

THE WILL TO *WILL*:
THE EFFECTS OF NEUROTICISM AND MORTALITY SALIENCE ON
PERCEPTIONS OF FREE WILL AND REACTIONS TO INFRINGEMENT OF
FREEDOM.

by

AVROHOM MARGOLIS

A Dissertation submitted to the Graduate Faculty in Psychology in partial
fulfillment of the requirements for the degree of Doctor of Philosophy
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Professor Sheldon Solomon

Chair of Examining Committee

Date

Professor Joseph Glick

Executive Officer

Date

Professor Elisabeth Brauner
Professor Benzion Chanowitz
Professor Donna Eisenstadt
Professor Marcel Kinsbourne
Professor Michael Leippe
Professor Sheldon Solomon

Supervisory Committee

THE CITY UNIVERSITY OF NEW YORK

Abstract

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SALIENCE ON PERCEPTIONS OF FREE WILL AND REACTIONS TO
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AVROHOM MARGOLIS

Adviser: Professor Sheldon Solomon

Terror management theory (TMT; Greenberg, Pyszczynski and Solomon, 1986; Greenberg, Solomon and Pyszczynski, 1997; Solomon, Greenberg and Pyszczynski, 1991a, 1991b) posits that cultural worldviews and self-esteem serve to manage the potential terror produced by the uniquely human awareness of death. Empirical support for TMT has been obtained in several hundred studies demonstrating that reminders of death instigate efforts to bolster faith in the cultural worldview and fortify self-esteem. The current studies extend this line of inquiry to the perception of ontological selfhood. Study 1 was conducted to test the hypothesis that following a mortality salience induction, individuals low in neuroticism would increase their perception of free-will, while high neurotics would decrease their perception thereof. Findings were in accord with predictions for low, but not high neurotics. A second study was then conducted to test the hypothesis that psychological reactance would be increased in response to a reminder of death, at least for relatively non-neurotic individuals. However, this hypothesis could not be tested because we failed to produce a basic reactance effect. Implications of these findings are discussed and recommendations for future research are proffered.

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The Will to Will:

The effects of neuroticism and mortality salience on perceptions of free will and reactions to infringement of freedom.

“Both felt freedom and felt necessity, in short, are symptoms of a crisis, and mark the turning points of a life.”

F.C.S. Schiller (Freedom)

Chapter One:

INTRODUCTION

Few philosophical areas have, historically, received the attention given to the notion of free-will. Indeed, this is hardly surprising. With profound ramifications for ethics, theology, psychology, politics and law, and with so many pragmatic implications, a careful examination of free-will, and the perception thereof, from a psychological perspective, is in order to advance our understanding beyond what can be obtained from philosophical or theological arguments (informed and inspired speculation respectively).

Generally speaking, there have always been *hard* determinists who deny the existence of free will, maintaining instead that all human behavior is a direct consequence of prior external occurrences; e.g., Skinner’s (1971, 1974) account of human behavior based on a Newtonian conception of the universe in which nothing happens without prior cause or predictable consequence. Conversely, others claim the human will is totally free and unfettered (e.g., Sartre’s (1948) assertion that humans, by virtue of consciousness, are defined solely by the choices that we make or decline to make). While these purist schools of thought consider fatalism and “option”-ality mutually exclusive doctrines, there are, also, many *soft* determinists, who consider juxtapositions of these viewpoints to

be tenable. For example, William James maintained that we can have it both ways – ascribing to the doctrine of a deterministic universe in which there is still a bit of latitude on the part of the individual to influence action by “a heave of will.”

Despite regular historical oscillations in terms of the popular stance of the psychological camp and others in the social-scientific community, between hard-core, fatalistic determinism on the one hand and endogenous, free-willfulness and libertarianism on the other, and virtually every gradation of “*compatibilism*” in between, the hard core deterministic approach is currently in vogue. Indeed, contemporary scholarship is unequivocally unfavorably disposed toward free will (e.g., Blackmore, 1999; Morse, 2000, 2004; Pereboom, 2001; Ramachandran and Blakeslee, 1998). Daniel Wegner exemplifies this view, unabashedly stating (Wegner and Wheatley, 1999, p. 481) that our sense of conscious will is entirely illusory:

...will is not a psychological force that causes action. Rather, as a perception that results from interpretation, it is a conscious experience that may only map rather weakly, or perhaps not at all, onto the actual causal relationship between the person's cognition and action.

Wegner concludes (2002, p. 342): “Our sense of being a conscious agent who does things comes at a cost of being technically wrong all of the time.” However, despite the contemporary deterministic leanings of the overwhelming majority of the scientific community, and irrespective of whether humans are truly empowered to act as they please, there is little doubt that people generally believe that they do. For example, when college students were asked to judge whether our universe more closely resembles a deterministic or indeterministic universe, 90-95% opted for the latter (Nichols and Knobe, in press, cit. by Roskies, 2006). And empirical evidence (see e.g., Nichols, 2006) suggests that humans, from youth on, tend to “believe that people are able to cause their

own action and that, for a given action, they could have done otherwise” (Roskies, 2006). In other words, people generally feel they are free to act as they please.

It is the psychological basis for the belief in free will that I want to try to understand, and fortunately, this issue is independent of the question of whether or not free will actually exists. It is my contention that the belief in free will/agency is central to one’s subjective sense of ontological selfhood. To the extent this is true, then threats to the self should engender increases in the belief in free will and resistance to efforts to restrict one’s freedom, as the individual is impelled to bolster and/or restore his or her sense of self. From a terror management theory (Greenberg, Pyszczynski and Solomon, 1986; Greenberg, Solomon and Pyszczynski, 1997; Solomon, Greenberg and Pyszczynski, 1991a, 1991b) perspective, the most potent threat to a human being’s sense of self is the explicit awareness of death, as will be explained below.

Accordingly, the present studies tested the hypotheses that a subtle reminder of death will: 1) increase perception of free will (at least for relatively non-neurotic individuals); and 2) evoke greater psychological reactance in response situations where one’s freedom to choose is restricted.

Chapter Two:

Terror Management Theory

“It is our knowledge that we have to die which makes us human”

Alexander Smith, *Dreamthorp* (1857)

The temporal limitations of all physical life can hardly be denied. Indeed, the organic substrates that subserve life itself are universally known to inevitably perish and decay. We are equally cognizant of the fact that even the most meager of Paleolithic organisms resisted, albeit instinctually, forfeiting its existence. It is of little surprise, therefore, that humanity shares with other life forms the highly adaptive predilection for self-preservation in the service of reproduction. However, as terror management theory (TMT; Greenberg et al., 1986; Greenberg et al., 1997; Solomon et al., 1991a, 1991b; largely derived from the work of Ernest Becker 1973; 1975 and Otto Rank, 1936, 1941) notes, humans are distinguished by virtue of their unique and unprecedented cognitive abilities. That is, humans are equipped to take a more sophisticated, intellectual approach to self-preservation, beyond the basic, instinctual, mechanistic style typical of simpler life forms.

Human intelligence confers, not only the ability to recognize cause and effect, anticipate future events, and conceive of that which does not yet exist and transform reality in accordance with our imaginative conception thereof (or as Otto Rank in his *Wahrheit und Wirklichkeit [Truth and Reality]* (1929/1978) put it, “making the unreal real”); it also affords us the ability to render ourselves as an object of subjective inquiry. Such introspective self-reflection allows for greater autoregulation of behavior, providing what Becker called progressive “freedom of reactivity,” which increased behavioral plasticity to accommodate to the demands of varying environments and situations

(Becker, 1973, 1975). However, an unintended consequence of self-reflection and the other exceptional intellectual talents that humans boast is the fact that humans are now shackled with a deeper appreciation of the temporal limitations of their physical existence.

Humans not only recognize the inevitability of their demise, but can more fully understand their vulnerability when pondering the fact that death can occur at any time, for reasons that cannot be anticipated and/or controlled. Humans are thus confronted with the disquieting conception of themselves as no more than respiring lumps of defecating flesh, no more significant and enduring than ants or potatoes; thereby rendering them uniquely predisposed to potentially paralyzing existential terror disturbing enough to undermine effective instrumental behavior. As Frankl (1955, p. 30) put it: “It is reserved for man alone to find his very existence questionable, to experience the whole dubiousness of being. More than such faculties as power of speech, conceptual thinking or walking erect, this factor of doubting the significance of his own existence is what sets man apart from animal” (also see pertinent discussion in Maddi, 1967, Pp.321-2).

If we are indeed potentially riddled with paralyzing terror, then our very existence on this planet attests to the presence of psychological regulatory mechanisms in the service of establishing mental and functional stability in a creature who shares with all other organisms an innate and profound disinclination toward premature termination, but is singularly explicitly aware of the utter futility of this most fundamental biological imperative. TMT posits that humans manage such existential terror (hence the term ‘terror management’) by the construction and maintenance of a dual component cultural anxiety buffer, consisting of: 1) faith in one’s cultural worldview which provides some

sense of meaning and immortality, either symbolically or literally; and 2) self-esteem: the perception that one is a "valuable participant" within one's culture.

A cultural worldview is a humanly constructed symbolic conception of reality shared by individuals in a group that lends meaning and confers a sense of value and significance to our lives. In support of this proposition, Becker noted that all cultures have an account of the origin of the universe, prescriptions for appropriate conduct and the potential for literal as well as symbolic conceptions of immortality. Most cultures provide a sense of literal immortality via organized religion which offers everlasting life in the form of a soul, reincarnation, and/or afterlife (or afterlives). For instance, many religions of the far-East (e.g., Sikhism and *Surat Shabd yoga*), ascribe to the doctrine of transmigration of the soul. Transmigration, also referred to as metempsychosis (Lat. *Metempsychosis*; from the Greek, *meta empsychos* or "change of soul") holds that a soul may be repeatedly reincarnated in any of various bodily forms, be it inanimate, animal or human.

Beyond opportunities for obtaining literal immortality, cultural worldviews also provide symbolic immortality. According to Robert J. Lifton (in *The Broken Connection: On death and the continuity of life*, 1979), to some extent, virtually all cultural systems may provide one or more forms of symbolic immortality: biological (finding solace in the knowledge that one's genetic heritage, (i.e., progeny) will continue to inhabit the Earth past one's own physical demise or "living on" in the lives of one's children), creative (achieving perceived immortality by means of the notoriety which results from one's participation in, and contributions to an enduring culture), natural (feeling immortal as the result of feeling a sense of affinity and identification with the enduring natural order),

religious (where this is accomplished by virtue of one's affiliation with a persistent religious belief system, or patriotic-nationalistic ideal/ ideology) and experiential (feeling invulnerable and invincible (i.e., immortal) at fleeting moments of perceived timelessness).

Although faith in a cultural worldview is necessary for psychological equanimity, it is not sufficient unless accompanied by a sense that one has self-esteem. Self-esteem is conceptualized as the extent to which one perceives oneself as being a "valuable participant" within one's culture by satisfying the general and specific standards of their cultural worldview and hence qualified for immortality. That is, self-esteem is derived from adherence to general cultural dictates as well as more specific expectations associated with particular social roles that one inhabits in the context of the cultural worldview to which they subscribe. For example, a given culture might value proper demeanor in public settings in general, as most do. Despite this, the social value of a behavior is largely a function of context. If one is at a restaurant and wants a glass of water, he or she is expected to make this request with some modicum of respect (outside of New York City of course!). In contrast, a drill-sergeant in the military needs to be almost terrifyingly menacing in his commandments to others. Terror management theory thus essentially views self-esteem as an anxiety buffer; a psychological mechanism which enables culture to serve its death-denying function (Solomon et al., 1991a, b).

