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# Investigation of personal and collective mortality threats in individualistic and collectivist cultures: A cross cultural study.

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Investigation of personal and collective mortality threats in individualistic and collectivist  
cultures: A cross cultural study.

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A dissertation submitted to the Graduate Faculty of

JAMES MADISON UNIVERSITY

In

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## Abstract

The purpose of this study was to expand our knowledge of the ways in which people defend their worldviews under conditions of threat. Within the framework of Terror Management Theory (TMT), mortality salience (MS) in individualistic and collectivist cultures was investigated. Specifically, this study sought to directly examine MS effects as they relate to personal mortality and collective mortality. To accomplish this analysis, a 2 (Country: Russia and the U.S.) X 3 (Condition: Personal Mortality Salience, Collective Mortality Salience, and Control) design was employed. The current study consisted of undergraduate student participants from two cultures: U.S. and Russia. The overall sample consisted of 308 participants, consisting of 100 males and 208 females ( $M = 19.44$  years,  $SD = 2.19$ ; academic level  $M = 2.14$ ,  $SD = 1.15$ ). The design of the study followed a typical experimental TMT procedure. The Personal Mortality Salience condition included an MS induction where participants were asked to describe the thoughts that arise regarding their own death. The delay tasks including assessment of affect, individualism-collectivism, followed by the worldview defense measure (author evaluations of pro and anti-nationalistic essays). The Control condition differed only in induction which asked participants to imagine a visit to a dentist's office. In addition to the typical procedure, a third condition Collective Mortality Salience, was included to assess potential for differences in Personal (typical) or Collective Mortality Salience compared to controls in individualistic and collectivistic cultures. The findings yielded no significant results between the three conditions. Discussion of results including limitations and future directions for research are examined.

## CHAPTER I: INTRODUCTION

This project sought to extend the body of research on Terror Management Theory. Terror Management Theory (TMT) (Greenberg, Pyszcznski & Solomon, 1986) is the idea that death awareness is a central aspect of the human condition and that much of human psychological organization is structured around managing the anxiety that results from the human capacity to be aware of one's ultimate demise. An examination of the world's great religions (e.g., Christianity, Islam) reveals many components and ideas that might well be interpreted as potentially assuaging death anxiety. In 1973, in a highly influential book, the existential and analytic author Ernst Becker wrote *The Denial of Death*, which placed death anxiety at the core of human existence and attempted to articulate the many different ways in which death anxiety might function and be coped with and defended against.

TMT posits two main hypotheses: the mortality salience hypothesis and the self-esteem as an anxiety buffer hypothesis. The mortality salience hypothesis holds that people when reminded of their mortality, will react more favorably towards others and ideas that support and validate their cultural worldview and negatively towards others and ideas that challenge or deviate from their worldview. Additionally, people will strive to enhance their self-esteem to secure their self-worth as important and special in upholding the cultural worldview and extending their symbolic immortality. The self-esteem hypothesis claims that self-esteem acts as an anxiety buffer and that enhancement of self-esteem increases this buffer against anxiety and fear of death. Additionally, individuals with high self-esteem are less likely to exhibit anxiety-related feelings and behaviors (defensive reactions) when faced with actual or symbolic mortality

TMT research has supported the above hypotheses, evidencing that reminders of death affect social allegiances and intergroup hostilities based on cultural aspects such as ethnicity (Castano, 2004; Motyl et al., 2011); race (Greenberg, Schimel, Martens, Solomon, & Pyszcznski, 2001); political affiliation, and nationality (Jonas, Fritsche, & Greenberg, 2005). Negative responses to reminders of death have included harsher evaluations of others who challenge or threaten one's worldview and positive evaluations of those who support it, increased estimates of social consensus for ones' worldview (Pyszcznski et al., 1996), physical distancing, derogation and physical aggression against those who criticize one's worldview (McGregor et al., 1998, etc.).

Positive responses to mortality salience have included, among others: collective helping behavior, greater generosity and donations to charities, (Jonas et al. 2002), tolerance towards dissimilar others when the value of tolerance was highly accessible (Greenberg, Simon, Pyszczynski, Solomon, & Chatel, 1992), increased pacifist tendencies when primed with pacifist norms (Jonas, Fritsche, Greenberg, Martens, & Niesta, 2006, cited in Niesta, Fritsche, & Jonas 2008). TMT research includes other responses that attempt discredit or reduce threats and increase the impact of support and validation of ones' worldview, but this is beyond the scope of this study.

Although a substantial body of research supports TMT, as evidenced by over 300 studies in 15 different countries, the majority of this research has focused on Western, individualistic cultures. Only a few studies have investigated TMT phenomenon in collectivistic cultures. If TMT is universal, which it purports to be, then examination of TMT and its main hypotheses in non-Western, collectivistic cultures is essential.

In the current study participants were undergraduate students from two different cultures: the U.S. and Russia. The overall sample consisted of 308 participants, consisting of 100 males and 208 females ( $M = 19.44$  years,  $SD = 2.19$ ; academic level  $M = 2.14$ ,  $SD = 1.15$ ) were recruited via from campus and online student sample pool. The design of the study followed a typical experimental TMT procedure. Mortality salience condition which included induction with participants asked to describe the thoughts that arise regarding their own death, delay tasks including assessment of affect, followed by worldview defense measure (author evaluations of pro and anti-nationalistic essays). Control condition differed only in induction which asked participants to imagine a visit to a dentist's office. An addition to the typical procedure a third condition collective mortality salience induction was included to assess potential for differences in personal (typical) or collective mortality salience compared to controls in individualistic and collectivistic cultures. The findings yielded no significant results between the 3 conditions. Discussion of results including limitation and future directions for research are examined.

## CHAPTER II: LITERATURE REVIEW

On the morning of September 11, 2001 Americans (and the world at large) were jolted out of their everyday routines with the remarkable and horrific news that several airliners across the skies were hijacked and then used as missiles, destroying the Twin Towers in New York and badly damaging the Pentagon, killing almost 3000 innocent people. This world event provoked mass mortality salience, particularly in America, but also internationally. Many aspects of the impact and aftermath of this event can be accounted for by TMT. Negative reactions to this event included among others: restrictions on civil liberties, increased political intolerance to various ethnic and religious groups, increased political conservatism, prejudice, discrimination, and desire for punishment, and displaced aggression towards others who were perceived as similar to terrorists, and actual endorsement for violence against the perceived “enemies” of one’s culture. Some of these responses were evidenced in increased Islamophobia, aggression and hostility towards Muslims and middle-eastern individuals. Increases in hate crimes against Arab Americans, Muslims, and similar others (Singh, 2002). Some positive responses to 9/11 were Americans united as citizens of their country, greater patriotism, persistent and continued efforts to fortify faith in the American worldview and its value (Landau et al., 2004; Kosloff, Solomon, Greenberg, et al., 2006). Americans became closer to family and friends, but also to their fellow citizens (Ai, Cascio, Santangelo, & Evans-Campbell, 2005). Other positive reactions included increase in blood donations (Heinrich, 2002), and donation of time and money to charities (Niesta, Fritsche, & Jonas, 2008; Morgan, 2011). Another reactions to 9/11 included increased engagement and interest in politics (Ai et al, 2005; Putnum, 2002), and greater trust in

both local and national government (Morgan, 2011). America's support of the nation's leader increased following 9/11. President Bush's popularity which had been relatively low prior to the attack, skyrocketed following this event. TMT accounts for this response by positing that leaders communicate an ability to provide security from threats, such as an identifiable "evil" (e.g. terrorists) for one's culture to strive against (Arndt & Vess, 2008). As part of the resultant aftermath of 9/11, America declared a "war on terror" and aggressive efforts against terrorists and nations that were viewed as a threat to American, intensified. Such behavior is not specific to the U.S. TMT research has shown that reminders of death have been found to increase British individual's reported willingness to sacrifice themselves for their country (Routledge & Arndt, unpublished); Iranian's support for martyrdom attacks against the US; and American's endorsement of radical military action against countries that are perceived as a threat to the U.S. (Pyszczynski et al. 2006). In sum, TMT has provided a useful framework from which to understand the development of "good" versus "evil" ideologies and their contributions to aggressive and violent conflicts and mitigating factors to peace processes throughout the world (Arndt & Vess, 2008; Niesta, Fritsche, & Jonas, 2008).

Over the past three decades, TMT has been the focus of hundreds of studies, and researchers have empirically documented that mortality salience results in changes in a multitude of different domains including attitudinal changes and behaviors, ranging from: derogation and/or punishment of moral transgressors or dissimilar others; increased stereotypic thinking; increased patriotism; to self-esteem striving and increased prosocial behavior (for summary see Solomon, Greenberg, & Pyszczynski, 2004; Greenberg, Solomon, & Pyszczynski, 1997). This review provides a brief overview of the history of

the construct, key findings and domains, and proceeds to document why additional research across cultures with differing worldviews are necessary. The objective of the current study is to attempt to test the universality of TMT and extend the theory to non-Western, collectivistic cultures.

### **The Denial of Death**

Ernest Becker proposed that psychological needs are a consequence of the existential dilemma that humans are confronted with. Like other animals, humans have strivings for self-preservation and survival. Due to the advanced cognitive capabilities that humans possess, humans are uniquely confronted with an existential crisis: distressing conscious awareness of their inevitable death and their innate striving for survival. This crisis causes an immense potential for debilitating anxiety, which must be controlled and managed in order for us to go about our daily lives. By immersing ourselves in a shared psychological construction that gives purpose and meaning in life, and a sense of permanence, we are able to believe that our human existence is not temporary but, can continue through symbolic immortality, hence death can be transcended.

TMT is grounded in the theoretical and conceptual analysis of Ernst Becker (1973), who theorized that this conflict creates overwhelming anxiety and threat of terror (annihilation anxiety), and that humans engage in many defensive processes by which they manage the potential disquietude.

## **TMT: An Empirical Formulation and Analysis of Becker's Formulation**

Although Becker's analysis of death anxiety had many compelling elements, it was lacking much in the way of scientific analysis and demonstration. Specifically, Becker presented limited experimental evidence that death anxiety resulted in the many and varied defenses that he claimed. The social psychologists Sheldon Solomon, Tom Pyszczynski, and Jeff Greenberg sought to advance Becker's thesis by formulating it into an empirical proposal that could be experimentally analyzed (Greenberg, Solomon, & Pyszczynski, 1997).

Terror Management Theory (TMT) posits that humans are confronted with an existential dilemma that arises out of the conflict between survival instincts and awareness that eventual death is inevitable. TMT proposes a dual process model via which death-related thoughts affect behavior (Pyszczynski, et al. 1999). When first presented with reminders of death, conscious contemplation of mortality first arouses direct proximal defenses, which include the suppression of death-related thoughts or denial of the problem of mortality and one's vulnerability by rationalizing various risk factors (e.g. promising to engage in healthier behavior, increased risk taking, etc.). The proximal defenses serve to push death-related thoughts from conscious awareness. Once such thoughts are no longer in one's consciousness, distal defensive processes are then engaged. These distal defenses, which function to bolster faith in the cultural worldview and one's sense of self-worth, become activated to manage the potential for anxiety brought about by heightened accessibility of implicit death-related thoughts. After these defenses have been engaged, death-thought accessibility dissipates and recedes back to baseline levels. To summarize, direct proximal defenses push death out of awareness, and

it is the distal defenses (symbolic immortality) sustained perception of oneself as a person of value in a world of meaning who upholds the worldview, that allows people to avert the potential for anxiety that results from the increased accessibility of death-related thoughts. TMT proposes that self-esteem and identification with a cultural worldview both function as buffers against death anxiety. The underlying premise of TMT holds that to manage the fear of death and be able to continue through our lives and daily affairs, we consciously or sub-consciously strive to enhance and strengthen our self-esteem and defend our cultural worldview and its associated beliefs and values.

