aspects of consumer products among those who scored low on external locus of control.

TMT, Human extinction, and the environment

Invocation of death realization, referred to as Mortality Salience (MS), proves to be a viable catalyst for behavior alteration. Humans display various cognitive and behavioral adjustments while attempting to secure the ego from the uncertainty and fear primed by MS. The ego-

protective response involves generating strengthened associations, affiliations, and beliefs that have been culturally valued as significant or uphold personal beliefs about self-value. Because its continuance is jeopardized by the idea of death, the ego inherently fights the thought of its own termination by attempting to achieve immortality. This can be obtained through literal or symbolic means. Immortality striving bolsters the ego by enhancing self-esteem and security, both of which are essential for survival.

Literal immortality striving involves belief in soul continuance transcending the body, with MS showing amplified certainty of the existence of the afterlife and religious subscriptions upholding this concept. In contrast, symbolic immortality is driven largely by social ideals of significance and values. Symbolic immortality denotes prolongation of the self after its physical death through relatively permanent contributions to society. This can be accomplished through either genetic transference with offspring or adding innovation to socially valued institutions like science, medicine, consumerism or literature. Changing some aspect of the world in a way considered memorable or valuable lends significance to an individual life. Accomplishment secures soul-driven permanence in the external world for years after the external body reaches its end. This kind of societal permanence protects the ego from the potential nothingness and meaninglessness of its own termination.

But what happens to the ego when the society that defines individual worth no longer exists? The present study investigates reactions to the extinction of humanity, hypothetically threatening to simultaneously destroy the ego and the social framework that upholds it. From the nuclear threat in the cold war to the recent challenges presented by nature and global warming, the

extinction of humanity has received much attention throughout history as self-termination on a grander scale.

The end of humanity is similar to end of the self, but perception of the end as an inescapable truth is entirely dependent upon the individual. Mortality salience is universally threatening because of its inescapable truth; that is, that every person must die eventually. MS reliably threatens not only life but personal and social identities, causing defensive bolstering of those constructs that serve to uphold the basic identity of the self (Agustin, 2009). But global extinction may generate a different set of responses.

For a relevant and potentially accurate extinction threat evocation, global warming will be used as a form of communal mortality induction. Because global warming as a threat cuts off the ego's opportunity to symbolically reinforce its permanence, some individuals may feel the need to invalidate the extinction posed by the threat altogether. Individual MS does not offer this option, as one's own death is unavoidable, yet the concept of global warming may arguably still present a chance for the survival of human society and the subsequent ego protection it provides. Because this form of mortality induction can be rejected, the individual could refuse to believe the threat or try to fix it by increasing preference for environmentally-friendly products. The media presents this conscientious consumerism in items with energy-efficient, recyclable or biodegradable materials, all of which can reduce human impact and thus resist the communally destructive threat of global warming. Therefore, the social identity challenged by the idea of global termination has the potential to cause a fight or flight reaction, removing inevitability or promoting it. The interpretation of such a prime depends largely on the individual's pre-existing values and social identity.

In our study, threat interpretation will rely on the specific schema of an individual regarding himself in the world, encompassed by personal perception of locus of control. Locus of control refers to an individual's beliefs about their own control over events that occur in their lives. Rotter (1966) suggested separating perceptions of control into external or internal categories. Internal locus of control means that an individual attributes his own actions as the primary reason for his life situation. Individuals with external locus of control credit fate, luck or external influence for their own circumstances. The individual's sense of agency is the fundamental concept underlying locus of control (McCombs, 1991). This self evaluation of agency influences the intellectual processes that an individual engages in to achieve goals and support intention fulfillment. Furthermore, it comprises beliefs about personal ability, as individuals with internal locus of control feel more able to control the events in their lives.

Hypotheses

Provided the individual acknowledges global warming as a feasible threat, reactions involve increased or decreased motivation to combat it. The amount of control the individual perceives to exert over his own life should extend to surrounding world. Internal or external locus of control may consequently dictate behavioral responses to extinction threat. Beliefs in fate or destiny will likely decrease concern for environmentally-oriented product characteristics and increase value placed on self-serving qualities of consumer items, Self-determinist motivational backbone should boost preferential increases for "green" traits. Regardless of locus of control, mortality salience should generate enhanced concern for both self-serving and environmental qualities, as both selfish and giving tendencies have been amplified in prior M.S.

investigations. Global Mortality Salience should produce the most “green” and selfish responses; as both are indirectly involved in extinction as a threat altogether.

Method

Participants

Our participants were all screened prior to testing to ensure that they believed in global warming as a viable threat, and together comprised a sample of 60 students from the University of Arizona. The subjects consisted of 9 males and 51 females with an average age of 18.59 ($SD=1.80$).