Chapter Three:

Empirical Assessments of Terror Management Theory

Empirical assessments of TMT have been primarily based on testing two basic hypotheses derived from its central tenets: the mortality-salience and anxiety-buffer hypotheses.

Mortality salience hypothesis. Most empirical investigations of TMT have examined derivations of the **mortality salience (MS) hypothesis**, which asserts that: "to the extent that a psychological structure provides protection against anxiety, then reminding people of the source of their anxiety should lead to an increased need for that structure and thus more positive reactions to things that support it, and more negative reactions to things that threaten it" (Pyszczynski, Greenberg and Solomon, 1999, p. 838). The paradigm initially employed for evaluation of the MS hypothesis involves asking participants in the context of completing questionnaires ostensibly to study personality attributes to ponder their own deaths (mortality salience; MS), and to subsequently evaluate others who either uphold or violate cherished components of their respective worldviews. The premise is, that if cultural worldviews serve to shield one from death related anxiety, then bringing death to one's attention would make one especially vulnerable to such anxiety and hence, increasingly dependent upon one's worldview. Accordingly, one would expect someone reminded of their own death to be more critical of those who violate their belief system and praise those who support it, relative to control participants pondering benign or aversive but non-fatal matters.

In the first experiment to test this assertion (Rosenblatt, Greenberg, Solomon, Pyszczynski and Lyon, 1989, Study 1), municipal court judges were asked to ponder their

mortality before assigning bail for an alleged prostitute. It was hypothesized that judges reminded of their deaths would set higher bond vis-à-vis controls. The procedure involved administration of (mostly distracter) questionnaires. For experimental subjects, this included a "Mortality Attitudes Personality Survey" in the guise of a recently developed "Projective Personality" assessment. Judges were asked to "Please briefly describe the emotions that the thought of your own death arouses in you." and "Write down, as specifically as you can, what you think will happen to you as you physically die and one you are physically dead." Control participants were not given this form. This was followed by a self-report checklist assessing subjects' affective state (the Positive and Negative Affect Schedule—Expanded Form [PANAS-X]; Watson & Clark, 1991). (The PANAS-X is a 60 item inventory which evaluates 11 specific emotions (fear, sadness, guilt, hostility, shyness, fatigue, surprise, joviality, self-awareness, attentiveness and serenity) in addition to two general, high-order affective states (positive and negative). This scale has typically been employed in subsequent TMT work to assess the extent to which mortality salience effects are mediated by participants' affective state.) Judges were then provided legal briefs based on an actual court case, followed by forms asking them to set bond for the defendant.

As expected, while the average control participant set a meager bond of \$50 (typical for this infraction in this municipality), the average bond sum for the MS group was substantially inflated; a hefty \$455. Experimental and control judges reported comparable self-reports of emotions, indicating that the MS questionnaire did not produce significant anxiety or negative affect, and additional analyses demonstrated that anxiety and affect did not mediate the MS-inflated bonds.

Subsequent research established that MS exerts its effects bilaterally. That is, reminders of death elicit harsher reactions to members of one's out-group as well as more favorable reactions to those of one's in-group. For instance, Greenberg and colleagues (1990, Study 1) investigated the effects of MS on Christians' evaluations of both Christians and Jews. Following a MS induction or no question control, Christian participants were provided demographic and personality information about others believed to be fellow participants in the study, whom they then rated. In reality however, this information was designed by the experimenters to be relatively equivalent excepting "religious affiliation"; one target was designated Jewish, the other Christian. Results from the control condition yielded no significant differences in evaluation as a function of the target's religious affiliation; however, the MS participants rated co-religionist Christians considerably more positively and Jewish students considerably more negatively (Greenberg et al 1990, study 1).

In another study, American college students read a politically-charged essay following an MS or control induction. One article was clearly pro-American in orientation (admitting economic and foreign policy problems, but largely positive in tone), while another was largely an anti-American essay (focusing on the alleged amorality of US foreign policy, emphasizing the power wielded by the elite and favoring a violent coup). Participants were asked about how much they liked the articles and which author seemed more knowledgeable. Although, control condition participants favored the pro over the anti-American article, following the MS manipulation, this effect was more pronounced in both directions (Greenberg et al, 1990, Study 3).

MS effects extend beyond the realm of attitudes into the behavioral domain. For example, Randolph Ochsman and colleagues at the University of Mainz, found that following a MS induction, German students physically distanced themselves from a Turkish individual and sat closer to an ethnic German relative to control participants (Ochsman and Mathay, 1994). In another study, McGregor, Simon, Arndt, Greenberg and Solomon (1997) informed participants of another's political orientation (similar or dissimilar) after an MS manipulation or control induction. Subsequently, participants were requested to participate in another allegedly unassociated experiment examining gustatory preferences. At that session, participants were asked to give an undefined amount of hot sauce to the other individual (with similar or dissimilar political views) to taste and rate. The quantity of hot sauce was hypothesized to reflect the extent of physical aggression. McGregor et al (1997) found that, after being made aware of death, people were more likely to allot (and I mean “a lot”) considerably larger portions of hot sauce to another individual (who despised the condiment), merely because the other person did not share their own political views, relative to the more meager quantities doled to those who did share their political vision. This effect was not observed in control participants, who served analogous helpings to all irrespective of political affiliation (see Lieberman, Solomon, Greenberg and McGregor, 1999 for an empirical demonstration of the validity of hot sauce allocation as a measure of aggression).

Operationalizations of MS have not been limited to the open-ended questions described above; specifically, MS has been induced in many ways, e.g., death anxiety scales, viewing gory accidents, proximity to a funeral home, and subliminal death primes. Additionally, MS effects appear to be unique to one's own mortality concerns rather than

other aversive stimuli, including: an upcoming exam, reacting to real or imagined failures, being in extreme pain, public speaking as well as contemplating the death of another person. A wide range of personal and interpersonal behaviors have been shown to be influenced by intimations of mortality, including pro-social behavior, aggression, nationalism, prejudice, and self-esteem striving. There are now over 350 published studies by independent researchers in at least 13 countries producing predicted MS effects on a wide variety of attitudes and behaviors (for recent reviews, see Solomon, Greenberg and Pyszczynski, 2004; Greenberg, Solomon and Arndt, in press).

Anxiety buffer hypothesis. The second major TMT hypothesis, the **anxiety buffer hypothesis**, states that "to the extent that a psychological structure provides protection against anxiety, then strengthening that structure should make one less prone to anxiety and anxiety related behavior and weakening it, should make one more prone to anxiety and anxiety-related behavior" (Pyszczynski et al., 1999, p. 837).

Considerable empirical support has been furnished in favor of this hypothesis: For instance, numerous studies have demonstrated a negative correlation between SE and anxiety (for a review, see Solomon et al., 1991b). Additionally and more importantly, artificially bolstering self-esteem (by means of bogus IQ and personality feedback) was found to reduce both self-reported anxiety when viewing scenes of deadly accidents as well as physiological arousal (obtained by skin conductance measures) in anticipation of electrical shocks (Greenberg, Solomon, Pyszczynski, Rosenblatt, Burling, Lyon, Pinel and Simon, 1992). Furthermore, high self-esteem (dispositional or momentarily elevated) reduced defensive distortions, specifically, denial of vulnerability to an early death (Greenberg, Pyszczynski, Solomon, Pinel, Simon and Jordan, 1993).

The interaction between mortality salience and self-esteem. Subsequent work has established the inter-relatedness of these hypotheses by demonstrating that bolstering self-esteem reduces or eliminates mortality salience effects, and moreover, that reminders of death increase self-esteem striving.

Bolstering of self-esteem reduces MS effects. Whereas TMT sees the increased defense of one's cultural worldview (CWV) following MS as a response to existential terror, and given that self-esteem (SE) is viewed as a mechanism which serves to shield one from mortality-based concerns, accordingly, the CWV-defense that is ordinarily observed following MS should be suppressed, if not entirely eliminated, if self-esteem is dispositionally high or momentarily elevated.

Harmon-Jones, Simon, Greenberg, Pyszczynski, Solomon and McGregor, (1997) conducted a set of experiments to test this hypothesis. In Study 1, they manipulated American participants' SE levels by means of bogus personality test feedback that was either positive or neutral. Subsequent to the administration of a standard MS induction (control participants were given parallel questions about watching television), participants were asked to evaluate two targets: an individual who supported their pro-U.S. biases as well as a second target who threatened it. Replicating prior research, MS participants in the neutral self-esteem condition showed a considerably increased pro-U.S. bias; however, in accord with predictions, this effect was attenuated in the raised self-esteem condition.

In Study 2, Harmon-Jones et al. (1997) sought to establish that dispositionally high self-esteem would also diminish the effects of MS on worldview defense. The design of Study 2 was identical to Study 1 except for eliminating the self-esteem

manipulation; i.e., using the Rosenberg Self-Esteem Scale (1965) as a dispositional measure of self-esteem instead of inducing momentary changes in self-esteem using false feedback on the bogus personality assessment. The results replicated those obtained in Study 1; specifically, while participants with dispositionally moderate esteem reported greater pro-U.S. bias following a MS induction, this effect was significantly lower with dispositionally high self-esteem participants.

Mortality salience increases self-esteem striving. Hart, Shaver and Goldenberg (2005) reviewed a substantial literature which supports the notion that reminders of death impel individuals to increase self-esteem. This self-esteem striving may take various forms.

For example, reminders of mortality increase focusing on aspects of the self from which such esteem stems. For instance, it is generally known that in Western culture, body-image is an important source of SE for many individuals. Accordingly, Goldenberg, McCoy, Pyszczynski, Greenberg and Solomon (2000) found that individuals who vest their SE in their body-image responded to MS with increased identification with their bodies (Study 1). In contrast, low body-esteem individuals who were “appearance oriented,” were found to decrease the extent of their appearance monitoring following reminders of death (Study 3).

Another concordant finding is that MS increases engagement in behaviors relevant to SE. For example, Taubman Ben-Ari, Florian and Mikulincer (1999) demonstrated that following a MS induction, individuals for whom driving ability is self-relevant reported an increased tendency towards risk-taking while driving as well as engaging in more risky behavior when on a driving-simulator. In summation, there is

now a substantial body of empirical work that provides convergent support for the TMT derived anxiety-buffer hypothesis (for recent review, see Pyszczynski et al., 2004).

Dual process theory of the psychological processes that underlie mortality salience effects. Previous TMT research has shown that mortality salience effects are not the result of affect in that the MS induction generally does not produce any affect or physiological arousal and affect and arousal do not typically mediate any MS effects. So what then, are the underlying psychological processes that produce these effects?

Pyszczynski et al. (1999), articulated the putative cognitive processes responsible for MS effects by a dual process theory positing a distinction between explicitly conscious thoughts of death and non-conscious intimations of mortality on “the fringes of consciousness,” i.e., not presently in focal attention, yet highly accessible. Proximal and distal defenses are then hypothesized to be instigated in response to be conscious and non-conscious death thoughts. **Proximal defenses** are activated in response to *conscious* thoughts in current focal attention. These defenses are proximal in that they are initiated immediately following MS induction; they are “rational” and “threat focused” and serve to eliminate the conscious awareness of death. Proximal defenses include instrumental efforts to avoid death (e.g., wearing seat belts) or simply postponing in one’s mind the eventuality of one’s death (e.g., “I’m still young; I still have all my hair”), or the denial of one’s susceptibility to lethal risk factors (e.g., “a little gin ‘n tonic never hurt anyone”).

In contrast, **distal defenses** are initiated in response to *non-conscious*, yet highly accessible, thoughts of death. Distal defenses serve to minimize existential anxiety by fortifying the cultural anxiety-buffer by bolstering faith in one’s CWV and/or increased self-esteem striving; these defenses are experiential rather than rational. Distal defenses

are said to be irrational as they have no logical or even semantic connection to death per se. Distal defenses serve to mitigate heightened accessibility of death thoughts (Refer to Table. 1).