Cultural worldviews are culturally shared beliefs that provide members with the reassurance that they are part of an enduring entity; thus, worldviews are theorized to offer a basis for reducing death anxiety via identification with a culture that will transcend their mortality. Cultural worldviews provide an enduring value system and concept of reality, which in turn helps facilitate individuals' sense of personal value and self-esteem. Self-esteem, according to TMT, is attained by the belief that one is meeting the cultural standards and is a valuable participant in a meaningful universe, and as such one is eligible for mortality transcendence (Greenburg, Solomon, & Pyszczynski, 1997). Thus, individuals that believe they are meeting the standards of their worldview have high self-esteem whereas individuals with low self-esteem perceive a failure in meeting these standards. Self-esteem is crucial in death-related defensive processes in that high self-esteem buffers people from the potential anxiety caused by death-thoughts, thus reducing the threat of death and causing reduced need to defend one's worldview (Harmon-Jones, et al., 1997). The self-esteem that people achieve from adhering to their cultural worldview instills a sense of value and uniqueness in their society. That is, they

feel they are significant beings rather than merely a human whose only fate is ultimate death (Greenburg, Solomon, & Pyszczynski, 1997).

Cultural worldviews are societal creations and require validation from other humans in order to remain significant. Validation of one's cultural worldview occurs through behaving in accordance with the cultural worldview an individual possesses or through other humans conveying positive feedback regarding one's cultural worldview. When other people validate one's cultural worldview, this increases confidence in one's worldview and self-esteem and thus increases the effectiveness of these anxiety-buffering mechanisms. In contrast, when validation of one's cultural worldview does not occur, when others disagree with one's cultural worldview that is held or because people violate its standards, confidence in one's cultural worldview (and one's self-esteem) diminishes. Such diminishment in self-esteem can result in a decreased ability to protect oneself from deeply rooted existential death anxiety (Greenburg, Pyszczynski, Solomon, Pinel, et al., 1993). Due to our inherent longing to feel significant, people respond positively to those who reinforce their worldviews and negatively to those who oppose or threaten them. Hence, TMT asserts that in an effort to protect oneself from death-related anxiety, people aim to maintain and even enhance their self-esteem, faith, and beliefs in their cultural worldview.

The above formulation results in implications and predictions that can be empirically tested. Specifically, the argument from TMT is that reminders of one's inevitable death (mortality salience; MS) should result in increased tendencies toward individuals supporting one's worldview and greater rejection of those with alternative worldviews. This occurs because people with different beliefs and values threaten the

worldview one is invested in. Research has documented support for this prediction in scores of studies.

One of the original tests of TMT was conducted by Rosenblatt, Greenberg, Solomon, Pyszczynski, & Lyon (1989). In a series of experiments, municipal court judges responded to questions regarding their own death (mortality salience induction) and then were required to set bond for an alleged prostitute. The other half of the judges did not receive reminders of their death prior to setting a bond. In support of TMT, the judges who were exposed to the mortality salience induction set higher bonds for an alleged prostitute. Thus, when mortality was made salient, individuals reacted more harshly to these “moral transgressors” who threatened one’s cultural worldview, and engaged worldview defense.

Findings from this seminal study provided evidence that reminders of one’s own death were associated with an increase in punishing those who transgressed one’s moral values while increasing rewards for those who espoused one’s moral values. Since this early study, TMT has been investigated in numerous ways. Although TMT researchers have used a multitude of prompts to make thoughts about death more salient, one frequently used method requires the participant to answer two open-ended questions concerning their own death (e.g. Goldenberg, McCoy, Pyszczynski, Greenberg, & Solomon, 2000). This method prompts the participant to 1) think about what will happen to them as they physically die and 2) describe the emotions they are experiencing while thinking about death. TMT asserts that this method facilitates extensive consideration of mortality, such that death-related thoughts remain highly accessible after becoming primarily subconscious. When the accessibility of these constructs is increased,

individuals will typically exhibit increased worldview defense. These mortality salience effects have been found in response to a range of inductions, including both open-ended and true-false questions about death (Rosentblatt et al., 1989), subliminal presentation of the words “death” or “dead” (Arndt, Greenberg, Pyszczynski, et al., 1997), exposure to graphic videos of automobile accidents (Nelson, Moore, Olivetti, & Scott, 1997) or videos of gory scenes (Greenberg, Pyszczynski, Solomon, Simon, & Breus, 1994), walking past a funeral home (Pyszczynski, Wicklund, et al., 1996), walking through a cemetery (Jonas, Fritsche, & Greenburg, 2005), interviewing participants in close proximity to a funeral home (Jonas, Schimel, Greenberg, & Pyszczynski, 2002). Research has shown that other aversive thoughts that engender fear/anxiety, such as those of physical pain, taking an important exam, public speaking, social exclusion, do not generate parallel effects (e.g. Arndt, et al., 1997, Shimmel et al., 1999).

Several phenomena have been examined in depth through the lens of TMT and researchers have closely investigated in-group favoritism/out-group bias, proximal and distal mechanisms of defense against death anxiety.

### **The Effects of Mortality Salience on In-group Favoritism and Out-group Bias**

Reminders of death have shown to result in mortality salience participants derogation of an outgroup member who had belittled American culture more than an outgroup member that had praised America (Greenburg et al., 1990). In Israel, Florian and Mikulincer (1997) replicated this finding using a variety of moral transgressions, consistently showing that when they were reminded of their own mortality individuals

were more punitive towards people who engaged in moral transgressions that offended their cultural worldviews.

Additionally, mortality salience has been shown to increase resistance to the inappropriate use of cultural icons (Greenburn, Porteus, Simon, Pyszczynski, & Solomon, 1995). Specifically, mortality salience was associated with greater reluctance and distress when participants were maneuvered into using a crucifix and the American flag in an inappropriate manner (Greenberg, Simon, Partens, Pyszczynski & Solomon, 1995).

Mortality salience has been shown to lead to false consensus bias, or falsely believing one's attitudes are held by the majority of society (Pyszczynski et al., 1996). Furthermore, increased in-group bias has been attributed to mortality salience (Harmon-Jones, Greenberg, Solomon, & Simon, 1996), more pro-social behavior towards individuals who praise or share one's cultural worldview (Greenberg, Pyszczynski, Solomon. et al., 1990; Jonas, Schimel, Greenberg & Pyszczynski, 2002), as well as distancing and derogation of others who threaten one's worldview (e.g. Greenberg et al., 1994).

Effects of mortality salience aroused by three different components of the self (personal, social, and human identities) on intergroup bias has also been examined. Agustin (2009) exposed participants to one of four conditions: personal identity (personal mortality salience induction via death by cancer; social identity (threat of bomb to self and others); human identity (human race annihilation via meteor); control (strong toothache). The meteor mortality salience induction was taken from Kashima et al.

(2004) and is described later in the current study. Findings illustrated the smallest difference in the evaluation of the ingroup versus outgroup occurred in the human condition while the largest differences took place in the social identity condition, followed by the personal identity condition and control condition. Thus, mortality salience aroused by threats against our human identity reduced intergroup biases.

Research has also demonstrated that mortality salience increases in-group favoritism, behavioral avoidance of out-group members, prejudice and stereotyping (Ochsmann & Mathy, 1994). When people are reminded of their mortality, they look more positively on others who have similar cultural beliefs and values (Greenberg et al., 1990; Greenberg et al. 1997), and exhibit more negative perceptions of others who hold opposing moral principles or who criticize their cultural worldviews (e.g. Arndt & Greenberg, 1999; Florian & Mikulincer, 1997; Harmon-Jones, Greenberg, Solomon & Simon, 1996; Rosenblatt et al., 1989).

### **The Proximal and Distal Mechanisms of Defense**

According to TMT, there are two distinct modes of defense against the terror of death. TMT research focuses on the psychological mechanisms typically used by people, on a proximal (conscious) or a distal (subconscious, outside conscious awareness) level, to buffer the anxiety produced from the awareness of one's ultimate mortality (Pyszczynski, Greenburn, & Solomon, 1999). Death reminders and death-related thoughts activate direct defenses to minimize the threat (proximal defense) that later trigger symbolic cultural worldview and self-esteem validation defenses (distal defense). According to TMT, conscious awareness of our mortality is managed via rational

defensive strategies that entail either distracting oneself from death related thoughts or using a variety of rationalizing cognitive distortions to distance oneself from the problem of death and push it into the distant future by denying one's vulnerability to anything that might threaten one's continued existence (Greengburg, Arndt, Simon, Pyszczynski, & Solomon, 2000). However, when death-related thoughts are suppressed from conscious awareness by the proximal defenses, the distal defenses must then act in order to maintain the suppression and keep death-related thoughts and anxiety from returning to conscious awareness. Distal defenses that defend against subconscious awareness of death include the pursuit of self-esteem and faith in the cultural worldview, which TMT posits to control death related concerns (Arndt, Goldenberg, Pyszczynski & Solomon, 2000). Thus conscious encounters with death initiate proximal defenses directed at the elimination of such thoughts from explicit awareness. Distal defenses are then activated in response to death thoughts that are highly accessible, but not conscious. Accordingly, research has shown that thoughts of death produce distinctly different behavioral effects depending on whether they involve proximal or distal defenses. For instance, studies show that death reminders in distal mode increased an interest in a variety of high-risk activities for men, but not for women (Hirschberger, Florian, Mikulincer, Goldneberg & Pyszczynski, 2002), and decreased women's interest in sun protection (Routledge, Arndt, & Goldenberg, 2004). However, mortality salience induction in proximal mode to facilitate participant's awareness of death at the conscious level led high school students to report smoking less frequently (Kain & Nelson, 2001), and increased women's interest in sun protection (Routledge et al., 2004). Research has supported the proposition that the effects of mortality salience are greatest when they are accessible but not in focal

consciousness. Greenberg, et al. 1994 conducted a series of studies in which they manipulated intensity of mortality salience induction, delay times and distraction tasks. These researchers found that both increased worldview defense and increased accessibility of death-related thoughts emerged after a delay and distraction, suggesting that MS defensive processes emerge when the problem of our mortality is highly accessible, yet outside of consciousness.

### **Moderating Variables**

Research has demonstrated that there are important individual differences that moderate the size and nature of effects that follow mortality salience. Individual characteristics that have been found to predict how individuals respond to mortality salience include age, gender, political orientation, depression, etc. that moderate defensive responses to reminders of mortality. Various studies have shown that age is negatively associated with death fear; that is, the older one becomes, there is less fear of death (Fortner, Neimeyer, & Rybarczyk, 2000; Gesser, Wong, & Reker, 1988; Maxfield et al., 2007; Rasmussen & Brems, 1996). Additionally some results indicate a curvilinear trend, with death fear high in young adults, highest in middle adulthood, and lowest in old age (Gesser, Wong, & Reker, 1988), but no correlation was found between death fear and age in adults over 60 years of age (Fortner, Neimeyer, & Rybarczyk, 2000). Research has also found a relationship between age and gender, with death anxiety peaking in both men and women during their 20 and declining thereafter. However, women experienced a second elevation in death anxiety during their 50s, but this was not evidenced in men (Ruccas, Gatliff, Reece, & Spottswood, 2007).