Procedure and Materials

Participants were run in small groups of five. Participants were randomly assigned one of three questionnaire packets. First, participants completed the internal/external locus of control questionnaire (Rotter, 1954). Next, participants responded to either a mortality salience prime, and extinction prime, or an aversive control condition. At the end of the questionnaire packet all participants responded to the dependent measure which assessed green vs. selfish consumer preferences. After all the participants completed their respective questionnaires, the experimenter thoroughly debriefed the participants and thanked them for their participation. The materials are described in more detail below and are discussed in the order the participants responded to each.

Locus of control. Rotter's (1954) Locus of Control scale has been used in many previous studies, using self-reported identification with polarized statements (reliability is .61). They chose between A and B, and the external oriented statements were given one point. A high score indicated an external locus of control and a low score indicated an internal locus of control.

Example Questions:

1. a. Children get into trouble because their parents punish them too much.
b. The trouble with most children nowadays is that their parents are too easy with them.
2. a. Many of the unhappy things in people's lives are partly due to bad luck.
b. People's misfortunes result from the mistakes they make.
3. a. One of the major reasons why we have wars is because people don't take enough interest in politics.
b. There will always be wars, no matter how hard people try to prevent them.
4. a. In the long run people get the respect they deserve in this world.
b. Unfortunately, an individual's worth often passes unrecognized no matter how hard he tries.

Experimental manipulation. Participants were randomly assigned to one of three conditions, involving writing responses to a standard mortality salience manipulation, a global MS manipulation with parallel wording, or a control condition considering unexpected outcomes.

M.S. Condition:

“Describe, in your own words, the emotions the thought of your own death arouses in you”; and
“Jot down, as specifically as you can, what you think will happen to you physically as you die and once you are physically dead.”

Global M.S. Condition:

“Describe, in your own words, the emotions that the thought of the extinction of humanity due to global warming arouse in you” and “Jot down, as specifically as you can, what you think will happen to the human race as global warming destroys the planet.”

Control Condition:

“Describe, in your own words, the emotions you experience when things turn out differently than you expected”; and “Jot down, as specifically as you can, what you think will happen to you when you are out of control of a situation.”

Delay/distraction. Participants were given a Morningness/Eveningness Scale (Home and Ostberg, 1976) directly following the manipulation, followed by the PANAS-X (Watson and Clark, 1994), both of which served as a delay/distraction. Distraction has been used in every TMT study to ensure that the individual doesn't have the time or cognitive resources to rationalize his death, as worldview defense can only occur through emotional processing (Simon, Greenberg, Harmon-Jones, Solomon, Pyszczynski, Arndt, & Abend, 1997)..

Dependent variable. Participants then completed the dependent variable, which involved rating qualities of standard household items in regard to personal importance. The rating scale was displayed on a numerical continuum from -4 to 4, with each item containing three characteristics to assess. One of the characteristics for each item specifically measured environmentally-safe or selfish value.

Results

I performed a factor analysis on all the items presented in the dependent variable. The items loaded onto two separate factors— green vs. selfish (see Tables 1 and 2). The green and selfish scales were reliable (Cronbach's Alpha=.82 and .79, respectively.) I performed a median split on locus of control creating both externally oriented and internally oriented groups. To test my first hypothesis regarding locus of control moderating the scores on the environmental

dependent variable, I performed a 2 (external vs. internal) x 3 (MS vs. global vs. control) between-subjects ANOVA on green scores. This analysis revealed did not reveal any significant effects ($p > .3$). See Figure 1.for an illustration of the pattern.

To test my secondary hypothesis, I performed a 3 (between: MS vs. Global vs. Control) x 2 (within: green vs. selfish) mixed design ANCOVA (I covaried out individual differences in self-reported environmentalism). This analysis indicated that environmentalism was a significant covariate, $F(1, 56) = 20.17, p < .01$. There was also a significant main effect for the dependent variables, $F(1, 56) = 56.15, p < .01$. The mean scoring on the green scale was a value of 10.71 and the mean rating on the selfish scale was 22.99. There was also a significant interaction between the dependent variables and experimental conditions, $F(2, 56) = 3.60, p = .03$. See Figure 2 for a depiction of these findings.

To follow-up on the significant interaction between the dependent variables and condition, I performed pairwise comparisons. Within the green dependent variable group, MS ($M = 12.55$) was significantly different from the global ($M = 9.07$) condition ($p = .031$); MS did not differ from the control ($M = 10.52$) condition ($p = .20$); global did not differ from the control group ($p = .39$). For the selfish ratings, MS ($M = 24.25$) was significantly different from the control ($M = 19.26$) condition ($p = .02$) and was not significantly different from the global ($M = 25.444$) condition ($p = .59$). The global warming ($M = 25.44$) condition was also significantly different from the control ($M = 19.268$) condition, ($p = .011$).