In support of this dual process conception, Greenberg, Arndt, Simon, Pyszczynski, & Solomon (2000) have demonstrated that immediately after a mortality salience induction, people engage in proximal defenses (vulnerability-denying defensive distortions) but do not show evidence of distal defense (exaggerated regard and disdain for similar and dissimilar others respectively); and, as expected, distal defense was obtained after a delay, but proximal defenses were not. Additionally, defense of the cultural worldview does not occur when mortality is *highly* salient, or when people are forced to keep thoughts of death in consciousness following our typical subtle mortality salience manipulation (Greenberg, Pyszczynski, Solomon, Simon, & Breus, 1994), or when they are asked to behave “rationally” (Simon, Greenberg, Harmon-Jones, Solomon, Pyszczynski, Arndt, & Abend, 1997). It has also been demonstrated that the accessibility of death-related thoughts is low immediately following mortality salience as a result of an active suppression of such thoughts, and that a delayed increase in the accessibility of death-related thoughts (presumably from relaxation of the suppression) is responsible for the delayed appearance of cultural worldview defense (Arndt, Greenberg, Solomon, Pyszczynski, & Simon, 1997). Heightened accessibility of death-related thoughts has been shown to be a necessary and sufficient condition to produce worldview defense following mortality salience (Arndt et al., 1997; Arndt, Greenberg, Pyszczynski, & Solomon, 1997), and cultural worldview defense serves to keep levels of death-thought accessibility low (Arndt et al., 1997; Harmon-Jones, Simon, Greenberg, Pyszczynski,

Solomon, & McGregor, 1997). This work has also demonstrated that the function of terror management defenses is to avert the potential for anxiety engendered by heightened accessibility of death-related thought (Greenberg, Martens, Jonas, Eisenstadt, Pyszczynski and Solomon, 2003).

Individual differences. Although TMT does not make specific reference to individual differences given the claim that everyone is posited to be fearful of death, early research routinely revealed predictable differences across individuals. For instance, Rosenblatt et al. (1989, Study 2) found that only people opposed to prostitution were more punitive toward an alleged prostitute following MS. Likewise, other research (Greenberg, Simon, Pyszczynski, Solomon and Chatel, 1992, Study1) found that conservatives liked liberals less after MS while liberals liked conservatives more. According to TMT, individuals vary considerably regarding the specific components of their cultural worldviews (see Solomon et al., 1991a) and MS appears to exaggerate reactions in accord with them.

Another domain in which individual differences have been found to moderate MS effects is depression. Mildly depressed individuals, typically characterized as having low SE, and difficulty imbuing life with meaning (e.g., Kunzendorf and Maguire, 1995), have intense reactions to reminders of death. Simon and colleagues (1996, 1998) found that mildly depressed individuals responded more vigorously to MS, exhibiting considerably higher levels of worldview defense than those who are not depressed.

TMT and neuroticism. Recent research has also shown that MS effects vary considerably as a function of neuroticism. In current usage, the term neuroticism is generally understood as a basic personality trait characterized by a persistent propensity

to experience undesirable states of affect (such as anxiety, depression and guilt; Matthews, Deary and Whiteman, 2003) and a predisposition to self-consciousness, shyness, perceived vulnerability to threat and, hence, exaggerated emotional reactivity.

In the personality literature, neuroticism is clearly considered a major individual difference. For instance, two factor theories tend to include only neuroticism and extraversion. Neuroticism is also one of the Big Five personality factors (e.g. Costa and McCrae, 1992; Goldberg, 1990; John, 1990; McCrae and Costa, 1999; Trull and McCrae, 1994; along with extraversion, conscientiousness, openness to experience, and agreeableness), popular in contemporary research. In accord with Rank (1932, 1936), who used the term neurosis to refer to a person “without illusion,” Becker saw in the neurotic the difficulty in “living with the truth of existence” (p.177). According to Becker, the neurotic, who is rendered fragile by inadequate buffering from existential terror, manages to cope by essentially fabricating a patently unique, restrictive lifestyle to deal with the realization of non-existence (i.e., death; Becker called this “partialization”; 1971). So that while Becker felt that all individuals are threatened by corporeality, the neurotic, who is all the more vulnerable, will narrow or even, shut-off his or her field of experience in an effort to address it (Becker, 1973). Indeed, it has been known for some time that neurotics suffer more than non-neurotics from death anxiety (Loo, 1984). See also Maltby and Day (2000).

Consistent with this notion, individuals high in neuroticism respond more vigorously to MS inductions relative to controls. For example, in line with Haidt, McCauley and Rozin’s (1994) correlational evidence suggesting that neurotics are fundamentally revolted by their physicality, recent investigations have shown that

individuals high in neuroticism have more difficulty with coming to terms with corporeal physicality; specifically, they report more discomfort with the physical aspects of sex after a MS induction, and show higher levels of accessibility of implicit death thoughts when reminded of the physical aspects of sex (Goldenberg et al, 1999).

Similarly, neurotics are especially resistant to accepting that they (and all humans) are animals following a reminder of death (Goldenberg et al, 2001). Finally, after MS, individuals high in neuroticism tend avoid tactile contact, not only spending less time submerging their arms in ice-cold water, but also spending less time using a foot massager; in contrast, no such effect was observed with respect to other sensory experiences, perceived to be less physical, such as auditory stimuli like music (Goldenberg, et al. 2006).

In a related line of inquiry, Arndt and Solomon (2003) examined the effects of MS on desire for control as a function of neuroticism. Burger and Cooper (1979) define the desire for control as how motivated one is to control the events in his or her environment. Individuals who score high on a trait measure of desire for control tend to be “assertive, decisive and capable of manipulating the environment and events to achieve desired outcomes” (Burger and Cooper, 1979 cited in Arndt and Solomon, 2003, p.3). Based on previous TMT research and Becker’s analysis of neuroticism in *The Denial of Death* (1973), Arndt and Solomon (2003) predicted that MS would increase desire for control for relatively non-neurotic individuals, but decrease desire for control in highly neurotic individuals. To test this hypothesis, participants completed the Desire for Control Scale (Burger and Cooper, 1979), a 20 item instrument which asks participants to endorse statements dealing with control issues, such as: “I enjoy making

my own decisions”; When it comes to orders, I would rather give them than receive them; I wish I could push many of life’s daily decisions off on someone else,” after a conventional MS or control manipulation. Findings were in accord with predictions; while participants low in neuroticism had an increased desire for control following MS; participants high in neuroticism were found to have decreased desire for control. These findings provide convergent support for the notion that neuroticism is an important moderator of MS effects.

Summary of TMT theory and research

In summation, terror management theory posits that the juxtaposition of an inclination toward self-preservation with the highly developed intellectual abilities that make humans aware of their vulnerabilities and inevitable death creates the potential for paralyzing terror. One of the most important functions of cultural worldviews is to manage the terror associated with this awareness of death. This is accomplished primarily through the cultural mechanism of self-esteem, which consists of the belief that one is a valuable contributor to a meaningful universe. There are thus two basic components of the cultural anxiety-buffer, both of which are necessary for effective terror management: (a) faith in a meaningful conception of reality (the cultural worldview); and, (b) belief that one is meeting the standards of value prescribed by that worldview (self-esteem). Because of the protection from the potential for terror that these psychological structures provide, people are motivated to maintain faith in their cultural worldviews and satisfy the standards of value associated with their worldviews.

To date, a host of empirical studies numbering in the hundreds, conducted in many different countries, in a broad variety of settings and operationalizations, have

supported the validity of the anxiety-buffer and mortality salience hypotheses derived from the central tenets of TMT. Subtle reminders of death (MS) engender a host of cultural worldview defenses, attitudinal and behavioral. High self-esteem buffers anxiety in general and attenuates MS effects in particular; and reminders of death increase self-esteem striving.

Cognitively, mortality salience instigates two distinct conscious and unconscious sets of processes that unfold in an orderly temporal sequence. While proximal defenses are initiated in response to conscious death-related ideation, when thoughts of death that are not conscious, but highly accessible, distal defenses are activated.

While TMT posits that all of humanity is fundamentally subject to existential anxiety, there is mounting evidence that the mortality salience effects are moderated by individual differences in theoretically predictable ways. In this domain, one area which has received considerable attention is that of neuroticism. There is an abundant data suggesting that highly neurotic individuals are especially vulnerable to death-concerns and that they react to intimations of mortality in a manner distinctly different than their lesser or non-neurotic counterparts.

Chapter Four:

The putative effects of mortality salience upon the integrity of perceived ontological selfhood

If the self is a psychological structure that serves a broad terror management function, then all processes that maintain the integrity thereof should be influenced by reminders of death or influence reactions to MS.

In accord with this claim, it has already been established that raising self-esteem reduces or eliminates mortality salience effects, as noted above. Additionally, self-affirmation reduces MS effects independent of raising self-esteem; specifically, Schmeichel and Martens (2005) had participants write a brief narrative passage affirming a value important to them, and found that: 1) this reduced cultural worldview defense (reactions to a pro and anti-American author) in response to a MS induction (relative to a non self-affirmation control condition); and 2) reduced the accessibility of implicit death thoughts in response to a MS induction. Conversely, reminding people of their self at their worst: 1) produces the same worldview defensive effects as MS (in this case, increased affection for President Bush and his policies in Iraq obtained in study 1 of Landau et al., 2004); and 2) increases the accessibility of implicit death thoughts on a word stem completion task (Ogilvie, Cohen and Solomon, *in press*).

In addition to self-esteem and self affirmation and disaffirmation (the undesired self), another basic aspect of self-hood is maintaining cognitive consistency. This basic drive, (which motivates one to be consistent in thought and often, in deed, in a variety of contexts,) has been studied by social psychologists in the form of balance theory (Heider, 1946) and cognitive dissonance theory (Brehm, 1956; Festinger and Carlsmith, 1959). It

therefore follows, that MS should amplify the need to maintain cognitive consistency and this was recently demonstrated by Jonas, Greenberg and Frey (2003) who found that MS increased the desire for consonant information after a worldview-relevant decision in the service of enhancing cognitive consistency.

It thus appears that there is a sound empirical basis for the contention that the self as a psychological structure is fortified by esteem, affirmation, as well as consistency. We now attempt to further extend this notion of self-fortification, by maintaining that the perception of autonomy/ free-will, or in the case of neurotics, the lack thereof, may be recruited in the service of maintaining one's integrity of self.

Autonomy and selfhood. The perception of free will may, in addition to self-esteem, self-affirmation, self-consistency – be an important aspect of self-hood, at least for non-neurotics. For neurotics free will may be a curse; e.g., Henry Miller (1949) writes in *Sexus: The Rosy Crucifixion*: “To be sick, to be neurotic, if you like, is to ask for guarantees. The neurotic is the flounder that lies on the bed of the river, securely settled in the mud, waiting to be speared. For him death is the only certainty, and the dream of that grim certainty immobilizes him in a living death far more horrible than the one he imagines but knows nothing about.”(p. 338).

Therefore, if reminders of death incline people to shore up self structures in the service of mitigating anxiety as per the anxiety buffer hypothesis, then following a reminder of death, low neurotics should report greater perception of free will while high neurotics will decrease perception of free will. The purpose of Study 1 was to test this hypothesis.

Chapter Five:

Study 1:

The effects of mortality salience on perception of free-will as a function of neuroticism

METHOD

Participants. Two hundred and eighty four psychology students at Rutgers University volunteered to participate in the experiment during a class session. Thirty three participants were not included in the data analyses because they did not complete the questionnaire booklet, leaving a final sample of 251 participants (117 females and 134 males).