Gender differences have been found in some TMT studies. For example, Taubman-Ben-Ari and Findler (2003) found that mortality salience led to higher intentions to drive recklessly only among men who perceived driving as relevant to their self-esteem. Fritsche and Jonas (2005) found that men and women differed in their judgments of pro-women course proposals only under mortality salience conditions. However, some TMT studies have shown women and men were similar defensive reactions in response to mortality salience and no correlation with gender.

Perceptions of death and its meaning are connected to philosophical/religious traditions of Buddhism, Confucianism, among others (Wu, Tang, & Kwok, 2002) and differ among cultures. Within some religions, death is considered merely a transitional state to a better existence. Individuals coming from such a perspective may experience less death anxiety than individuals who adhere to a Christian belief system. One's religious beliefs have also been found to have a moderating effect on death anxiety (Dechesne et al., 2003; Friedman & Rholes, 2008; Jonas & Fischer, 2006).

Another moderating variable that has been found to influence mortality salience effects is political orientation. Pyszczynski, Abdollahi, Solomon, Greenberg, Cohen, and Weise (2006) found that mortality salience increased worldview defense among political conservatives, but not among political liberals, which suggests variations in the cultural worldview or personal philosophy an individual adopts may influence how greatly thoughts of death affect subsequent behavior and attitudes. Thus, particular personal philosophies, with variations in their underlying beliefs and values, may systematically influence the degree to which mortality salience has an effect on subsequent measures of worldview defense (Pyszczynski, et al., 2006).

Political conservatism has also been linked to another moderating variable, nationalism. Research has shown that bolstering national pride is one manifestation of worldview defense, and thus has been used as an outcome measure for mortality salience effects. Kazen et al. (2005) conducted TMT research in Germany, a country whose citizens often hold attitudes toward their nation that are negatively valued or ambivalent (perhaps as a result of historical reasons). The results of two studies found that individuals negatively evaluated national pride. However, action oriented individuals (who are able to self-regulate) following mortality salience induction, changed their attitude to a higher level of national pride. Participant's self-esteem did not appear to be a related factor.

Another study that provided support that mortality salience is associated with national identity was conducted by Jonas, Fritsche & Greenberg (2005) also with German participants. A series of two studies were conducted. Study 1 found that mortality salience inductions led to a decreased liking of the new European currency compared to a control condition, although attitudes toward the German Mark remained unchanged. Study 2 also evidenced a decreased liking to the Euro for a sample of older subjects who were interviewed in front of a cemetery, compared to subjects interviewed several blocks away. Additionally, mortality salience participants exhibited a marginal liking of the German Mark and a preference for German items over non-German items. A recent study (Sekerdej & Kossowska, 2011) found nationalism as a moderating variable. Examination of terrorist threat perception revealed that nationalism mediated the relationship between perceived threat of terrorism and support for domestic policies which limited civil liberties. Individuals higher on nationalism perceived the threat of

terrorism as more serious than those who scored lower on nationalism. This contributed to the former group's approval of more restrictive policies such as the restriction of civil liberties. People high on nationalism and conservatism were more prone to support military actions as a counter-terrorism reaction. Conservatives (especially right-wing conservatives) is associated with nationalism (Dekker et al. 2003) and political conservatism has been correlated with greater death anxiety and fear of threat and loss (Jost, Glaser, Kruglanski, & Sulloway, 2003). Moreover, other studies have shown that individuals higher nationalism tend to view the world as a dangerous place (Altemeyer, 1998). which may promote generalized anxiety (Sekerdej & Kossowska, 2011). This in turn can contribute to a higher fear of change, or of death, which results in a greater defense of one's cultural worldview and a need to control those who might alter the social order even if this results in restricting one's own civil liberties.

Another moderating variable that has been studied is depression. Solomon, Greenberg, and Pyszczynski (1991) indicated that because depressed individuals have "tenuous faith" in their sense of self-worth and their cultural worldview, they may be likely to engage in particularly strong worldview defense when reminded of their own mortality. Many studies have supported their proposition. For example, Simon, Greenberg, Harmon-Jones, , Solomon, and Pyszczynski (1996) conducted a series of studies which found that sub-clinically depressed college students exhibited greater preference for pro-U.S. foreign student than a foreign student who criticized the U.S. (stronger worldview defense), compared to non-depressed college students. Additionally, mildly depressed students showed stronger preference for attitudinally similar other, than

non-depressed students, evidencing again that depressed individuals engaged in greater worldview bolstering responses to mortality salience.

Self-esteem is seen as a vital resource in countering death anxiety and thus is an important tenant in TMT. It is frequently viewed as an essential anxiety buffer that is hypothesized to enhance one's defenses against death awareness (Solomon, Greenberg, and Pyszczynski, 2004). A number of early research studies supported this hypothesis indicating that the elevation of self-esteem (by false personality or IQ feedback) resulted in reducing self-reported anxiety in response to reminders of death and physiological arousal when danger is expected (Greenberg et al., 1992). Consistent with this finding was a study conducted by Harmon-Jones et al. (1997) which showed that individuals with high trait self-esteem were associated with significantly reduced reactions to mortality salience induction. Their worldview defenses did not increase compared to those low in self-esteem. Related to this were studies showing a reduction of the effects of MS regarding psychological resources related to high self-esteem, such as hardiness (Florian et al., 2001) and secure attachment style (Mikulincer & Florian, 2000). In contrast, deficits such as depression (Simon et al., 1996) and neuroticism (Goldenberg, et al., 2000) appear to increase the reactions to MS. Research has shown that individuals mildly depressed with associated low self-esteem expressed greater worldview defense compared to non-depressed individuals. They were also more likely to engage in self-enhancement (Mikulincer and Florian, 2002; Goldenberg et al., 2000). More recent studies (Routledge et al., 2010) have focused on the relationships among mortality salience, self-esteem, and psychological adjustment. Findings indicate that mortality salience increases negative affect and anxiety as well as increasing social avoidance for individuals with

low self-esteem, but not for individuals with high self-esteem. These results occurred only when death-related thoughts were not given focal (immediate) attention. If participants were given a distracting task after mortality salience induction (arousing distal defenses) and then presented with a task to assess psychological dysfunction, then the results indicated an increase in social avoidance. These results also lend support to the dual-process model of defensive processes mentioned previously.

### **Limitations and Critiques**

Despite an expansive body of research that supports TMT, several criticisms have been directed at the theory. For instance, Proulx and Heine (2006) have argued that their meaning making model can explain the effects of mortality salience. McGregor (2006) has put forth the neurologically based notion to explain why people strongly identify with ideologies and groups in response to threats such as mortality salience. One main question regarding TMT research is the extent to which mortality salience creates terror and/or existential uncertainty (Van den Bos, 2009). The creation of uncertainty/anxiety around death (specifically what happens after death) has been provided as an alternative explanation to the mortality salience effect. McGregor (2006) and Van den Bos (2009; 2011), and Hogg and colleagues (2011) all have argued that thoughts of death produce a stronger identification and defensive reaction not because people are afraid of their impending demise, but rather because of the uncertainty surrounding death (how it will occur, etc.). McGregor and Van den Bos argue that this uncertainty creates high anxiety, and it is this anxiety that serves as the motivational factor for people to identify and defend their groups and worldviews.

In contrast to the above proposition, Pyszczynski and colleagues (2006) disagree with the uncertainty theory and argue that it is the ultimate nature (inevitability) of death that is most disturbing and serves to motivate people. Further, they claim that not all types of uncertainty can cause anxiety. Thus, they argue that the construct of uncertainty is too vague to be considered a reliable predictor of a specific behavior. TMT argues that one's cultural worldview alleviates concerns about death if people view their worldview as consistent and believe that certain cognitions follow from others (Pyszczynski, Greenburg, & Solomon, 1997). In support of this notion, research using a dissonance paradigm found that motivation to reduce inconsistencies in one's worldview increases when death-thoughts are present (Friedman & Arndt, 2005). These researchers propose that inconsistencies in behavior undermined a stable view of reality, and that mortality salience increased the need to reduce this instability.

### **Examining TMT across cultures**

TMT is grounded in a theory of human evolutionary adaptation, and thus by implication, the human responses that it proposes that are associated with mortality salience should be fairly universal and apply across a wide variety of cultures. Thus, in order to test the universality of TMT, it is imperative to empirically validate results in support of the theory cross-culturally. To date, cross-cultural TMT literature has primarily focused on cultures that hold Western, individualistic orientations, including the U.S., Italy, Germany, Israel and the Netherlands (Greenberg et al. 1997). Studies done on each of these populations have indeed found that mortality salience increases one's adherence to cultural norms (e.g. Florian & Mikulincer, 1997; Rosenblatt et al. 1989) and inclinations toward defending one's national biases.

Cross-cultural TMT research in collectivist cultures has been limited to date, although a few studies have been done. For example, following a mortality salience induction, Japanese participants became more critical of an essay writer who criticized Japan, compared to a control group (Heine, Harihara & Niiya, 2002), providing some support that defending one's cultural worldview when one's own mortality is made salient generalizes to Japanese samples. Additionally, Tam, Chiu, and Lau (2007) investigated TMT in China and found that MS condition evoked the typical worldview defense in that they rated a worldview supporting interviewee more positively (likeability, intelligence, strength of his arguments), relative to controls, providing some evidence for robust mortality salience effects.

Ma-Kellams and Blascovich (2011) investigated divergent cultural responses to mortality salience in European and Asian American cultures. These researchers conducted a series of studies that examined mortality salience manipulation on attitudes towards a person who violates cultural norms (first study) and attributions regarding the plight of an innocent victim (second study). Overall findings evidenced European Americans to engage in defensive reactions to defend the self and Asian Americans to defend other people.

Not only is the majority of the TMT literature based on Western, individualistic cultures, but the majority of TMT research has focused on personal mortality. In Western cultures, ideas of the self as an individualistic, independent entity predominate (Ma-Kellams & Blascovich, 2011; Markus & Kitayama, 1991). Within this worldview, death is viewed primarily as a threat to the self, and efforts to cope with death involve restoring the self (Ma-Kellams & Blascovich, 2011). In collectivist cultures, a greater value is

placed on the collective self. In such collectivistic cultures, the self is seen not as independent entity, but rather as an entity tied to the collective. Specifically, with interdependent self-construal (Markus & Kitayama, 1991), the collective self is one whose feelings, needs, and thoughts are tied to other people (Chenstova-Dutton & Tsai, 2010). Thoughts of personal death may not be as anxiety provoking as a threat of collective death and disintegration of social ties, which may induce greater death anxiety. Only one study (Kashima, Halloran, Yuki, & Kashima, 2004) has directly examined the effects of MS as it relates to personal mortality and collective mortality. Participants consisted of students from Australia and Japan. The individual mortality salience condition followed the tradition mortality salience induction which asked subjects to respond to the traditions two questions about their own death. Kashima et al. (2004) introduced a novel condition: collective mortality salience condition for which the induction asked subjects to imagine everyone in their country being destroyed by a meteorite, then to respond to the following two questions: “What will happen to you and the people in your country as when your bodies die? What emotions does the thought of your death and the death of all the people in your country arouse in you?” The control condition consisted of questions about a neutral situation (watching T.V.). Results suggest preliminary evidence that collective mortality has a greater influence than personal mortality in a collectivist culture (Japan). Results indicated the mortality salience triggered the validation of cultural worldviews and this effect was stronger for individuals with low self-esteem in both Australia and Japan. Collective mortality salience induction had a greater effect than individual mortality salience induction in Japan, which indicates that TMT may be linked to broader socio-cultural factors, such as individualistic/collectivistic orientations.