Discussion

The results indicate that mortality salience may activate a need to promote individual worldview, and may in fact be the most powerful catalyst for consumer behavior change with regards to environmental products fighting against global warming. This is surprising because it seems that reminding individuals of planetary changes doesn't, in fact, make them any more likely to defend against the threat. It seems that mortality salience is the most powerful threat in spite of environmental irrelevance. Additionally, mortality salience reliably enhanced both selfish and green preferences, while Global MS shows enhanced selfishness only. It also shows that Internal Locus of control individuals are inherently more motivated towards green product valuing than those with an external locus. Furthermore, the results indicate that regardless of locus or condition, participants at this age valued selfish traits more overall than environmental characteristics. This has some important implications for "green" advertising. Current advertisements aim at using global extinction as a threat to generate behavior change, but it seems that this causes a backlash against change altogether. Perhaps mortality salience would be the most useful tool in influencing pro-social consumer behavior. After all, the most powerful threat is undoubtedly our own extinction, as there is no escaping the inevitability of individual demise.

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Table 1

Green Scale

Item	Characteristics	Environmental Characteristic
Battery	Lasts a long time Inexpensive Rechargeable	Rechargeable
Trash Bag	Stores a lot Sturdy Biodegradable	Biodegradable
Printer Paper	Crisp printing Inexpensive Recycled Paper	Recycled Paper
Toilet Paper	Absorbs well Soft Biodegradable	Biodegradable

Table 2

Selfish Scale

Item	Characteristics	Selfish Characteristic
Trash Bag	Large Capacity Sturdy Biodegradable	Large Capacity
Air Conditioning	Affordable Effective in Summer Conserves Energy	Affordable
Cartridge	Recyclable Stores a lot of ink Crisp Printing	Stores a lot of ink Crisp Printing

Car	Good gas mileage Affordable Good color/design	Affordable
Printer Paper	Sturdy Recycled paper Crisp printing	Sturdy
Cell Phone	Made from recycled materials Long battery life Looks good	Long battery life
Battery	Lasts a long time Biodegradable Inexpensive	Lasts a long time Inexpensive

Figure 1

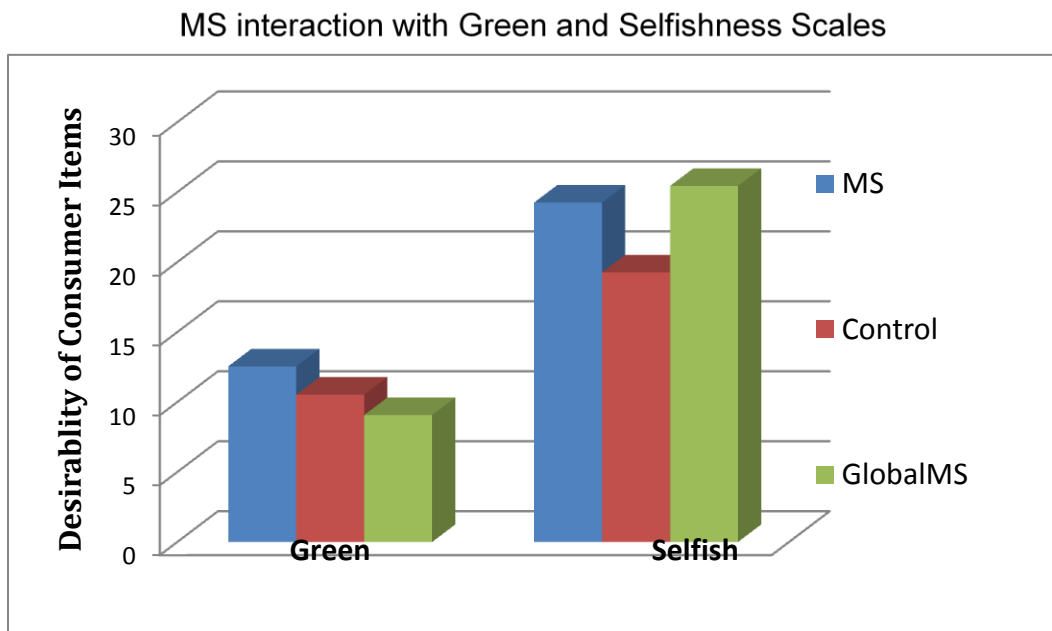


Figure 2