Procedure. The study was described as an investigation of personality traits. Participants were randomly assigned a packet of materials and instructed to complete them at their own pace. These materials were identical in content, with the exception of the mortality salience or control induction. To sustain the cover story, each booklet contained a filler measure, and to obtain a premeasure of neuroticism, the Big Five Personality Inventory (e.g. Costa and McCrae, 1992; Goldberg, 1990; John, 1990; McCrae and Costa, 1999; Trull and McCrae, 1994). The mortality salience manipulation (Rosenblatt et al., 1989) followed. This consisted of presenting participants with two open-ended questions: “Please briefly describe the emotions that the thought of your own death arouses in you” and “Write down, as specifically as you can, what you think will happen to you physically as you die and once you are physically dead.” Control participants were asked parallel questions with respect to dental pain. In order to determine if the MS manipulation engendered affective reactions, participants completed the Positive and Negative Affect Schedule—Expanded Form (PANAS-X; Watson &

Clark, 1991). At this point, participants read a short literary passage from “The Growing Stone” by Albert Camus in order to cause a delay and distraction as earlier research (e.g., Greenberg et al., 1994) has shown that mortality salience effects are more robust following a delay. Participants were then asked to complete a set of eight questions designed to assess the extent to which they perceive that they have free will to determine the course of their behavior; specifically a modified version of a free will/determinism scale designed by Viney, Waldman, & Barchilon (1982). This was finally followed by a demographic survey. The packets took approximately 20 minutes to complete. When done, participants were instructed to place their materials into a designated container. After submitting their booklets, participants were debriefed and thanked, and the experiment was concluded. See Appendix-A for materials.

Chapter Six:

Study 1

RESULTS

High and low neuroticism. Participants were assigned to high or low neuroticism conditions based on a median split of their scores of the neuroticism subscale from the Big-Five personality inventory administered at the beginning of the questionnaire booklet. The median neuroticism score was 3; consequently, participants scoring ≤ 3 were assigned to the low neuroticism condition ($n = 134$), while those >3 were assigned to the high neuroticism condition ($n=117$).

Free-will scale. A Cronbach's alpha was then computed to assess the internal consistency of the modified version of Viney et al, (1982) Free-will/Determinism scale employed as the dependent measure in the present study, yielding a meager $\alpha = .36$, suggesting that the scale was both utterly unreliable and profoundly invalid, or actually measured two or more internally consistent but uncorrelated psychological constructs. We therefore performed a factor analysis on the free-will scale items using a Varimax rotation, which yielded a three-factor solution. The three factors collectively accounted for 66.03% of the variance. The first factor, (consisting of items 1, 2 and 4 on the modified Viney et al.'s scale accounted for 31.55% of the variance. The second factor, (consisting of items 5, 6 and 7) accounted for 21.78% of the variance; while the third factor, (comprised of item 8 on the modified Viney et al.'s scale) accounted for 12.70% of the variance. Specific questions for each factor are presented in Table 2.

Examining the specific questions for each factor, it's very clear that all of the items in factor 1 (Free will proper) were essentially measuring participants' perception of

free-will proper. The second factor (Limitations on free will) asked participants if free-will is limited by physical, psychological, or cognitive impairments. The third factor (Morality and free will) pertained to the relationship between free-will and morality.

In light of these findings, composite scores for the three sub-scales of the free-will scale were computed and then subjected to 2 (MS, control) x 2 (low neuroticism, high neuroticism) x 2 (female, male) ANOVAs. Given the nature of each factor, we were primarily interested in the (Free will proper) factor in that it most clearly reflects perception of free will and is thus most pertinent to the hypothesis of the present study.

The ANOVA for the (Free will proper) factor yielded a main effect for neuroticism $F(1, 248) = 5.14, p = .02$, qualified by the predicted interaction between MS and neuroticism, $F(1, 248) = 4.484, p < .04$. There were no main effects or interactions involving gender. The main effect for neuroticism was due to low neurotics reporting higher perception of free will than high neurotics (means = 6.395 and 6.011 respectively). However, an inspection of the interaction between ms and neuroticism is more revealing (see means for each condition graphically depicted in Figure 1).

In accord with predictions, while there was no difference between perception of free-will between low and high neurotics in the pain salience control condition, low neurotics reported substantially higher perception of free will (mean = 6.64) than high neurotics (mean = 5.90) in response to MS (all pairwise comparisons based on LSD with 95% confidence interval). Looked at differently, whereas low neurotic's perception of free-will was significantly *higher* in the MS condition than in the pain salient control condition (means = 6.64 vs. 6.15 respectively), high neurotic's perception of free will decreased in response to MS relative to their counterparts in the pain salient control

condition (means = and 6.13 vs. 5.90 respectively), although this difference was not statistically significant.

Affect/mood effects. To determine if the MS manipulation engendered affect, we conducted a multivariate ANOVA (MANOVA) on the subscales of the PANAS-X, and found significant main effects for neuroticism ($F(11,244) = 8.06, p < 0.001$) and gender ($F(11,244) = 3.11, p = 0.001$), as well as (unlike in most TMT studies) a marginally significant main effect for condition, $F(11,244) = 1.65, p = 0.09$ (MS participants reported being sadder, $F(1, 244) = 4.338, p=0.04$ and shyer $F(1,244) = 6.821, p = 0.03$); there were no significant interactions between MS, neuroticism and gender.

To determine if affect mediated the significant interaction between MS and neuroticism on the perception of free will measure reported above, we conducted an ANCOVA analysis to remove the influence of affect from the effects of MS and neuroticism on perception of free-will. The resulting interaction between MS and neuroticism was no longer significant ($F(1,240) = 1.82, P = .18$), implying that mood somehow mediated the effect between MS and neuroticism on perception of free will. However, the ANCOVA also produced a marginal main effect for MS ($F(1,240) = 2.58, p = .11$), with MS participants reporting greater perceptions of free will than control participants (means = 6.35 and 6.06 respectively) regardless of level of neuroticism.

Chapter Seven:

Study 1

DISCUSSION

Consistent with our hypothesis, the results of the present study showed that whereas low neurotics increased their perception of free will in response to MS, high neurotic's perception of free will declined, albeit insignificantly. This result is in partial accord with Arndt and Solomon's (2003) finding that low neurotics increased their desire for personal control after a reminder of death while high neurotics decreased their desire for personal control. For high neurotics, although the mean reports of free will were in the predicted direction, they were not significantly lower in response to MS as we originally hypothesized. Perhaps if we had a larger sample with more highly neurotic participants as well as a more sensitive measure of free will we would have obtained the predicted decline in perception of free will in response to MS by high neurotics.

Alternatively, for low neurotics, desire for control and perception of free will are complimentary psychological attributes. For such individuals, fortification of self-hood in response to MS may be expected to increase both. However, for high neurotics, decreased desire for personal control (the functional-equivalent to wanting other people to make things happen for you) is not necessarily psychologically yoked to decreased perception of free-will. Thus there may be no psychological utility to the reduction of perception of free will coincident with decreased desire for personal control. This would, in principle, account for the inconsistent findings between Arndt and Solomon studies and this one. We hope future research will provide empirical clarification of this matter. In principle, this can be easily tested in a study where both desire for personal control and perception

of free will are measured (counterbalanced) to determine whether they co-vary for low neurotics in response to MS but not high neurotics.

Regarding the affect findings, while the neuroticism and gender main effects are not unexpected (and in fact the neuroticism main effects are basically manipulation checks in that neurotic is characterized as a seething caldron of negative affect), the MS main effects are not typical. Most TMT studies do not find any self-reported anxiety or negative affect in response to the ms induction, although they do occur at times; indeed, MS occasionally increases positive affect! however, the finding that the MS x neuroticism interaction on perception of free will is eliminated when affect is co-varied out is quite atypical, in that to our knowledge, all published TMT research to date finds that ms effects remain intact even when the effects of affect (significant or not) are statistically removed. One admittedly highly speculative account of this result proposed by Jeff Greenberg (personal communication, 2007) is that to the extent that neuroticism is generally defined in terms of chronically high levels of anxiety and negative affect, when you take the affect out of a neurotic, you no longer have a neurotic. Hence, it stands to reason that when affect is statistically removed from the MS x neuroticism interaction, we should be left with only a main effect in accord with the original prediction, specifically, that MS should increase perception of free-will. Again, we hope that future research will address this matter (starting with a simple replication to determine if the affect findings of the present study are spurious).

These caveats notwithstanding, Study 1 provides preliminary evidence in support of the notion that reminders of death make non-neurotic individuals perceive a greater

sense of free-will after MS, which we interpret as an effort to fortify self-processes in the service of effective terror management.

Another way to investigate the relationship between reminders of death and self processes in the domain of free will is to examine what happens when one's perceived freedom is limited and intimations of mortality are present. This was the purpose of study 2.

Chapter Eight:

Study 2:**The effects of mortality salience on reactance to infringements of freedom as a function of neuroticism**

“If there is anything surprising about a theory concerning how people respond to elimination of freedom it is that such a theory has not been proposed earlier. For given the historical concern of our culture for freedoms of one kind or another, and given the current plethora of freedom demonstrations, it seems obvious that concern for freedom should have some general psychological implications....The freedom to choose when and how to behave is potentially beneficial....It is reasonable to assume, then, that if a person’s behavioral freedom is reduced or threatened with reduction, he will become motivationally aroused. This arousal would presumably be directed against any further loss of freedom and it would also be directed toward the re-establishment of whatever freedom had already been lost or threatened. Since this hypothetical motivational state is in response to the reduction (or threatened reduction) of one’s potential for acting, and conceptually may be considered a counterforce, it will be called “psychological reactance.”

Jack Brehm, *A Theory of Psychological Reactance* (1966)

According to reactance theory (e.g., Brehm, 1966; Wicklund, 1974), human beings are fundamentally motivated to maintain a sense of personal freedom; consequently, any perception that one’s freedom is being curtailed produces reactance: an unpleasant state of physiological arousal that instigates efforts to restore the lost freedom. Toward this end, people will in such conditions resist social influence, invasion of privacy and personal space, accepting gifts or favors that would socially oblige them to reciprocate, or increase their preference for behavioral options when their freedom to choose has been undermined.

For example, in one study reported in Brehm (1966), children in a park were asked to rank order their preferences for an array of candy bars and were then told they would be able to choose between their third and fourth most preferred ones to take for

themselves (the choice between third and fourth preference was deliberate, in order to provide the possibility for increasing or decreasing preferences after the reactance manipulation). Half of the children were then allowed to choose as they were told (no reactance), whereas the other half were simply given their third choice (which presumably they would have chosen anyway; this was the reactance condition). The children were then asked to re-rank the candy bars, and in accord with predictions derived from reactance theory, children in the reactance condition subsequently derogated their preferred alternative, presumably to restore their freedom to choose.

In another study by Regan and Brehm (first cited in Brehm, 1966 Pp.88-89, and subsequently, by Regan and Brehm, 1972), supermarket shoppers were recruited as participants. While control participants shopped as usual, experimental participants received one of two messages: either a high or low verbal-pressure message urging them to purchase a particular brand of bread. Furthermore, participants were given either 25¢ (the going rate for bread yesteryear) or else 35¢. The results revealed a pronounced reactance effect for female participants. While virtually all females in the experimental conditions bought more bread, the highest degree of persuasion was found in the condition with the least pressure (low verbal pressure message + 25¢).