Cross-cultural studies reveal that cultures vary in specific beliefs, values and views of self that they foster. Two patterns of beliefs and values and self-views are religious affiliation and individualism/collectivism. The present study will primarily focus on terror management theory and individualism/collectivism.

Cultures differ in their beliefs and explanations regarding death. One's view of death is influenced by religious-philosophical beliefs and values. Some religions propose the continued existence of self in some form after death. Belief in an afterlife and/or reincarnation has been shown to function as a buffer against death anxiety (Cheng, 1997). Thus, religious traditions that hold different beliefs about death, may confer differential responses when faced with the threat of mortality.

### **Current Study**

The current study seeks to build on the existing literature to examine the effects of personal mortality salience compared to collective mortality salience in cultures that are predominately individualistic (U.S.) and collectivistic (Russia). To accomplish this analysis, a 2 (Country) X 3 (Condition: Individual mortality salience, Collective Mortality Salience, and Dentist Control) design was employed. Based on TMT theory and the literature reviewed above, four specific predictions were made.

1. We predict that mortality salience will increase worldview defense compared to a control condition, in both the United States and Russian samples. This first prediction is derived from the existing literature that has shown mortality salience leads to worldview defense. Specifically it is expected that mortality salience will result in an increased preference for those who praise one's

country over those who criticize it, regardless of mortality salience type. Thus, individuals are expected to experience more worldview defense in the mortality salient condition than in a control condition (dental pain). The indicator of worldview defense is attitudes regarding nationalistic essays, with the prediction being that individuals in the mortality salience conditions will rate the author of a pro-nation essay proportionally more favorably than the author of an anti-nation essay.

2. The second prediction is that there will be a differential effect of collective mortality salience and individual mortality salience for individuals from different backgrounds. That is, for individuals from a collectivist worldview (Russia), where the collective self may have more importance than the individual self, the Collective mortality salience is predicted to have a greater impact than Personal mortality salience on worldview defense, but that the reverse of this will hold for individuals from a culture with an individualistic orientation, as in the United States. This will be analyzed in two ways. First, measures of individualistic versus communal orientations will be made to confirm the presence of group differences between the two countries and then the impact of the two mortality salience conditions for the two countries will be compared. Second, we will examine whether the individualistic or communal orientations had a moderating effect on the response to the mortality salience conditions.
3. Consistent with the anxiety-buffer theory of self-esteem, a third hypothesis is that higher self-esteem should reduce the need to engage in worldview

defense, whereas individuals with low self-esteem would engage in greater worldview defense. Thus we will test and predict a moderating influence of self-esteem on the impact of mortality salience for both the Russian and United States samples.

4. Finally, it is hypothesized that high religious fundamentalism should reduce the need to engage in worldview defense, whereas low fundamentalism will engage in more worldview defense in the mortality salience condition than in the control condition.

## CHAPTER III: METHODOLOGY

### Participants

The overall sample consisted of 308 participants, drawn from two different cultures: the U.S. and Russia. The US sample consisted of 172 participants, (M = 19.19 years, SD = 2.70; academic level M = 1.53, SD = .76), whose self-identified ethnicity was Caucasian 83.7%, African American 5.8 %, Asian American 5.8 %, Other 3.5 %., Puerto Rican .6%, and Native American .6%. The Russian sample consisted of 136 participants, (M = 19.76 years, SD = 1.24; academic level M = 2.87, SD = 1.05). All participants were 18 years of age or older. Participants' self-identified ethnicity was Russian 97.1%, Ukrainian 1.5%, Armenian 0.7 %, and Belarusian 0.7%.

Participants in each sample were students from universities who mostly consisted of undergraduate students currently enrolled in one or more psychology courses. Participants in the U.S. sample were recruited from campus and via an online student sample pool and participants received extra course credit for their participation. In the US, participants were seen in a small group setting. In Russia participants were recruited on campus via in-class announcements. Participants completed all experimental materials in one large group in a classroom setting. For all participants, demographic information was collected from each participant regarding their gender, age, religion, ethnicity, and education level. The demographic characteristics of both samples are summarized in Table 1.

Exclusion criteria included expressing suspicion about the experimental manipulation (assessed during debriefing by asking participants what they suspected the

purpose of the study was, no subjects were eliminated due to suspicion), living abroad, or failure to complete the entire questionnaire packet. If participants had lived abroad in another country, then they were excluded. Participants who did not complete substantial portions of the questionnaire packet, missed one or more measures, or did not complete measures in their entirety, were excluded. Of the original sample, a total of 12 participants were excluded from the data. The descriptive data and statistical analyses were based on the remaining 308 participants.

### **Measures**

All measures that were used were provided in either English (for the American sample) or Russian (for the Russian sample). The measures were translated from English into Russian and then back-translated. Specifically, each measure was initially translated from English into Russian by a native Russian-speaker. The Russian version was then back-translated into English by an independent translator, who was English speaking and who had not been previously exposed to the original measurement items. The translated instruments were then checked for preservation of meaning and cultural appropriateness. Back translation was used as an extra step to ensure the original meaning of each concept was preserved (Brislin, 1980).

*Level of Religiosity.* This was used as a measure of participants' degree of engagement in religiosity. Items from for this measure have been taken from: *Religious Faith and Practice Questionnaire* by Fernandez, Castano, and Singh (2010) which consists of a simple 6-item questionnaire measuring level of religious faith and practices. Each item is rated on a 6-point Likert scale ranging from *Never (1)* to *Always (6)*. This

measure has been used in both individualistic and collectivist cultures. In the current study, the level of religiosity demonstrated good reliability (Chronbach's  $\alpha = .903$ ).

*The National Identification Measure* (Roccas, Klar, Liviatan, 2006, Fernandez & Castano, in press) is a 16 item measure of nationalism. It consists of two scales (8 items each) measuring an individual's identification (attachment and glorification) with their nation. Participants indicated their agreement with each item on a 7-point Likert scale ranging from *strongly disagree* to *strongly agree*. For the purposes of this study the two subscale scores were not employed, rather the overall score which indicated degree of nationalism was used. The one-factor scale was used in this study and was found to have good internal reliability (Chronbach's  $\alpha = .866$ ).

*The Rosenberg Self Esteem Inventory* (Rosenberg, 1965), is a 10-item self-report measure which uses either a 4 or 5 point Likert scale ranging from *strongly agree* to *strongly disagree*. This measure is one of the most popular and widely used measures of self-esteem and has been used in numerous terror management theory studies. Fleming and Courtney (1984) reported a Chronbach's alpha of .88 and test-retest correlation of .85. Internal reliability in this study was .846.

*The Horizontal and Vertical Individualism-Collectivism Scale* (Singelis, Triandis, Bhawuk, & Gelfand, 1995), is a scale used to assess respondents' degree of collectivistic or individualistic orientation. This measure consists of a 16-item, 7-point Likert scale measuring the four dimensions of horizontal individualism, vertical individualism, horizontal collectivism, vertical collectivism, and includes statements such as "I'd rather depend on myself than others", "It is important that I do my job better than others", etc. Individualistic and Collectivistic subscales are based on the sum totals of their

corresponding items (8 items each). Additionally, total scores for each of the above four dimensions can be calculated, but this was not done so here. In the current study, the one-factor scale (for which all 16 item responses were summed) was used which demonstrated good reliability (Chronbach's  $\alpha = .801$ ).

*The Positive and Negative Affect Scales* (PANAS; Watson, Clark, & Tellegen, 1988), on which participants report on how they felt at the moment during the mortality salience induction. Following previous TMT research the PANAS is included as a filler task and to allow a check for the presence of mood effects to determine if the mortality salience manipulation produced positive and/or negative affect. The PANAS is a 20-item self-report measure of affect states, on a 5-point Likert scale ranging from *Very Slightly or Not at all* to *Extremely*. Half of the items measure positive affect (PA) and the other half measure negative affect (NA). The item responses for each subscale is summed, yielding a composite score for each subscale. Watson et al. (1988) reported Chronbach's alpha coefficients ranging from .86 to .90 for the PA scale and .84 to .87 for the NA scale, with test-retest correlations (over an 8 week period) ranged from .47 to .68 for PA, .39 to .71 for NA. In the current study, internal reliability alpha coefficient scores for PA was .832 and NA .839.

#### *The Pro and Anti-National Essays*

The pro-national and anti-national American essays were taken from previous TMT research, and were provided by the author S. Solomon (personal communication, October 16, 2010). To create a pro-national Russian essay, a Russian student was invited to submit two essays which represented "pro-Russian" and "anti-Russian" sentiment. These essays were then reviewed by additional individuals who were native Russians or who

were familiar with attitudes and beliefs of Russian culture. Essays are listed in the Appendix.

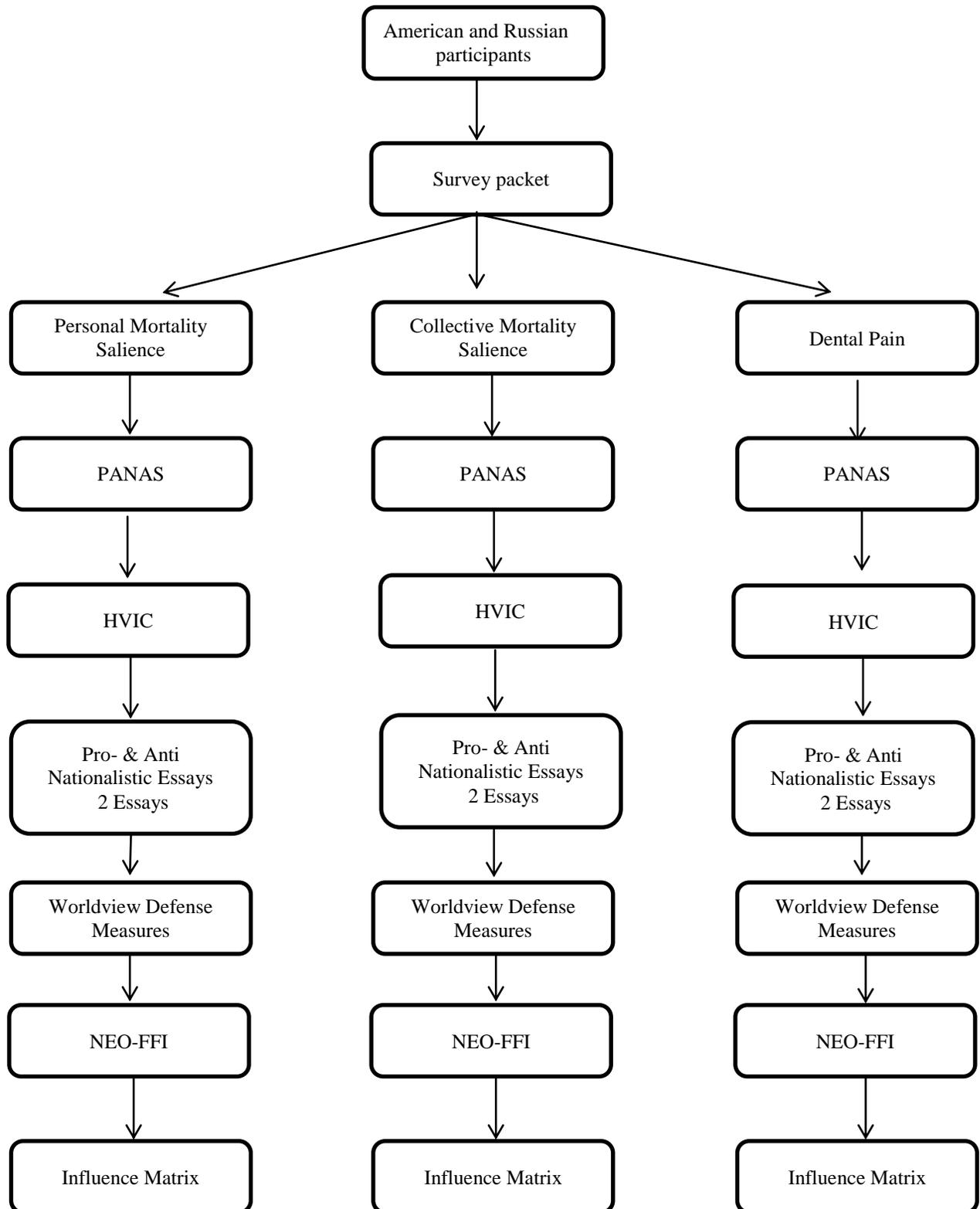
### **Evaluation of Essays**

The proxy for measuring worldview defense is the extent to which individuals react positively or negatively to material or positions affirming or criticizing one's cultural identity. For this study, consistent with many other TMT studies, this was operationalized as the evaluation of the essay writer. Specifically, participants were asked to rate the extent to which a series of traits (positive and negative) applied to each author of the essays. The critique of each essay's author consisted of the same form used in Greenberg, Pyszczynski, and Solomon (1990) study. The form consisted of 15 positive and 15 negative personality characteristics and uses a 9-point Likert scale ranging from 1 = *not at all* to 9 = *extremely*. Finally, participants were also asked to indicate "*Overall, how positively or negatively do you feel about the author?*" using a 9-point Likert scale ranging from *negatively* (1) to *positively* (9). This score obtained indicated respondents overall opinion of the author. The positive and negative personality traits were each summed (after reverse scoring the negatively worded items) to create positive and negative composite scores for each essay. This latter composite score was subtracted from the positive composite score to create an overall composite variable reflecting the positivity of respondent's attitudes towards the essay authors. Thus, a positive overall composite score indicated a favorable overall view of the author and a negative total indicated a negative overall view of the author.

## Procedure

The procedures below were approved by the James Madison University Institutional Review Board. Participants in each sample were students from universities who mostly consisted of undergraduate students currently enrolled in one or more psychology courses. Students were recruited from campus and/or from an online student pool. US participants received extra course credit for their participation. Participants were either seen in a small group setting (U.S.) in a large group classroom setting (Russia). Informed consent was obtained prior to the start of the experimental session. After consent was obtained, participants were informed that the experimental session consisted of a series of allegedly unrelated studies administered together for the sake of convenience. The MS manipulation or control was presented first, followed by delay tasks, the worldview defense measure, followed by the (actually there were more, we just aren't analyzing them, so our language needs to be framed accordingly) personality questionnaires. The worldview defense assessment was administered in the middle of the packet, which follows prior TMT studies (Tam, Chiu, & Lau, 2007). Participants were asked to answer the questions in the order they are presented, and not go back to previous pages or items (see Figure 1 for overview of procedure).

Figure 1.

*Overview of the Study Procedure*

Participants were first given a packet consisting of a survey entitled “*Personality, Attitudes, and Perceptions of Others.*” The survey was composed of the 10- item Rosenberg Self Esteem Inventory (Rosenberg, 1965), a Level of Religiosity measure, the National Identification Measure, and demographic questions. Then, within each culture, participants were randomly assigned to one of three experimental conditions: i) Personal Mortality Saliency; ii) Collective Mortality Saliency; iii) Control condition. The 3 packet types were randomly distributed to participants. This resulted in 31.5% (n = 97) of participants in the Personal Mortality Saliency condition, 34.7% (n = 107) of participants in the Collective Mortality Saliency condition, and 33.8% (n = 100) of participants in the Dental Pain control condition for the overall sample.

In the Personal Mortality Saliency condition, participants were asked to complete two open-ended questions: “Please briefly describe the emotions that the thought of your own death arouses in you”, and “Jot down as specifically as you can, what you think will happen to you as you physically die, and once you are physically dead.” In the Collective Mortality Saliency Condition, participants were asked to imagine that their country was destroyed by a natural disaster resulting in obliteration of all the people in their country, and then asked to respond to two questions: “What emotions does the thought of your death and the death of all the people in your country arouse in you?”, and “What will happen to you and the people in your country when your bodies die?”. In the control condition, participants responded to two parallel questions in which the *death-related* words were substituted with *dental pain*, consistent with prior research. Both the personal mortality saliency and control conditions have been successfully used in numerous TMT research (e.g. Florian & Mikulincer, 1997; Greenberg, et al., 1990;

Greenberg, et al., 1992). The collective mortality salience condition was derived from Kashima et al., 2004.

Immediately following the mortality salience manipulation, participants completed the Positive and Negative Affect Scales (PANAS; Watson, Clark, & Tellegen, 1988), on which they report on how they felt at the moment. Following previous TMT research, the PANAS was included to determine if the mortality salience manipulation produced positive and/or negative affect and also served as a filler task. This filler task was included as a distraction task because prior research has shown that mortality salience effects on worldview defense are more robust following a brief delay (Greenburg, Pyszcznski, Solomon, Simon, & Breus, 1994).

Next, the Horizontal and Vertical Individualism-Collectivism Scale (Singelis, Triandis, Bhawuk, & Gelfand, 1995), a scale assessing collectivism and individualism was administered to assess the degree of collectivistic or individualistic orientation.

Next, participants were asked to read two essays, which were introduced as the second unrelated study designed to explore intercultural perceptions by investigating students' evaluations of essays written by foreign exchange/visiting students. One essay was an anti-nationalistic essay designed to threaten participants' cultural worldviews (anti-American or anti-Russian essay for each respective country). The other essay was similar in length but was a pro-nationalistic essay. The order of presentation of the essays was counterbalanced.

Each essay was then followed the evaluation of the essay writer, which served as the proxy for worldview defense. Specifically, participants were asked to complete an

evaluation of each essay's author in which they rate the extent to which a series of traits (positive and negative) applied to each author of the essays. The author evaluation consisted of the same form used in the Greenberg, Pyszczynski, and Solomon (1990) study. The form consists of 15 positive and 15 negative personality characteristics and uses a 9-point Likert scale ranging from *not at all* to *extremely*. Finally, participants were also asked to indicate "*Overall, how positively or negatively do you feel about the author?*" using a 9-point Likert scale ranging from *negatively* (1) to *positively* (9).

Following this, participants were administered two other personality measures that were not included in the analyses of this study so they are not described here.

After each of the participants completed the experiment, they were thanked for their participation, probed for suspicion, asked about their experience living in another culture, then fully de-briefed and dismissed after their participation. Participants were also provided with the experimenter's contact information if they desired to follow up or if they would like to be made aware of the results of the experiment in the future.

## CHAPTER IV: RESULTS

This section presents the results of the data analyses and consists of three parts. First, descriptive analyses of the data are presented, including descriptive statistics regarding study participants and various measures. Specifically, comparisons between the Russian and American samples are explored. Second, results are presented for the main analyses testing the four hypotheses of the study, using analysis of co-variance in the experimental design for each of the four dependent variables (author evaluations) of worldview defense.

### **Descriptive Analyses**

Descriptive statistics were conducted for demographic variables and all study measures and are presented in Table 1 and Table 2. In Table 1 means, standard deviations, and frequency distributions of the characteristics of the participants in the study, are shown by country (America and Russia). Preliminary analyses were conducted, specifically t-tests were used to compare the treatment and control groups on the demographic variables to test for a priori differences between the groups that may influence the primary analyses. Correlations of the demographic variables and other study variables were computed.

Significant differences between groups between the U.S. and Russia samples, revealed group differences in age, college year, self-esteem, and nationalism. The U.S. had more males to females (U.S.: males 40%, females 59%; Russia males 22%, females 78%)  $t(306) = -3.52, p < .05$ , was higher in self-esteem and nationalism compared to Russia (see Table 1 for descriptives and group differences). The U.S. sample also tended to have higher ratings of positive and negative affect, compared to the Russian sample.

However, the Russian sample was older and had a higher academic level than the U.S. Within each country, for the U.S., Collective Mortality Salience Group ((M = 32.38) and the Dental Pain Group ((M = 34.13) significantly differed in self-esteem  $t(116) = -2.06, p < .05$ . For Russia all three groups, Personal Mortality Salience group (M = 2.21), Collective Mortality Salience Group ((M = 3.40), Dental Pain Group ((M = 2.95) significantly differed in education level. In the Russian sample, Personal Mortality Salience group (M = 19.18), and the Dental Pain Group (M = 20.02) differed significantly in age  $t(84) = -3.16, p < .05$ .

Table 1

*Descriptive Statistics for All Measures by Country, with T-tests for Group Differences*

Variable	U.S.		Russia		t
	Mean	SD	Mean	SD	
Age	19.1	2.7	19.7	1.2	-2.2*
Academic Level	1.5	.7	2.8	1.0	-11.9*
Self Esteem	33.1	4.5	29.6	4.0	7.0*
Nationalism	47.4	9.3	42.8	12.6	3.6*
PANAS Positive	34.8	6.8	29.6	6.4	6.8*
PANAS Negative	24.6	7.6	22.6	7.9	2.2*
Collectivism	96.8	14.5	99.5	16.7	-1.5
Individualism	93.3	14.9	96.2	15.6	-1.6
Coll/IndivComposite	-3.5	19.6	-3.2	20.1	-.1

\*  $p > .05$

Note: t values are based on equal variances and 2-tailed significance

For the overall sample, Table 2 represents the descriptive data for all study measures for overall sample, and by each condition (personal mortality salience, collective mortality salience, and control). Preliminary analyses were conducted, specifically t-tests were used to compare the treatment and control groups on the demographic variables to test for a priori differences between the groups that may influence the primary analyses. For the overall sample, significant differences between groups (personal mortality salience, collective mortality salience, and control). Revealed group differences in age, gender, college year, self-esteem, and nationalism (see Table 2 for descriptive data). The Personal Mortality Salience Group and Collective Mortality Salience Group differed significantly in gender  $t(202) = 1.699, p < .01$ , college year  $t(201) = -3.445, p < .01$ , and PANAS Negative score  $t(202) = -1.48, p < .03$ . Participants in the Personal Mortality Salience Group were generally male, with higher academic level, and with more negative affect (as measured by the PANAS) compared to participants in the Collective Mortality Salience Group. The Personal Mortality Salience Group and the Dental Pain Group did not differ significantly on any of the variables. Collective Mortality Salience Group and the Dental Pain Group differed in gender  $t(209) = -1.891, p < .01$  and collectivism  $t(209) = -2.866, p = .05$ . The Control Group was composed of more females and less males, with participants holding greater collectivistic orientation compared to participants in the Collective Mortality Salience Group.

Table 2.