Study 1 demonstrated that MS increases perceptions of free will, at least among low neurotics. This suggests that the belief in free will can be central to one's self-perception as a meaningful being in the context of a death-denying cultural worldview. Similarly, reactance in service of restoration of freedom is another potential way to sustain the integrity of the self as a psychological structure. Accordingly, it is reasonable to hypothesize that reactance to infringement of freedom will be increased in response to

MS in order to maintain the integrity of self, at least for low neurotics. The purpose of study 2 was to test this hypothesis.

Chapter Nine:

Study 2

METHOD

Participants. 198 students (111 females and 87 males) were recruited at [the] Brooklyn College [cafeteria and Honors Academy] to participate in the experiment. The study was described as an investigation of personality traits. Participants were randomly assigned a packet of materials and instructed to complete them at their own pace. These materials were identical in content, with the exception of one questionnaire that asked participants to contemplate either their eventual death or dental pain.

To sustain the cover story and obtain a premeasure of neuroticism, each booklet contained a filler measure and the Big Five inventory (John, Donahue and Kentle, 1991). The mortality salience manipulation (Rosenblatt et al., 1989) followed. Participants were presented with two open-ended questions: “Please briefly describe the emotions that the thought of your own death arouses in you” and “Write down, as specifically as you can, what you think will happen to you physically as you die and once you are physically dead.” Control participants were asked parallel questions with respect to dental pain.

In order to ascertain whether the MS manipulation engendered affective reactions, participants completed the Positive and Negative Affect Schedule—Expanded Form (PANAS-X; Watson & Clark, 1991); a self-report mood scale.

At this point, participants read a non-descript passage from “The Growing Stone” by Albert Camus. This was done, in order to cause a delay and distraction as earlier research (e.g., Greenberg et al., 1994) has indicated that mortality salience effects are more robust following a delay.

Participants then read an essay in which the reactance manipulation was embedded based on a paradigm developed by Silvia (2005a, 2005b, 2006). The instructions stated that 50 Brooklyn College students had written essays describing their opinions related to scholastic matters. The instructions noted that the experimenters would now like to get the impressions and reactions of other students to the 50 essays.

In the no threat condition, participants were asked to read a one-sided essay which makes a case that the college should add a major in advertising. The text read as follows:

“A beneficial addition to Brooklyn College would be the addition of a major in advertising. Right now Brooklyn College doesn’t have one, but having an advertising major would help the university and the students. For one, we could increase the number of students at the university because more people would come here to study the new major. Students who are already here would also have more choices for majors. Brooklyn College would also be able to make connections with big companies, and this could help more students get good jobs after college. And a survey of communications students found that they liked the idea of an advertising major. For people who don’t want to major in advertising, they could take the introductory classes which would probably be pretty interesting for most people.” So those are my reasons for wanting a major in advertising at Brooklyn College.”

Those in the threat condition were requested to read the same essay-with one major difference. Whereas the essay in the no-threat condition concluded: “And a survey of communications students found that they liked the idea of an advertising major. For people who don’t want to major in advertising, they could take the introductory classes which would probably be pretty interesting for most people.”. In contrast the threat condition ended:

“For people who don’t want to major in advertising, they could take the introductory classes which would probably be pretty interesting for most people. So those are my reasons for wanting a major in advertising at Brooklyn College. They’re good reasons, so I know you completely agree

with all of them. Because when you think about it you and all Brooklyn College students are really forced to agree with me.”

Participants then completed a questionnaire to assess reactance and other impressions of the author. Specifically, item #2 (“How do you feel about Brooklyn College adding a major in advertising?”) was of interest; all other questions are essentially manipulation checks. This was finally followed by a demographic survey. The packets took approximately 20 minutes to complete. When done, participants were instructed to place their materials into a designated container. After submitting their booklets, participants were debriefed and thanked, and the experiment was concluded. See Appendix-B for materials.

Chapter Ten:

Study 2

RESULTS

High and low neuroticism. Participants were assigned to high or low neuroticism conditions based on a median split of their scores of the neuroticism subscale from the Big-Five personality inventory administered at the beginning of the questionnaire booklet. The median neuroticism score was 3; consequently, participants scoring ≤ 3 were assigned to the low neuroticism condition ($n = 95$), while those >3 were assigned to the high neuroticism condition ($n=103$).

Reactance. Before the hypothesis that reminders of death would increase reactance as a function of neuroticism could be tested, we needed to determine if there was a reactance effect in the control condition. Accordingly a 2 (threat, no threat – or reactance/no reactance –however we labeled the variables above) x 2 (low neurotic, high neurotic) x 2 (female, male) ANOVA was conducted on the question: How do you feel about Brooklyn College adding a major in advertising? Contrary to expectations, there was no hint whatsoever of a reactance effect ($F(1,197) = 0.245, p=0.622$; mean=5.20 for the reactance condition, and 5.05 for non-reactance condition).

Chapter Eleven:

Study 2

DISCUSSION

In study 2, a reminder of death was predicted to increase psychological reactance for individuals low in neuroticism. Unfortunately, the failure to produce a basic reactance effect made it impossible to test this hypothesis directly. The materials employed in this study have obtained reactance effects elsewhere (Silvia, 2005a, 2005b, 2006); therefore, it's unlikely that the paradigm itself is inherently problematic. Perhaps the issue of the advertising major wasn't especially important to Brooklyn college students, given that students who participated in this study may have been older and thus more likely to have already chosen their majors, relative to the Silvia introductory psychology participants. In order to assess the effects of MS on reactance, future research will have to produce a traditional reactance effect.

Chapter Twelve:

GENERAL DISCUSSION/ CONCLUSION

Sophisticated cognitive capabilities render humans especially vulnerable to existential terror which may in turn compromise adaptive instrumental behaviors. According to TMT, humans cope with such mortality concerns by means of a “cultural anxiety buffer” consisting of: (a) faith in a cultural worldview, which explicitly or implicitly imbues the individual with a sense of meaning and immortality; and (b) self-esteem: to feel that one is a valuable participant in the context the cultural worldview to which one subscribes.

Most empirical support for TMT, to date has been provided by studies testing the mortality salience hypothesis. The hypothesis states that if cultural worldviews serve to shield people from mortality concerns, then reminding people of the source of their fear, (namely, death) would exaggerate the need for that psychological structure.

Consequently, mortality salience should increase commitment to one’s cultural worldview; which should be manifested in more positive reactions to those who support the worldview and more negative reactions to those who threaten it. Numerous studies conducted in diverse settings and employing a broad range of operationalizations of mortality salience and dependent measures have supported this hypothesis.

Another major source of empirical support for TMT stems from investigations of the anxiety-buffer hypothesis. It states that to the extent that psychological structures buffer existential terror, then fortification of them should reduce anxiety and arousal in response to threat. In contrast, undermining these structures will render one more prone to existential terror and its associated consequences. In support of this line of reasoning,

momentarily inflating self-esteem levels reduced both self-reported anxiety when viewing scenes of lethal accidents as well as physiological arousal in anticipation of electrical shocks. Moreover, both dispositionally high self-esteem as well as momentarily inflated self-esteem were found to reduce defensive distortions, (in denial of vulnerability to an early demise). And high self-esteem has been shown to mitigate MS effects on worldview defense.

In addition to self-esteem, other self-related factors serve to mitigate MS effects. For example, both cultural worldview defense and implicit death-thought accessibility were reduced following a self-affirmation induction wherein participants were asked to prepare a narrative reaffirming a value which they held dear. MS also fosters self-consistency, in the form of increasing the desire for consonant information after a worldview-relevant decision. Furthermore, MS affects desire for control as a function of neuroticism. Highly neurotic persons are known to be especially vulnerable to mortality-concerns and are particularly threatened by conceptions of corporeality (which further implies temporal bounds upon life). As expected, such individuals also respond especially vigorously to MS. Interestingly, while people low in neuroticism increased their desire for control following MS, highly neurotic individuals decreased this desire.

There is, therefore, sufficient empirical basis for the contention that the sense of self as a psychological structure is fortified by esteem, affirmation, as well as consistency. The present investigations were a preliminary attempt to broaden the concept of self-fortification, by maintaining that the perception of autonomy/ free-will, or in the case of neurotics, the absence of such, may be harnessed in the service of preserving one's perceived ontological integrity. Indeed, it appears that the self is a

psychological structure which serves a terror management function and therefore, reminders of death should instigate processes to shore up all aspects of self-hood.

Specifically, the current studies were undertaken to examine the effects of mortality salience on perceptions of free-will and reactions to infringements of freedom as a function of neuroticism. Taking into consideration that neuroticism ranks prominently among major individual difference factors, and noting that neurotics are believed to be uniquely affected by mortality concerns, it seemed reasonable that neuroticism might play a role in the effects of MS upon perceived autonomic agency. Moreover, in light of previous evidence that neuroticism was found to be an important moderator of the effects of MS upon desire for control, [with low neurotics wanting more control following MS and the reverse pattern observed for high neurotics following MS] we anticipated a similar pattern of results in our study.

In Study 1, we hypothesized that MS would affect the perception of free-will and that this effect would be mediated by neuroticism. Specifically, that following MS, low neurotics would increase perception of free-will and high neurotics would decrease. Consistent with our hypothesis we found that low neurotics did indeed exhibit inflated perception of free-will following reminders of death. We had also predicted that highly neurotic individuals' perception of free-will following MS would decrease, however, while we did find an effect in this general direction, it was not significant. We hope that this study will be replicated with a larger sample, and a different, more refined measure of free-will perception to determine whether these findings are robust.

Arguably, another manifestation of ontological integrity, related to the perception of free-will is the preservation of personal freedom. The freedom to exercise a given

liberty is essentially, the freedom to implement one's will; it makes the statement that "I can do what I please" and "I am independent." Hence, it appeared appropriate to follow our initial study with a second study which concentrated on the perception of freedom; specifically, psychological reactance. According to reactance theory, humans seek to nurture and preserve a sense of personal liberty. When one perceives that a given freedom has been challenged, an unpleasant state of arousal ensues, which prompts the individual to restore the challenged or lost freedom. Study 2 therefore hypothesized that MS would increase psychological reactance for low neurotic individuals (in line with effects observed in our first study for low neurotics). However, this hypothesis was never properly tested as we failed to produce a classical reactance effect. As noted above, it will be necessary to first produce a traditional reactance effect to test this hypothesis. If further empirical investigation should fail to support for this hypothesis then we will need to adjust our theoretical perspective to explain why belief in free-will proper is influenced by existential concerns while psychological reactance is not.

We also hope that future TMT research will address other self-based motivational issues. For instance, Kinsbourne's (2005) consciousness narcissism theory alleges, in line with Dennett (1991) and Dennett and Kinsbourne (1992), that despite the fact that little empirical support exists for the existence of a centralized "me" anywhere in the brain, whether spiritual or physical, that a Cartesian mind-body dualistic account of the mind is prevalent in virtually all ranks of society. Kinsbourne first articulated the notion of "consciousness narcissism" in a lecture/address entitled "Consciousness: The brain's private psychological field". There he introduced this term as follows:

"Why is the notion that consciousness is a function of the brain, and nothing more, so grossly counterintuitive? ... I suggest that this intuition is

fuelled by wish fulfillment, as follows: I, my self, am my consciousness. If consciousness is rare and wonderful, then that is what I am. If it 'merely' reflects the workings of a biological machine then I am no more than a machine... Whitehead (p.127 [1925/ 1959 reprint edition]) credits the Christian Church for generating an affinity for what we may consider to be a tenuous meme about 'egotism of intellectual outlook': 'for century after century it insisted upon the infinite worth of the individual human soul. Accordingly, to the instinctive egotism of physical desires, it has superadded an instinctive feeling of justification for an egotism of intellectual outlook'. This socially constructed instinctive feeling of justification, I call consciousness narcissism".