*Means and Standard Deviations for All Measures for Overall Sample by Condition: Personal Mortality Salience, Collective Mortality Salience, and Control*

Variable	Mean (SD)		Mean (SD)		Mean (SD)	
	Personal MS		Collective MS		Control	
N	97	31.5%	107	34.7%	104	33.8%
Gender						
Male	28	28.9%	43	40.2%	29	27.9%
Female	69	71.1%	64	59.8%	75	72.1%
Age	19.0	(1.1)	19.5	(1.8)	19.7	(3.04)
Academic Level	1.8	(.9)	2.3	(1.2)	2.1	(1.1)
Self Esteem	31.6	(4.6)	31.1	(4.3)	32.1	(5.03)
Nationalism	44.7	(11.2)	44.5	(10.8)	47.0	(11.2)
PANAS Positive	32.6	(6.9)	32.6	(7.3)	32.3	(7.2)
PANAS Negative	23.1	(6.9)	24.6	(7.9)	23.3	(8.3)
Collectivism	93.3	(13.8)	94.8	(16.0)	101.9	(12.0)
Individualism	95.6	(15.2)	96.1	(16.6)	102.1	(13.9)
Ind/Coll	-1.7	(20.4)	-2.1	(21.7)	-6.2	(16.9)

*Note: Ind/Coll = Individualism/Collectivism Composite*

### **Main Analyses**

The primary dependent variable was the evaluation of the essay authors, which in this study serves as a proxy for worldview defense. As noted in the procedure section, each participant rated a pro- and anti-national essay on 30 attributes (15 positive and 15 negative) and provided an overall evaluation on a 1 to 9 scale. The positive and negative traits were each summed (after reverse scoring the negatively worded items) to create positive and negative composite scores for each essay. The primary index that the current study is exploring is the extent to which individuals identify more positively with pro- and more negatively with anti-national sentiments following a mortality salience induction.

To test the primary hypotheses of the study, separate 3 (personal mortality salience, collective mortality salience, control) X 2 (country) analyses of variance (ANOVAs) were performed on the dependent variables (author rating variables). The dependent variables consisted of the scores on the evaluations of the authors, specifically the composite scores of the positive and negative attributes (summed positive traits – composite score, summed negative traits – composite score, etc.), the overall composite score (difference of these composite scores), and the single overall author score, as worldview defense variables, (See Tables 3 and 4). Tables 3 and 4 summarize the means and standard deviations for each of these worldview defense scores for the American and Russian samples, respectively. Thus, the worldview defense evaluation consisted of 3 items that assessed the participants' evaluation of the authors (the extent to which they attributed positive and negative personality traits to each author) and one item that assessed the evaluation of the essays (the extent to which participants agreed with the author's opinion). This latter evaluation was made on a 9-point Likert scale (1= not at all, 9 = totally). The evaluations of each author served as the measures of favorability toward worldview-consistent and worldview-inconsistent others, respectively. Tables 3 and 4 represents a summary of the worldview defense scores presented by country.

Table 3.

*Means and Standard Deviations for Worldview Defense Measures for the American Sample by Condition: Personal Mortality Salience, Collective Mortality Salience, and Control*

Variable	Personal MS N = 53		Collective MS N = 59		Control Control N = 60	
	Mean (SD)		Mean (SD)		Mean (SD)	
<b>ProNationalistic Essay</b>						
Positive Composite	65.0	10.6	64.1	13.5	66.5	14.7
Negative Composite	62.1	19.4	66.2	18.8	57.0	18.7
Overall Composite	2.8	26.3	-2.0	27.0	9.5	28.6
Overall Author score	6.4	1.3	6.0	1.9	6.2	1.7
<b>AntiNationalistic Essay</b>						
Positive Composite	56.1	15.6	58.2	16.2	52.4	16.5
Negative Composite	82.6	18.9	81.5	16.6	81.7	21.3
Overall Composite	-26.4	30.1	-23.2	26.8	-29.3	32.4
Overall Author score	3.6	1.7	4.1	1.7	3.7	1.7
<b>Combined(Pro-Anti)</b>						
Positive Composite	2.8	26.3	-2.0	27.0	9.5	28.6
Negative Composite	-26.4	30.1	-23.2	26.8	-29.3	32.4
Overall						

Table 4.

*Means and Standard Deviations for Worldview Defense Measures for the Russian Sample by Condition: Personal Mortality Salience, Collective Mortality Salience, and Control*

Variable	Personal MS N = 44		Collective MS N = 48		Control Control N = 44	
	Mean (SD)		Mean (SD)		Mean (SD)	
<b>ProNationalistic Essay</b>						
Positive Composite	67.0	14.1	67.4	11.6	67.4	11.6
Negative Composite	36.9	17.9	43.0	16.3	45.2	14.6
Overall Composite	30.0	27.4	24.3	22.9	22.2	21.0
Overall Author	6.6	1.9	6.5	1.7	6.5	1.9
<b>AntiNationalistic Essay</b>						
Positive Composite	59.7	18.8	70.1	17.6	70.1	18.6
Negative Composite	66.2	23.3	67.2	20.2	67.3	22.0
Overall Composite	-6.5	35.7	2.9	31.5	2.8	34.1
Overall Author	4.1	2.0	4.8	2.2	4.8	1.8
<b>Combined(Pro-Anti)</b>						
Positive Composite	30.0	27.4	24.3	22.9	22.2	21.0
Negative Composite	-6.5	35.7	2.9	31.5	2.8	34.1

**Pro-National and Anti-National Essays: Author Evaluations.** The first 2 X 3 ANOVA was conducted on the composite positive score of the pro-nationalistic author. The second 2 X 3 ANOVA was conducted on the composite negative score of the pro-nationalistic author. The third ANOVA was performed on the overall composite score of the for the pro-nationalistic author. The fourth ANOVA was performed on the overall rating of the author's opinion (based on the single item overall author rating) for the pro-nationalistic author. The fifth 2 X 3 ANOVA was conducted on the composite positive

score of the anti-nationalistic author. The sixth 2 X 3 ANOVA was conducted on the composite negative score of the anti-nationalistic author. The seventh 2 X 3 ANOVA was conducted on the overall composite score (sum total of the difference between the negative and positive personality characteristics), for the anti-nationalistic author. The eighth 2 X 3 ANOVA was conducted on the overall rating of the author's opinion (based on the single item overall author rating) for the anti-nationalistic author. Any significant interaction effects were followed by an analysis of simple main effects.

***Pro-nationalistic Essay.*** The first ANOVA was performed on the composite positive score of the pro-nationalistic author, which was used as the dependent variable. The first hypothesis, that participants in the mortality salience condition, would have higher positive evaluation scores for the pro-nationalistic author than participants in the dental pain control condition was tested by the main effect of treatment in the ANOVA. Results indicate no main effect of treatment condition, country, nor country x condition interaction  $F(2,302) = .253, p = .777, \eta^2 = .002, F(1,302) = 1.955, p = .163, \eta^2 = .006, F(2,302) = .228, p = .796, \eta^2 = .002$ , respectively. Thus, the hypothesis was not supported.

The second 2 X 3 ANOVA was conducted on the composite negative score of the pro-nationalistic author. Results indicate significant main effects of country and condition X country interaction,  $F(1,302) = 94.977, p < .01, \eta^2 = .239$  and  $F(2,302) = 4.080, p = .01, \eta^2 = .018$ , respectively. There was no main effect of condition overall  $F(2,302) = 2.145, p = .119, \eta^2 = .014$ . Further examination of results revealed in both the U.S. and Russia, significant main effects of condition on this worldview defense measure,  $F(2,169) = 3.484, p = .03, \eta^2 = .040, F(2,133) = 3.016, p = .05, \eta^2 = .043$ , respectively. In

the U.S. participants in the CMS condition endorsed more negative traits for the pro-nationalistic author than participants in the Control condition ( $p < .01$ ) In Russia, participants in the Control condition endorsed more negative traits for the pro-nationalistic author than participants in the PMS condition ( $p=.02$ ), or in the CMS condition (moderate effect,  $p = .07$ ). Thus, for Russian participants, those in the PMS responded with least negative evaluation (more favorable) of the pro-nationalistic author, followed by CMS, and participants in the Control condition rated pro-nationalistic author most negatively.

American participants viewed the pro-nationalistic author less favorably (higher negative traits scores) than Russian participants, across all conditions, with the greatest difference between PMS and CMS conditions. In the U.S., CMS viewed the pro-nationalistic most negatively, followed by PMS, and then Controls. These results do not support the hypothesis that participants in PMS would view worldview similar others more favorably compared to Controls.

The third ANOVA was performed on the overall composite score for the pro-nationalistic author. Higher scores indicated more favorable evaluation of the pro-nationalistic author. Results indicate significant main effect of country  $F(1,302) = 55.073, p < .01, \eta^2 = .154$  and marginal main effect of condition X country interaction, and  $F(2,302) = 2.501, p = .08, \eta^2 = .016$ . There was no main effect of condition overall  $F(2,302) = 1.290, p = .277, \eta^2 = .008$ . Russian participants in all three conditions scored higher (endorsed more favorable evaluations of the pro-nationalistic author) than American participants, regardless of condition. Further examination revealed a marginal main effect for condition in the U.S. sample ( $F(2,169) = 2.687, p = .07, \eta^2 = .031$ ).

Controls responded with more favorable ratings of the pro-nationalistic author than participants exposed to Collective Mortality Saliency induction. ( $p=.02$ ). When effects of moderating variables, self-esteem, nationalism, individualism/collectivism, and collectivism were removed, post-hoc comparisons revealed Russian participants viewed the pro-nationalistic author more favorably ( $PMS > CMS > Controls$ ), (higher overall composite scores) than American participants, across all conditions with the greatest difference between PMS (Russia ( $M = 32.34$ , U.S.  $M = 1.817$ ) and CMS (Russia  $M = 26.84$ , U.S.  $M = -2.83$ ) conditions. In the U.S., Controls viewed the pro-nationalistic author most favorably, followed by PMS, and CMS viewed this author negatively. These results do not support the hypothesis, in fact this finding is in the directly opposite to our prediction. Also, participants in the Control condition had higher self-esteem than those in the Collective Mortality Saliency condition. Due to higher self-esteem these participants should have resulted in less worldview defense for Controls, but this did not occur. However, results from the Russian sample do provide support the hypothesis that when individuals are reminded of their mortality (PMS and CMS) they will engage in worldview defense and view a pro-nationalistic author more favorably compared to Controls.

The fourth ANOVA was performed on the overall rating of the author's opinion (based on the single item overall author rating) for the pro-nationalistic author. This was based on the single overall score of the author provided by the respondent. Results revealed no main effects for condition, country, nor a condition X country interaction.

***Anti-nationalistic Essay.*** The fifth 2 X 3 ANOVA was conducted on the composite positive score of the anti-nationalistic author. Results indicate significant

main effects of condition, country, and condition X country interaction,  $F(2,302) = 3.326$ ,  $p = .03$ ,  $\eta^2 = .022$ ,  $F(1,302) = 31.368$ ,  $p < .01$ ,  $\eta^2 = .094$ , and  $F(2,302) = 4.191$ ,  $p = .01$ ,  $\eta^2 = .027$ , respectively. Pairwise comparisons revealed significant differences between PMS and CMS,  $p = .01$ , with the CMS rating the anti-nationalistic author higher on positive traits. Between countries, main differences occurred between CMS and Control, with Russian participants endorsing more favorable ratings for the anti-nationalistic author compared to American participants, across all conditions, but most significantly in the CMS and Control conditions. Further examination of results revealed in Russia, significant main effect of condition on this worldview defense measure,  $F(2,133) = 4.767$ ,  $p = .01$ ,  $\eta^2 = .067$ , but not for both the U.S.  $F(2,169) = 1.952$ ,  $p = .145$ ,  $\eta^2 = .023$ . In Russia, participants in the CMS ( $p < .01$ ) and Control ( $p < .01$ ) conditions viewed the anti-nationalistic author more favorably (higher positive trait composite score) compared to the PMS condition.

The sixth 2 X 3 ANOVA was conducted on the composite negative score of the anti-nationalistic author. Results indicate a significant main effect of country  $F(1, 302) = 41.295$ ,  $p < .01$ ,  $\eta^2 = .120$ . No main effect were found for treatment condition, nor country x condition interaction  $F(2,302) = .001$ ,  $p = .999$ ,  $\eta^2 < .001$ ,  $F(2,302) = .083$ ,  $p = .921$ ,  $\eta^2 = .001$ , respectively. When effects of the nationalism were removed, participants in the U.S. sample rated the anti-nationalistic author more negatively overall, compared to participants in the Russian sample, across all conditions regardless of condition (PMS U.S.  $M = 82.26$ , Russia  $M = 67.14$ ; CMS U.S.  $M = 81.25$ , Russia  $M = 68.19$ ; Control U.S.  $M = 80.77$ , Russia  $M = 67.61$ ). Follow up analyses revealed no significant differences in either the U.S. nor Russia, on this worldview defense measure.

The seventh 2 X 3 ANOVA was conducted on the overall composite score (sum total of the difference between the negative and positive personality characteristics), for the anti-nationalistic author. Results indicate significant main effect of country  $F(1,302) = 51.373, p < .01, \eta^2 = .145$ . There was no main effect of condition nor condition X country interaction  $F(2,302) = 1.003, p = .368, \eta^2 = .007$ ,  $F(2,302) = .914, p = .402, \eta^2 = .006$ , respectively. When effects of nationalism were removed, post-hoc comparisons revealed American participants rated the anti-nationalistic author more negatively (higher negative trait composite scores) than Russian participants, across all conditions (PMS U.S.  $M = -25.97$ , Russia  $M = -7.64$ ; CMS U.S.  $M = -22.88$ , Russia  $M = 1.71$ ; Control U.S.  $M = -28.04$ , Russia  $M = 2.43$ ).

The eighth 2 X 3 ANOVA was conducted on the overall rating of the author's opinion (based on the single item overall author rating) for the anti-nationalistic author. Results revealed no main effects for condition, country, nor condition X country interaction.

### **Analysis of Moderating Variables**

Additional analysis were performed to explore the effects of the covariates. Possible covariates included level of nationalism, religiosity, age, and self-esteem. To determine whether self-esteem, religiosity, individualism, collectivism or nationalism served as moderating variables which may have influenced the results, the above analyses were repeated with self-esteem, religiosity, individualism, collectivism or nationalism as covariates. Only results that significantly differed are reported below.

The results of the ANCOVAs conducted on the composite positive score of the pro-nationalistic author, revealed self-esteem ( $p = .03$ ), and nationalism ( $p < .01$ ), significantly predicted this dependent variable, and accounted for 1.6% and 4.9% of the variance in participants ratings of positive traits for the pro-nationalistic author.

The results of the ANCOVAs performed on the composite negative score of the pro-nationalistic author, results showed self-esteem ( $p = .028$ ), and nationalism ( $p < .01$ ), and individualism/collectivism ( $p < .01$ ), as moderators for this dependent variable. These covariates accounted for 1.6%, 8.3%, and 5.8% of the variance, respectively, in participants ratings of negative traits for the pro-nationalistic author. When the effects of these moderating variables were removed, the significant main effects of country ( $ps < .01$ ) and country X condition interaction ( $p = .014$  to  $.031$ ) remained.

For the overall composite score of the for the pro-nationalistic author, ANCOVAs indicated self-esteem ( $p = .022$ ), and nationalism ( $p < .01$ ), individualism/collectivism ( $p < .01$ ), and collectivism ( $p < .01$ ), significantly predicted participant overall trait evaluations. These covariates accounted for 2.2%, 9.5% , 3.5%, and 8.3% of the variance, respectively. When moderating effects of these variables were removed, the significant main effects of country ( $ps < .01$ ) remained. The moderate main effect of country X condition interaction ( $p = .070$  to  $.083$ ) remained when the effects of nationalism and individualism/ collectivism were removed, however, but not for self-esteem ( $p = .141$ ) nor collectivism ( $p = .121$ ).

Results of the ANCOVAs performed on the composite negative score of the anti-nationalistic author, results showed nationalism ( $p < .01$ ), as a moderator for this

dependent variable, which accounted for 2.2% of the variance. When moderating effects of this variable was removed, the significant main effects of country ( $p < .01$ ) remained.

For the overall composite score of the for the anti-nationalistic author, ANCOVAs indicated nationalism ( $p = .033$ ), significantly predicted participant overall trait evaluations. Nationalism accounted for 1.5% of the variance. When moderating effects of this variable was removed, the significant main effect of country ( $p < .01$ ) remained.

## CHAPTER V: DISCUSSION

TMT proposes that humans engage in a unique defensive reaction to manage the existential anxiety when reminded of their inevitable mortality. When aroused by death-related thoughts, a dual-component process of defense is activated which results in first proximal then distal defensive reactions. Specifically, individuals will conform more closely to the norms of their culture, defend their cultural worldview, and derogate others that threaten or challenge their cultural worldview (Greenberg, Solomon, & Pyscynski, 1997). A plethora of empirical research has found that in a typical mortality salience paradigm, when individuals are prompted to think about their mortality, they subsequently engage in efforts to defend their cultural worldviews which are hypothesized to provide a sense of self-worth and enduring mortality (symbolic mortality) (Rosenblatt, Greenberg, & Solomon, 1989; Greenberg et al., 1990).

Regarding the prediction that mortality salience would increase worldview defense, compared to a control condition, in both the United States and Russian samples, no significant differences were found. Individuals were expected to experience more worldview defense in the mortality salient condition than in a control condition (dental pain). The results of this study did not consistently support this prediction. Descriptively, the U.S. participants who were not reminded of their own mortality viewed the pro-nationalistic author most favorably, followed by participants in the Personal Mortality Salience condition, and those in the Collective Mortality Salience condition viewed this author negatively. Thus, results from the American sample stand in opposition to what was predicted. However, results from the Russian sample did provide some support for the hypothesis that when individuals are reminded of their mortality (PMS and CMS

conditions) they engaged in worldview defense and viewed a pro-nationalistic author more favorably compared to Controls. For the composite score of negative trait ratings for the pro-nationalistic author, Russian participants, in the PMS condition responded with least negative evaluation (more favorable) of the pro-nationalistic author, followed by CMS condition, and participants in the Control condition rated pro-nationalistic author most negatively.

Additionally, there was a trend that Russian participants tended to view the pro-nationalistic author more favorably than American participants, across all conditions. This is an interesting finding because the American sample was higher in nationalism than the Russian sample. Another interesting finding was that participants in the American sample, exhibited a tendency to rate the anti-nationalistic author more negatively than participants in the Russian sample, regardless of condition (and after nationality was included as a covariate). Affect may have also been a factor in that American participants endorsed higher positive and higher negative affect than Russian participants. Emotional regulation issues may have influence participants responses overall, but did not vary by condition.

The second prediction is that there would be a differential effect of collective mortality salience and individual mortality salience for individuals from different backgrounds. That is, for individuals from a collectivist worldview (Russia), where the collective self may have more importance than the individual self, the Collective mortality salience was predicted to have a greater impact than Personal mortality salience on worldview defense, but that the reverse of this would hold for individuals from a culture with an individualistic orientation, as in America. This hypothesis was not

supported. Russian participants viewed the pro-nationalistic author more favorably in the Personal mortality salience condition than the Collective mortality salience condition and then Controls. One explanation could be that participants did not fully experience collective death anxiety or that the method for this induction was not authentic enough to activate such anxiety. Results had mixed effects for individualism/collectivism orientation as a moderating variable, but a collectivistic orientation contributed to more positive overall composite evaluations of the pro-nationalistic author.

Consistent with the anxiety-buffer theory of self-esteem, a third hypothesis that higher self-esteem should reduce the need to engage in worldview defense, whereas individuals with low self-esteem would engage in greater worldview defense, was not consistently supported.

Finally, it was hypothesized that high religious fundamentalism should reduce the need to engage in worldview defense, whereas low fundamentalism would engage in more worldview defense in the mortality salience condition than in the control condition. Evaluations of this hypothesis found no differences between groups in Russia nor the US, nor for overall sample, thus the prediction was not supported. This could be partly due to the fact that our variable was reduced to one item that asked participants if they considered themselves to be highly religious. Thus, the lack of support for this hypothesis may be due to methodological issues.

The exploratory nature of this study highlighted some interesting findings. The comparison between Russian and American samples, within TMT, and with the addition of collectivistic versus individualistic orientations extends the literature and theory. One observation was that American participants rated both the pro-nationalistic author and the

anti-nationalistic author more negatively (overall composite scores) than Russian participants, across all conditions. Even when effects of moderating variables were removed (e.g. nationalism and self-esteem), were removed. This may be related to U.S. participants' affect, in that a priori group differences indicated American participants endorsed more extreme mood scores, as measured by the PANAS, and their higher scores on negative affect may have influenced these results. Why did U.S. students endorse more extreme mood states compared to Russian students? Does this indicate U.S. students have less emotional regulation than Russian students or is this difference more a reflection of display rules?

Another interesting finding was that there were no significant differences between the Russian and U.S. samples for collectivism or individualism. This could be a developmental issue, in that participants were young adults who may have greater focus on self rather than group and community values and goals. Lack of differences between the two samples, could be due to the measure used to assess these constructs. However, past studies have found that Russia is a collectivistic culture using same and similar measures (Allik & Realo, 2004; Hofstede, 1983; Kuhnen, Hannover, Roeder, et al., 2001; Smith, Trompenaars, & Dugan, 1995; Tower, Kelly, & Richards, 1997). Although research has posited that value patterns are relatively enduring across cultures (Inglehart & Baker, 2000), Russia is developing a more capitalistic economy which stresses individualism, independence, and competitiveness, thus young Russian students may increasingly be identified with and less collectivistic. In the present study, only young students were used. Older Russian generation might very well be identified with a more collectivistic society. A recent investigation of cultural typologies related to collectivism

and individualism, placed Russia closer to the individualistic dimension when self-reliance and competitiveness were factors (Green, Deschamps, & Paez, 2005).

Additionally, collectivism and individualism are broad concepts that have been operationalized and measured in numerous ways. Although the current measures have been used cross-culturally and are considered valid measures of these constructs, it is likely that the current measures may not assess relevant characteristics of the constructs and differences between and/or commonalities among both countries (Allik & Realo, 2004).

Age differences between Russian and American samples, could be considered an important variable regarding group differences. Russia sample was significantly older than the American sample, although in the American sample, age varied more. However, this argument does not seem plausible. Both samples were near 19 years of age. TMT research has shown an elevation in death anxiety for individuals in their 20s. Perhaps participants in the Russian sample were beginning to experience this increase, which would explain the results found that Russian participants rated the pro-nationalistic author more favorably (worldview bolstering behavior), compared to American's. However, following this age-related argument, participants in the PMS and CMS should have engaged in significantly more worldview defense compared to the control condition. But this did not occur in the current study.