Kinsbourne proceeds to suggest that consciousness narcissism persists in society on account of its adaptive utility. Narcissistic individuals who value themselves and their lives, who are liable to identify themselves with a grandiose-conception of their consciousness, might fare better in a highly individualistic culture in a post-modern world. And to the extent this is true, reminders of death should make people (and scientists!) more confident that consciousness is inexplicable in terms of mechanical operation of biological processes; MS should thus increase consciousness narcissism.

Regardless of the outcome of future inquiries, we hope that these studies constitute an important first step toward providing an existential-motivational account of the perception of human agency -- G-d willing!

Endnotes

1. We have determined that the findings of this study would be the same if we had used regression analyses instead of median split on neuroticism scores.
2. We did not anticipate any significant effects for the second two factors. This was indeed the case, no significant main effects were observed and more importantly, no interaction between MS and neuroticism on these factors and thus, we will not make any further allusions to them).

Table 1. Proximal and Distal Modes of Defense.

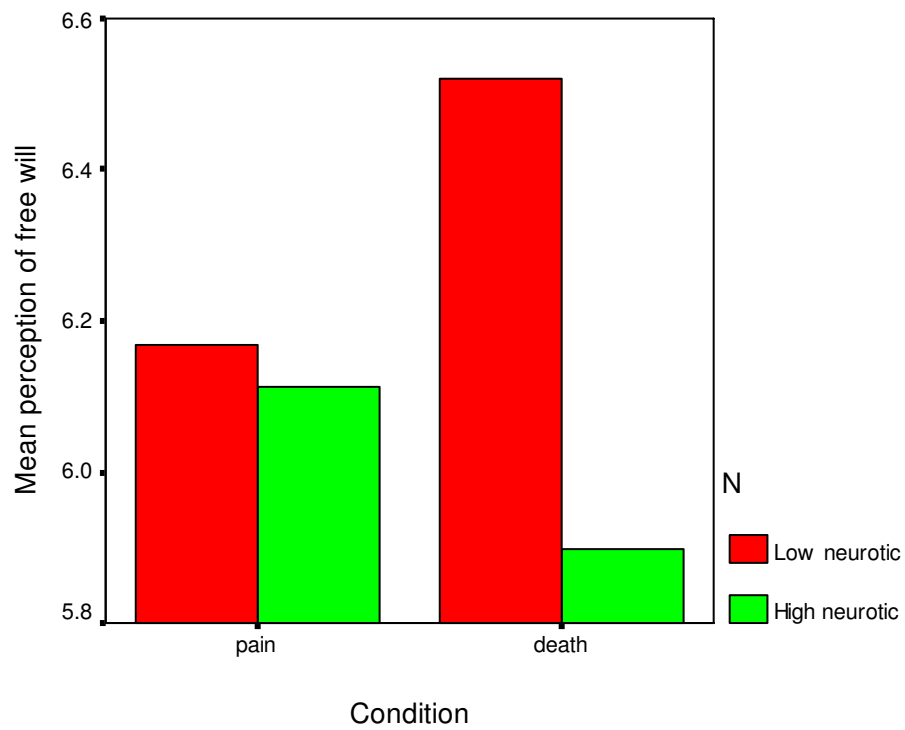
<ul style="list-style-type: none"> • <u>Proximal Defense</u> 	<ul style="list-style-type: none"> • <u>Distal Defense</u>
<ul style="list-style-type: none"> • Deals with conscious thoughts of death at the level at which the threat is construed 	<ul style="list-style-type: none"> • Deals with implicit knowledge of the inevitability of death at a level distal from that at which the threat is construed
<ul style="list-style-type: none"> • Removes death-related thoughts from consciousness and/or pushes death into the distant future 	<ul style="list-style-type: none"> • Embeds individual as variable member of an eternal death-transcending reality
<ul style="list-style-type: none"> • Rational 	<ul style="list-style-type: none"> • Experiential
<ul style="list-style-type: none"> • Occurs immediately after mortality salience 	<ul style="list-style-type: none"> • Occurs after distraction from mortality salience
<ul style="list-style-type: none"> • Does not occur in response to subliminal death stimuli 	<ul style="list-style-type: none"> • Occurs immediately in response to subliminal death stimuli

Source: Pyszczynski et al., 1999.

Table 2. Three factors extracted from Viney et al.'s (1982) Free-Will/ Determinism scale.

<p><u>Factor 1</u> (Generally measuring perceptions of Free-Will proper)</p>	<p>consisting of items 1, 2 and 4 on the modified version of Viney et al.'s (1982) scale</p>	<p>1. To what extent do you believe that you have free will? _____</p> <p>2. To what extent do you believe that people in general have free will? _____</p> <p>4. Are there social conditions which interfere with free will?</p>	<p>accounted for 31.55% of the variance</p>
<p><u>Factor 2</u> (Limitations upon FW)</p>	<p>consisting of items 5, 6 and 7</p>	<p>5. To what extent do physical health problems interfere with free will? _____</p> <p>6. Does level of intelligence place restrictions on free will? _____</p> <p>7. Do mental problems place restrictions on free will?</p>	<p>accounted for 21.78% of the variance</p>
<p><u>Factor 3</u> (Morality and free will)</p>	<p>comprised of item 8</p>	<p>8. What is the source of human morality (people's sense of right and wrong)?</p>	<p>accounted for 12.70% of the variance</p>

Fig. 1. Bar graph of mean Free-will for high and low neurotics respectively as a function of condition.



Appendix A: Materials for Study 1

On the following pages you will find a series of personality, attitude and judgment questionnaires.

There are no right or wrong, or good or bad answers; rather different responses reflect different personalities, attitudes and judgment styles. Please respond honestly and naturally to each question and complete the questionnaires in the order that they appear in the packet. Your responses to these questions are completely anonymous and will be used for research purposes only.

Below are 40 pairs of statements. Please read each pair and choose the statement that is closer to your own feelings and beliefs. Indicate your answer by circling the letter "A" or "B." Please do not skip any items.

		Statement that is closer to you:	
1.	A: I have a natural talent for influencing people. B: I am not good at influencing people.	A	B
2.	A: Modesty doesn't become me. B: I am essentially a modest person.	A	B
3.	A: I would do almost anything on a dare. B: I tend to be a fairly cautious person.	A	B
4.	A: When people compliment me I sometimes get embarrassed. B: I know that I am good because everybody keeps telling me so.	A	B
5.	A: The thought of ruling the world frightens the hell out of me. B: If I ruled the world it would be a much better place.	A	B
6.	A: I can usually talk my way out of anything. B: I try to accept the consequences of my behavior.	A	B
7.	A: I prefer to blend in with the crowd. B: I like to be the center of attention.	A	B
		Statement that is closer to you:	
8.	A: I will be a success. B: I am not too concerned about success.	A	B
9.	A: I am no better or no worse than most people. B: I think I am a special person.	A	B
10.	A: I am not sure if I would make a good leader. B: I see myself as a good leader.	A	B
11.	A: I am assertive. B: I wish I were more assertive.	A	B
12.	A: I like having authority over people. B: I don't mind following orders.	A	B
13.	A: I find it easy to manipulate people. B: I don't like it when I find myself manipulating people.	A	B

14	A: I insist upon getting the respect that is due me. · B: I usually get the respect that I deserve.	A	B
15	A: I don't particularly like to show off my body. · B: I like to display my body.	A	B
16	A: I can read people like a book. · B: People are sometimes hard to understand.	A	B
17	A: If I feel competent, I am willing to take responsibility for making decisions. · B: I like to take responsibility for making decisions.	A	B
18	A: I just want to be reasonably happy. · B: I want to amount to something in the eyes of the world.	A	B
19	A: My body is nothing special. · B: I like to look at my body.	A	B
20	A: I try not to be a show off. · B: I am apt to show off if I get the chance.	A	B
21	A: I always know what I am doing. · B: Sometimes I am not sure of what I am doing.	A	B
22	A: I sometimes depend on people to get things done. · B: I rarely depend on anyone else to get things done.	A	B
23	A: Sometimes I tell good stories. · B: Everybody likes to hear my stories.	A	B
24	A: I expect a great deal from other people. · B: I like to do things for other people.	A	B
25	A: I will never be satisfied until I get all that I deserve. · B: I take my satisfactions as they come.	A	B
26	A: Compliments embarrass me. · B: I like to be complimented.	A	B
27	A: I have a strong will to power. · B: Power for its own sake doesn't interest me.	A	B
		Statement that is closer to you:	

28	A: I don't very much care about new fads and fashions. · B: I like to start new fads and fashions.	A	B
29	A: I like to look at myself in the mirror. · B: I am not particularly interested in looking at myself in the mirror.	A	B
30	A: I really like to be the center of attention. · B: It makes me uncomfortable to be the center of attention.	A	B
31	A: I can live my life in any way I want to. · B: People can't always live their lives in terms of what they want.	A	B
32	A: Being an authority doesn't mean that much to me. · B: People always seem to recognize my authority.	A	B

33	A: I would prefer to be a leader. · B: It makes little difference to me whether I am a leader or not.	A	B
34	A: I am going to be a great person. · B: I hope I am going to be successful.	A	B
35	A: People sometimes believe what I tell them. · B: I can make anybody believe anything I want them to.	A	B
36	A: I am a born leader. · B: Leadership is a quality that takes a long time to develop.	A	B
37	A: I wish somebody would someday write my biography. · B: I don't like people to pry into my life for any reason.	A	B
38	A: I get upset when people don't notice how good I look when I go out in public. · B: I don't mind blending into the crowd when I go out in public.	A	B
39	A: I am more capable than other people. · B: There is a lot that I can learn from other people.	A	B
40	A: I am much like everybody else. · B: I am an extraordinary person.	A	B

INSTRUCTIONS: Here are a number of characteristics that may or may not apply to you. For example, do you agree that you are someone who likes to spend time with others? Please circle a number (from 1 = "Disagree strongly" to 5 = "Agree strongly") for each statement to indicate the extent to which you agree or disagree with that statement.

	I see myself as Someone Who....:	Disagree Strongly	Disagree A Little	Neither Disagree nor Agree	Agree A Little	Agree Strongly
1 .	is talkative.	1	2	3	4	5
2 .	tends to find fault with others.	1	2	3	4	5
3 .	does a thorough job.	1	2	3	4	5
	I see myself as Someone Who....:	Disagree Strongly	Disagree A Little	Neither Disagree nor Agree	Agree A Little	Agree Strongly
4 .	is depressed, blue.	1	2	3	4	5
5 .	is original, comes up with new ideas.	1	2	3	4	5
6 .	is reserved.	1	2	3	4	5
7 .	is helpful and unselfish with others.	1	2	3	4	5
8 .	can be somewhat careless.	1	2	3	4	5
9 .	is relaxed, handles stress well.	1	2	3	4	5
10 .	is curious about many different things.	1	2	3	4	5

1 1 .	is full of energy.	1	2	3	4	5
1 2 .	starts quarrels with others.	1	2	3	4	5
1 3 .	is a reliable worker.	1	2	3	4	5
1 4 .	can be tense.	1	2	3	4	5
1 5 .	is ingenious, a deep thinker.	1	2	3	4	5
1 6 .	generates a lot of enthusiasm.	1	2	3	4	5
1 7 .	has a forgiving nature.	1	2	3	4	5
1 8 .	tends to be disorganized.	1	2	3	4	5
1 9 .	worries a lot.	1	2	3	4	5
2 0 .	has an active imagination.	1	2	3	4	5
2 1 .	tends to be quiet.	1	2	3	4	5
2 2 .	is generally trusting.	1	2	3	4	5
2 3 .	tends to be lazy.	1	2	3	4	5
2 4 .	is emotionally stable, not easily upset.	1	2	3	4	5
2	is inventive.	1	2	3	4	5

5 .						
2 6 .	has an assertive personality.	1	2	3	4	5
2 7 .	can be cold and aloof.	1	2	3	4	5
2 8 .	perseveres until the task is finished.	1	2	3	4	5
2 9 .	can be moody.	1	2	3	4	5
3 0 .	values artistic, aesthetic experiences.	1	2	3	4	5
3 1 .	is sometimes shy, inhibited.	1	2	3	4	5
3 2 .	is considerate and kind to almost everyone.	1	2	3	4	5
3 3 .	does things efficiently.	1	2	3	4	5
3 4 .	remains calm in tense situations.	1	2	3	4	5
	I see myself as Someone Who....:	Disagree Strongly	Disagree A Little	Neither Disagree nor Agree	Agree A Little	Agree Strongly
3 5 .	prefers work that is routine.	1	2	3	4	5
3 6 .	is outgoing, sociable.	1	2	3	4	5
3 7 .	is sometimes rude to others.	1	2	3	4	5
3 8	makes plans and follows through with them.	1	2	3	4	5

.						
3 9 .	gets nervous easily.	1	2	3	4	5
4 0 .	likes to reflect, play with ideas.	1	2	3	4	5
4 1 .	has few artistic interests.	1	2	3	4	5
4 2 .	likes to cooperate with others.	1	2	3	4	5
4 3 .	is easily distracted.	1	2	3	4	5
4 4 .	is sophisticated in art, music, or literature.	1	2	3	4	5

On the following page there are a couple of open-ended questions.
Please respond to them with your first, natural response.

We are just looking for people's gut-level reactions to these
questions.

The Projective Life Attitudes Assessment

This assessment is a recently developed, innovative personality assessment. Recent research suggests that the feelings and attitudes about significant aspects of life tell us a considerable amount about the individual's personality. Your responses to this survey will be content analyzed in order to assess certain dimensions of your personality. Your honest responses to the following questions will be appreciated.

- 1. PLEASE DESCRIBE THE EMOTIONS THAT THE THOUGHT OF YOUR OWN DEATH AROUSES IN YOU.**

- 2. WRITE DOWN AS SPECIFICALLY AS YOU CAN, WHAT YOU THINK WILL HAPPEN TO YOU PHYSICALLY WHEN YOU DIE.**

The Projective Life Attitudes Assessment

This assessment is a recently developed, innovative personality assessment. Recent research suggests that the feelings and attitudes about significant aspects of life tell us a considerable amount about the individual's personality. Your responses to this survey will be content analyzed in order to assess certain dimensions of your personality. Your honest responses to the following questions will be appreciated.

- 1. PLEASE DESCRIBE THE EMOTIONS THAT THE THOUGHT OF BEING IN INTENSE PAIN AROUSES IN YOU.**

- 2. WRITE DOWN AS SPECIFICALLY AS YOU CAN, WHAT YOU THINK WILL HAPPEN TO YOU PHYSICALLY AS YOU ARE IN INTENSE PAIN.**

This scale consists of a number of words and phrases that describe different feelings and emotions. Read each item and then mark the appropriate answer in the space next to that word. Indicate **to what extent you feel this way right now**. Use the following scale to record your answers.

1	2	3	4	5
very slightly	a little	moderately	quite a bit	extremely
or not at all				
___ cheerful	___ sad	___ active	___ angry at self	
___ disgusted	___ calm	___ guilty	___ enthusiastic	
___ attentive	___ afraid	___ joyful	___ downhearted	
___ bashful	___ tired	___ nervous	___ sheepish	
___ sluggish	___ amazed	___ lonely	___ distressed	
___ daring	___ shaky	___ sleepy	___ blameworthy	
___ surprised	___ happy	___ excited	___ determined	
___ strong	___ timid	___ hostile	___ frightened	
___ scornful	___ alone	___ proud	___ astonished	
___ relaxed	___ alert	___ jittery	___ interested	
___ irritable	___ upset	___ lively	___ loathing	
___ delighted	___ angry	___ ashamed	___ confident	
___ inspired	___ bold	___ at ease	___ energetic	
___ fearless	___ blue	___ scared	___ concentrating	
___ disgusted with self	___ shy	___ drowsy	___ dissatisfied with self	

Literary Preference Questionnaire

Please read the following short passage from a novel and answer the questions below it.

The automobile swung clumsily around the curve in the red sandstone trail, now a mass of mud. The headlights suddenly picked out in the night—first on one side of the road, then on the other—two wooden huts with sheet metal roofs. On the right near the second one, a tower of course beams could be made out in the light fog. From the top of the tower a metal cable, invisible at its starting-point, shone as it sloped down into the light from the car before disappearing behind the embankment that blocked the road. The car slowed down and stopped a few yards from the huts.

The man who emerged from the seat to the right of the driver labored to extricate himself from the car. As he stood up, his huge, broad frame lurched a little. In the shadow beside the car, solidly planted on the ground and weighed down by fatigue, he seemed to be listening to the idling motor. Then he walked in the direction of the embankment and entered the cone of light from the headlights. He stopped at the top of the slope, his broad back outlined against the darkness. After a moment he turned around. In the light from the dashboard he could see the chauffeur's black face, smiling. The man signaled and the chauffeur turned off the motor. At once a vast cool silence fell over the trail and the forest. Then the sound of the water could be heard.

The man looked at the river below him, visible solely as a broad dark motion flecked with occasional shimmers. A denser motionless darkness, far beyond, must be the other bank. By looking fixedly, however, one could see on that still bank a yellowish light like an oil lamp in the distance. The big man turned back toward the car and nodded. The chauffeur switched off the lights, turned them on again, then blinked them regularly. On the embankment the man appeared and disappeared, taller and more massive each time he came back to life. Suddenly, on the other bank of the river, a lantern held up by an invisible arm back and forth several times. At a final signal from the lookout, the man disappeared into the night. With the lights out, the river was shining intermittently. On each side of the road, the dark masses of forest foliage stood out against the sky and seemed very near. The fine rain that had soaked the trail an hour earlier was still hovering in the warm air, intensifying the silence and immobility of this broad clearing in the virgin forest. In the black sky misty stars flickered.

How do you feel about the overall descriptive qualities of the story?

1	2	3	4	5	6	7	8	9
not at all			somewhat			very		
descriptive			descriptive			descriptive		

Do you think the author of this story is male or female?

_____ male _____ female

FWD Scale

Some people believe that there are few restrictions on free will; others believe in free will, but view it as very delicate; still others deny altogether that free will exists. Please answer the following questions by circling the number that best approximates your feelings.

To what extent do you believe that you have free will?

1	2	3	4	5	6	7	8	9
Not at all			Somewhat			Completely		

To what extent do you believe that people in general have free will?

1	2	3	4	5	6	7	8	9
Not at all			Somewhat			Completely		

When does free will first occur in humans?

1	2	3	4	5	6	7	8	9
Very early in Infancy			Gradually during adolescence			Only in adulthood if ever		

Are there social conditions which interfere with free will?

1	2	3	4	5	6	7	8	9
Free will is delicate so it can only occur in the absence of oppressive social conditions			Free will is somewhat limited by social conditions			Free will is so basic that there are few social conditions that interfere with it		

To what extent do physical health problems interfere with free will?

1	2	3	4	5	6	7	8	9
Not at all			Somewhat			Extensively		

Does level of intelligence place restrictions on free will?

1	2	3	4	5	6	7	8	9
Not at all; even retarded people have free will			Somewhat; low intelligence may restrict free will			Extensively; severely retarded people have no free will		

Do mental problems place restrictions on free will?

1	2	3	4	5	6	7	8	9
Not at all even the mentally ill have free will			Somewhat; severe disturbances may interfere with free will			Extensively; even mild mental disturbances interferes with free will		

What is the source of human morality (people's sense of right and wrong)?

1	2	3	4	5	6	7	8	9
Truly moral behavior must always be based on choice or free will						Moral behavior has nothing to do with free will; morality is a label to describe socially acceptable behavior		

DEMOGRAPHIC INFORMATION:

GENDER: FEMALE _____ MALE _____ AGE: _____

Where were you born? Country: _____ State/Province: _____

What race would best describe you?

- | | |
|-----------------------|---------------------------|
| 1. Asian American | 2. African American |
| 3. Latino/Hispanic | 4. West Indian |
| 5. White/non-Hispanic | 6. Other (specify): _____ |

What religion best describes you?

- | | | |
|--------------------------|----------------------------------|-------------------------|
| 1. Buddhist | 2. Catholic/Christian/Protestant | |
| 3. Jewish – Non-Orthodox | 4. Jewish – Orthodox | |
| 5. Hindu | 6. Islamic/Muslim | 7. Other (specify) ____ |

On a scale of 1 10 (1= not at all, 10= completely), how religious are you? _____

How would you describe your political orientation?

1	2	3	4	5	6	7	8	9
very	some	what	moderate		some	what		very
conservative		conservative				liberal		liberal

Do you intend to vote in the next Presidential election? YES _____ NO _____

What year of college are you in?

- | | | |
|-------------|--------------|---------------------------|
| 1. Freshman | 2. Sophomore | |
| 3. Junior | 4. Senior | 5. Other (specify): _____ |

What is your (approx.) GPA in college (or high school if you are a freshman) (0 – 4)? ____

Thank you for your participation in this experiment.

Appendix B: Materials for Study 2

On the following pages you will find a series of personality, attitude and judgment questionnaires. There are no right or wrong, or good or bad answers; rather different responses reflect different personalities, attitudes and judgment styles. Please respond honestly and naturally to each question and complete the questionnaires in the order that they appear in the packet. Your responses to these questions are completely anonymous and will be used for classroom purposes only.

INSTRUCTIONS: Here are a number of characteristics that may or may not apply to you. For example, do you agree that you are someone who likes to spend time with others? Please circle a number (from 1 = "Disagree strongly" to 5 = "Agree strongly") for each statement to indicate the extent to which you agree or disagree with that statement.

	I see myself as Someone Who....:	Disagree Strongly	Disagree A Little	Neither Disagree nor Agree	Agree A Little	Agree Strongly
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4 .	is depressed, blue.	1	2	3	4	5
5 .	is original, comes up with new ideas.	1	2	3	4	5
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7 .	is helpful and unselfish with others.	1	2	3	4	5
8 .	can be somewhat careless.	1	2	3	4	5
9 .	is relaxed, handles stress well.	1	2	3	4	5
10 .	is curious about many different things.	1	2	3	4	5
11 .	is full of energy.	1	2	3	4	5

1 2 ·	starts quarrels with others.	1	2	3	4	5
1 3 ·	is a reliable worker.	1	2	3	4	5
1 4 ·	can be tense.	1	2	3	4	5
1 5 ·	is ingenious, a deep thinker.	1	2	3	4	5
1 6 ·	generates a lot of enthusiasm.	1	2	3	4	5
1 7 ·	has a forgiving nature.	1	2	3	4	5
1 8 ·	tends to be disorganized.	1	2	3	4	5
1 9 ·	worries a lot.	1	2	3	4	5
2 0 ·	has an active imagination.	1	2	3	4	5
2 1 ·	tends to be quiet.	1	2	3	4	5
2 2 ·	is generally trusting.	1	2	3	4	5
2 3 ·	tends to be lazy.	1	2	3	4	5
2 4 ·	is emotionally stable, not easily upset.	1	2	3	4	5
2 5 ·	is inventive.	1	2	3	4	5

2 6 .	has an assertive personality.	1	2	3	4	5
2 7 .	can be cold and aloof.	1	2	3	4	5
2 8 .	perseveres until the task is finished.	1	2	3	4	5
2 9 .	can be moody.	1	2	3	4	5
3 0 .	values artistic, aesthetic experiences.	1	2	3	4	5
3 1 .	is sometimes shy, inhibited.	1	2	3	4	5
3 2 .	is considerate and kind to almost everyone.	1	2	3	4	5
3 3 .	does things efficiently.	1	2	3	4	5
3 4 .	remains calm in tense situations.	1	2	3	4	5
	I see myself as Someone Who.....:	Disagree Strongly	Disagree A Little	Neither Disagree nor Agree	Agree A Little	Agree Strongly
3 5 .	prefers work that is routine.	1	2	3	4	5
3 6 .	is outgoing, sociable.	1	2	3	4	5
3 7 .	is sometimes rude to others.	1	2	3	4	5
3 8 .	makes plans and follows through with them.	1	2	3	4	5

3 9 .	gets nervous easily.	1	2	3	4	5
4 0 .	likes to reflect, play with ideas.	1	2	3	4	5
4 1 .	has few artistic interests.	1	2	3	4	5
4 2 .	likes to cooperate with others.	1	2	3	4	5
4 3 .	is easily distracted.	1	2	3	4	5
4 4 .	is sophisticated in art, music, or literature.	1	2	3	4	5

Read each of the following statements and decide how much you agree with each according to your attitudes, beliefs, and experiences. It is important for you to realize that there are no "right" or "wrong" answers to these questions. People are different, and we are interested in how you feel. Please respond according to the following 6- point scale.

1= strongly disagree

4= slightly agree

2= moderately disagree

5= moderately agree

3= slightly disagree

6= strongly agree

1. It upsets me to go into a situation without knowing what I can expect from it.
2. I'm not bothered by things that interrupt my daily routine.
3. I enjoy having a clear and structured mode of life.
4. I like to have a place for everything and everything in its place.
5. I enjoy being spontaneous.
6. I find that a well- ordered life with regular hours makes my life tedious.
7. I don't like situations that are uncertain.
8. I hate to change my plans at the last minute.
9. I hate to be with people who are unpredictable.
10. I find that a consistent routine enables me to enjoy life more.
11. I enjoy the exhilaration of being in unpredictable situations.
12. I become uncomfortable when the rules in a situation are not clear.

On the following page there are a couple of open-ended questions. Please respond to them with your first, natural response.

We are just looking for people's gut-level reactions to these questions.

The Projective Life Attitudes Assessment

This assessment is a recently developed, innovative personality assessment. Recent research suggests that the feelings and attitudes about significant aspects of life tell us a considerable amount about the individual's personality. Your responses to this survey will be content analyzed in order to assess certain dimensions of your personality. Your honest responses to the following questions will be appreciated.

PLEASE DESCRIBE THE EMOTIONS THAT THE THOUGHT OF YOUR OWN DEATH AROUSES IN YOU.

WRITE DOWN AS SPECIFICALLY AS YOU CAN, WHAT YOU THINK WILL HAPPEN TO YOU PHYSICALLY WHEN YOU DIE.

The Projective Life Attitudes Assessment

This assessment is a recently developed, innovative personality assessment. Recent research suggests that the feelings and attitudes about significant aspects of life tell us a considerable amount about the individual's personality. Your responses to this survey will be content analyzed in order to assess certain dimensions of your personality. Your honest responses to the following questions will be appreciated.

3. PLEASE DESCRIBE THE EMOTIONS THAT THE THOUGHT OF BEING IN INTENSE PAIN AROUSES IN YOU.

4. WRITE DOWN AS SPECIFICALLY AS YOU CAN, WHAT YOU THINK WILL HAPPEN TO YOU PHYSICALLY AS YOU ARE IN INTENSE PAIN.

This scale consists of a number of words and phrases that describe different feelings and emotions. Read each item and then mark the appropriate answer in the space next to that word. Indicate **to what extent you feel this way right now**. Use the following scale to record your answers.

1	2	3	4	5
very slightly	a little	moderately	quite a bit	extremely
or not at all				
___ cheerful	___ sad	___ active	___ angry at self	
___ disgusted	___ calm	___ guilty	___ enthusiastic	
___ attentive	___ afraid	___ joyful	___ downhearted	
___ bashful	___ tired	___ nervous	___ sheepish	
___ sluggish	___ amazed	___ lonely	___ distressed	
___ daring	___ shaky	___ sleepy	___ blameworthy	
___ surprised	___ happy	___ excited	___ determined	
___ strong	___ timid	___ hostile	___ frightened	
___ scornful	___ alone	___ proud	___ astonished	
___ relaxed	___ alert	___ jittery	___ interested	
___ irritable	___ upset	___ lively	___ loathing	
___ delighted	___ angry	___ ashamed	___ confident	
___ inspired	___ bold	___ at ease	___ energetic	
___ fearless	___ blue	___ scared	___ concentrating	
___ disgusted with	___ shy	___ drowsy	___ dissatisfied	
self			with self	

Literary Preference Questionnaire

Please read the following short passage from a novel and answer the questions below it.

The automobile swung clumsily around the curve in the red sandstone trail, now a mass of mud. The headlights suddenly picked out in the night—first on one side of the road, then on the other—two wooden huts with sheet metal roofs. On the right near the second one, a tower of course beams could be made out in the light fog. From the top of the tower a metal cable, invisible at its starting-point, shone as it sloped down into the light from the car before disappearing behind the embankment that blocked the road. The car slowed down and stopped a few yards from the huts.

The man who emerged from the seat to the right of the driver labored to extricate himself from the car. As he stood up, his huge, broad frame lurched a little. In the shadow beside the car, solidly planted on the ground and weighed down by fatigue, he seemed to be listening to the idling motor. Then he walked in the direction of the embankment and entered the cone of light from the headlights. He stopped at the top of the slope, his broad back outlined against the darkness. After a moment he turned around. In the light from the dashboard he could see the chauffeur's black face, smiling. The man signaled and the chauffeur turned off the motor. At once a vast cool silence fell over the trail and the forest. Then the sound of the water could be heard.

The man looked at the river below him, visible solely as a broad dark motion flecked with occasional shimmers. A denser motionless darkness, far beyond, must be the other bank. By looking fixedly, however, one could see on that still bank a yellowish light like an oil lamp in the distance. The big man turned back toward the car and nodded. The chauffeur switched off the lights, turned them on again, then blinked them regularly. On the embankment the man appeared and disappeared, taller and more massive each time he came back to life. Suddenly, on the other bank of the river, a lantern held up by an invisible arm back and forth several times. At a final signal from the lookout, the man disappeared into the night. With the lights out, the river was shining intermittently. On each side of the road, the dark masses of forest foliage stood out against the sky and seemed very near. The fine rain that had soaked the trail an hour earlier was still hovering in the warm air, intensifying the silence and immobility of this broad clearing in the virgin forest. In the black sky misty stars flickered.

How do you feel about the overall descriptive qualities of the story?

1	2	3	4	5	6	7	8	9
not at all			somewhat			very		
descriptive			descriptive			descriptive		

Do you think the author of this story is male or female?

_____ male _____ female

Opinion Survey (No Threat condition)

Last semester, we asked 50 Brooklyn College undergraduates to write brief essays about their opinions. Specifically, they were instructed “to write a paragraph about some of your current opinions, in a way that expresses the opinion and the reasons behind it.” To get topics that everyone could relate to, we asked them to write about their opinions related to current university issues that face students.

Today you will read one of these essays. Please read it, see what you think about it, and then answer the questions that follow on the next two pages.

ESSAY:

A beneficial addition to Brooklyn College would be the addition of a major in advertising. Right now Brooklyn College doesn't have one, but having an advertising major would help the university and the students. For one, we could increase the number of students at the university because more people would come here to study the new major. Students who are already here would also have more choices for majors. Brooklyn College would also be able to make connections with big companies, and this could help more students get good jobs after college. And a survey of communications students found that they liked the idea of an advertising major. For people who don't want to major in advertising, they could take the introductory classes which would probably be pretty interesting for most people.

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For each of the following questions, please circle the number that best reflects your opinion.

1. How much do you agree with the author?

1 2 3 4 5 6 7
not at all *somewhat* *very much*

2. How do you feel about Brooklyn College adding a major in advertising?

1 2 3 4 5 6 7
very negatively *somewhat* *very positively*

3. How similar is your attitude to the author's attitude?

1 2 3 4 5 6 7
very different *somewhat* *very similar*

4. The author was pressuring me to agree with him/her.

1 2 3 4 5 6 7
not at all *somewhat* *very much*

5. The author was trying too hard to persuade me.

1 2 3 4 5 6 7
not at all *somewhat* *very much*

6. The author was trying to keep me from making up my own mind about the topic.

1	2	3	4	5	6	7
<i>not at all</i>		<i>somewhat</i>			<i>very much</i>	

7. The author was pushy.

1	2	3	4	5	6	7
<i>not at all</i>		<i>somewhat</i>			<i>very much</i>	

8. The author seems like a friendly person.

1	2	3	4	5	6	7
<i>not at all</i>		<i>somewhat</i>			<i>very much</i>	

9. If we met, I would probably like the author.

1	2	3	4	5	6	7
<i>not at all</i>		<i>somewhat</i>			<i>very much</i>	

10. How similar are you to the author?

1	2	3	4	5	6	7
<i>not at all</i>		<i>somewhat</i>			<i>very similar</i>	

11. How sincere is the author?

1	2	3	4	5	6	7
<i>not at all</i>		<i>somewhat</i>			<i>very sincere</i>	

12. How open-minded is the author?

1 2 3 4 5 6 7
not at all *somewhat* *very open-minded*

13. How qualified is the author to write about this topic?

1 2 3 4 5 6 7
not at all *somewhat* *very qualified*

14. Does the author seem like an expert on this topic?

1 2 3 4 5 6 7
not at all *somewhat* *definitely*

15. Were you criticizing the essay while you were reading it?

1 2 3 4 5 6 7
not at all *somewhat* *very much*

16. While reading the essay, were you thinking of points that went against the author's arguments?

1 2 3 4 5 6 7
not at all *somewhat* *very much*

17. While reading the essay, were you feeling skeptical of the author's arguments?

1 2 3 4 5 6 7
not at all *somewhat* *very much*

DEMOGRAPHIC INFORMATION:

GENDER: _____ FEMALE _____ MALE

AGE: _____

RIGHT HANDED _____ LEFT HANDED _____

Is English your FIRST language? 1. YES 2. NO

Is English your BEST language? 1. YES 2. NO

Where were you born? Country: _____ State/Province: _____

What race would best describe you?

- | | |
|-----------------------|---------------------------|
| 1. Asian American | 2. African American |
| 3. Latino/Hispanic | 4. West Indian |
| 5. White/non-Hispanic | 6. Other (specify): _____ |

What religion best describes you?

- | | | |
|--------------------------|----------------------------------|-------------------------|
| 1. Buddhist | 2. Catholic/Christian/Protestant | |
| 3. Jewish – Non-Orthodox | 4. Jewish – Orthodox | |
| 5. Hindu | 6. Islamic/Muslim | 7. Other (specify) ____ |

On a scale of 1 10 (1= not at all, 10= completely), how religious are you? _____

What year of college are you in?

- | | | |
|-------------|--------------|---------------------------|
| 1. Freshman | 2. Sophomore | |
| 3. Junior | 4. Senior | 5. Other (specify): _____ |

How would you describe your **political orientation**?

1	2	3	4	5	6	7	8	9
very	somewhat		moderate		somewhat		very	
conservative	conservative				liberal		liberal	

What is your (approx.) GPA in college (or high school if you are a freshman) (0 – 4)? ____

Thank you for your participation in this experiment.

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