Other possible differences between Russian and U.S. samples, and within groups, may have been personal need for structure, which may have influenced the results. Perhaps, Russian participants have a greater personal need for structure, which may account for increased worldview bolstering behavior among Russian participants overall,

compared to the American participants, although this was not consistent with anti-nationalistic author evaluations. Personal need for structure has been found to increase worldview defense (Juhl & Clay, 2010).

Another exploratory aspect of the current study was the inclusion of a Collective Mortality Salience condition. The induction used in this study was adapted from Kashima et al. 2004, but altered slightly to replace annihilation due to meteorite with annihilation due to a natural disaster, due to it being more plausible for the cultures investigated in this study. The findings did not support our predictions regarding differences in worldview defense between Personal (traditional) Mortality Salience condition and Collective Mortality Salience condition Collectivistic and Individualistic cultures. This lack of support for this prediction may be due to lack of differences in Collectivism and Individualism between our samples. Lack of findings may also be due to limited testing of this novel induction.

The mortality salience hypothesis has been validated in numerous published studies in which death-related thoughts have led to either more positive or negative evaluations of others, depending whether they promoted or criticized/challenged the cultural worldview. The results of this study did not replicate these findings. Mortality salience induction did not consistently evoke a more positive evaluation of pro-nationalistic essay authors and/or a more negative evaluation of anti-nationalistic essay authors who criticized cultural worldviews. Participants in the mortality salience condition (both personal mortality salience and collective mortality salience) did not reliably engage in greater defensive processes compared to the control condition. The results of the current study failed to replicate mortality salience effects, which has been

robust finding in TMT research. The following discussion attempts to account for the current results, considers limitations of the study, examines the universality of TMT, and proposes future directions of TMT research.

The lack of significant differences in pro-nationalistic and anti-nationalistic essay author ratings between mortality salience and control conditions may be due in part to the delay time to induce defensive processes, specifically worldview defense. A recent meta-analysis of TMT research found that differences in delay between mortality salience induction and the dependent measure resulted in mortality salience effect sizes. Burke, Martens, & Faucher (2010) found that studies with three-task delays (e.g. mood checklist plus word search puzzle plus innocuous filler survey) or two-task delays produced significantly larger effects compared to those with a single delay task or no delay. In addition to number of tasks, delay was also examined by estimates of length of time. Experiments with longer delays (7-20 minutes) produced significantly larger effects than experiments with shorter (2-6 minute) delays or no delays (Burke, Martens, & Faucher (2010). Based on these findings, it is possible that the current study did not provide either a sufficient length of time for delay or number of delay tasks to allow for death-related thoughts to recede from conscious awareness. TMT and research indicates that there is a time course of mortality salience effects and that unconscious effects (distal defensive processes) occur more strongly when thoughts of death are outside of consciousness but accessible.

Another explanation of the present results is that the death related thoughts were not sufficiently outside of participants' awareness to induce worldview defensive reactions among participants. TMT posits that death-thoughts are a necessary link

between mortality salience manipulations and worldview defense. Research supports this notion. Greenburg and colleagues (1994) showed that after the standard mortality salience induction, worldview defense occurs and death-related thoughts are evoked. Furthermore, in a study conducted by Arndt and colleagues, (Arndt, Greenburg, Pyszczynski, et al., 1997), subliminal priming using words “dead” and “pain” resulted in higher accessibility of death-related thoughts and greater worldview defense when compared with priming using the words “field” and “pain”. These researchers found in a follow-up study, when participants are aware of the word “death” being flashed, mortality salience effects do not immediately occur. Thus, awareness of death-related thoughts did not produce mortality salience effects. TMT theorists posit that this occurs because death related thoughts need to be outside of awareness in order for the worldview defense mechanism to be employed. This is because immediately after people concentrate on thoughts of death (i.e. the death-thoughts are in conscious awareness), proximal defenses are employed, such as suppression or denial of vulnerability, to remove death-thoughts from awareness. Arndt and colleagues (Arndt, Greenberg, Solomon, Pyszczynski, & Simon, 1997) investigated whether the removal of death-thoughts from conscious awareness is necessary for later worldview defense. They had participants think about their own mortality using the standard mortality salience induction and tested their accessibility to death related thoughts under cognitive loads during different time points. Participants were asked to remember an 11 number sequence (presented for 30 seconds), then presented with “filler items” which consisted of either mortality salience or control items, affect questionnaire, an initial word completion task measuring death-thought accessibility, distraction task (reading a passage), second word completion task

measuring death-thought accessibility. Manipulation involved high and low cognitive load tasks differing in interference tasks. Low cognitive load consisted of jotting down the number sequence immediately after the mortality salience induction. High cognitive load consisted of jotting down the number sequence either after the initial death-thought accessibility measure (and longer delay) or after the second death-thought accessibility measure (even longer delay). They hypothesize that high cognitive load disrupts participants' ability to suppress death-thoughts was supported in the finding that an immediate increase in death-related thought and worldview defense in both high cognitive load conditions.

One explanation for the failure to find consistently significant differences between worldview defense in the mortality salient condition compared to control condition, is that the cognitive load required in the delay tasks were not appropriate to produce mortality salience effects and that death-related thoughts were not sufficiently outside of participants' awareness to induce worldview defensive reactions among participants. The current study did not include a manipulation check to determine whether death-thoughts were actually evoked preceding the mortality salience induction. Although this is not a standard procedure in the literature, it would be helpful in future research, particularly when using a recently developed condition (collective mortality salience induction).

Cultural mindsets that have been imbued with death-related themes may desensitize reactions to death-primers. This may be true of Russian culture in general and more recently post-9/11 American culture. However, post 9/11 TMT research has found mortality salience effects with American samples, which reduces the plausibility of this argument. However, the timing and world events during which the current data was

collected may have influenced the findings. During a substantial part of data collection, the “Arab Spring” occurred. It is possible that this international event imbued the international psyche with images and thoughts of death. Additionally, an integral aspect to the ‘Arab Spring’ movement was challenging worldviews, beliefs and values of the dominant government regimes. Thus, tolerance for or even bias towards challenging and criticizing the main worldviews of specific nations was evident during this time and may partly account for reduction in negative evaluations of others who challenge or oppose nationalistic views in the current study.

Another possible factor that may explain the current results may be mode of thinking. Simon and colleagues (1997) found that mortality salience was less likely to produce worldview defense when participants were in a rational mode of thinking (compared to experiential mode of thinking). They found that participants in the experiential mode of thinking had more accessibility to death-related thoughts than did those participants in the rational thinking mode. It is possible that participants in the current study preferentially tended to employ a rational mode of thinking during the experiment or that experimental conditions induced a more rational thinking mode which resulted in less employment of defensive processes. The request to use language and write down one’s thoughts about death may activate a more rational thinking mode, whereas a request to draw or visualize and contemplate one’s death, may engage a more experiential response. This may be an area for alternative methods of MS induction in future research.

Individual psychosocial and personality characteristics may have influenced death-related anxiety and defensive reactions to mortality salience. For instance, self-

control has been shown to be a key mechanism for managing distressing thoughts and feelings about mortality (Gailliot and colleagues 2006 cited in Niesta, Fritsche, & Jonas, 2008). Studies have found that after being primed with death, participants high in self-control produced fewer death-related thoughts and reported less death anxiety than low self-control participants, were less likely to perceive death-related themes and exhibited less worldview defense. Moderating variables in this study that were found to influence worldview defense measures were self-esteem, nationalism, individualism/collectivism, and collectivism. Self-esteem appeared to moderate the positive composite trait score, negative composite trait score, and overall composite evaluation for the pro-nationalistic author, such that individuals with higher self-esteem rated the pro-nationalistic author more favorably. However, this finding is in opposition to TMT hypothesis of self-esteem as an anxiety buffer which predicts that individuals in low self-esteem engage in greater worldview defense (such as rating an worldview similar other more favorably).

Nationalism moderated several worldview defense scores: the positive composite trait score, negative composite trait score, and overall composite evaluation for the pro-nationalistic author, as well as the negative composite trait score, and overall composite evaluation for the anti-nationalistic author. Individuals with higher nationalism rated the pro-nationalistic author more favorably, responded with greater negative evaluations of the anti-nationalistic author.

### **Limitations of the Study**

One main limitation of the current study mentioned above, is procedural. It is possible the delay task was not long enough to allow for sufficient time to produce worldview defensive process. Along this line, although delay tasks did serve as

distraction, perhaps they did not serve enough distraction to allow death related thoughts to recede from conscious awareness. A distraction task (puzzle completion, etc.) was not included, which may have more easily facilitated this process and produced different results. TMT research has provided some evidence that greater death thought accessibility occurs when the thoughts of death are removed from conscious awareness via a distraction task (Greenberg et al., 1994, for review see Burke, Martens, & Faucher, 2010).

Another limitation of the study is that for one of the measures of worldview defense, was only partly used, one question pertaining directly to the essay author. Other TMT studies have used several evaluative questions (3-5 questions) regarding the essay author as a measure worldview defense. Methodological issues are also relevant here. In Russia, the study was conducted in large classroom contexts, whereas in the U.S. participants were run in small groups. This may have produced differential responses between the two samples. Additionally, the stimulus value of the essays and/or inductions in PMS, CMS, and Control may not have been strong enough to produce internal reactions in these samples. This may be due to a host of pre-morbid individual characteristics, such as depression, tolerance to uncertainty, political orientation, etc., that may have contributed to responses biases. In terms of methodology, it was observed by that participants varied in length and content of their responses. Formal examination of participants' written responses to the MS inductions would have been an important factor to the current methodology to assess for quantity and quality of death-related content (or lack thereof), which could help determine differential responses among participants.

Other limitations include that the U.S. sample was from a small mid-eastern town where the majority of the population holds conservative political and social views. Prior research has indicated that conservative views serve to reduce/buffer death-related anxiety and threat. Although no measure of political orientation was included in the present study, it is possible that the political conservatism was a characteristic in this U.S. sample that may have confounded the results.

### **Closer Examination of TMT**

The lack of statistically significant evidence to support the basic tenants of TMT in this study is an important finding. Our data is not the first to fail to support TMT, as similar findings of non-significant results have been found, albeit few have been published. This calls into question the reliability and universality of TMT. If the TMT hypotheses of death anxiety and the dual component defensive processes are unique to all humans and are characteristic of the human condition, then mortality salience effects should be readily replicated in studies which follow a typical TMT experimental procedure.

### **Future Directions**

In light of the current study and lack of support for TMT predictions, a possible direction for future research may be investigations to examine immediacy and duration of mortality salience effects, specifically delay tasks (length of delay and type of delay or distraction). TMT literature would likely benefit from future examination of the durations in time that are required for defensive processes take in order to produce defensive

reactions and for how long these long mortality salience effects last (minutes, hours, days).

Further investigation into cross-cultural research, particularly with collectivist cultures is warranted to test the universality of TMT and attempt to answer questions central to the human condition. The exploration into alternative or additional mortality salience inductions (e.g. collective mortality salience induction and/or subliminal priming) to produce defensive reactions is an area of potential interest. Do defensive reactions (both proximal and distal) manifest differently depending on ones' culture? If so, how should we alter the methods by which we measure defensive reactions according to TMT? Related to culture and worldviews, there are likely to be different ways individuals and cultures think about death. This is likely to engender different death-related thoughts and resultant anxiety about death (personal or collective). A question remains whether the mortality salience manipulations that ask participants to think about their death are sufficient to activate defensive processes across all religions. Finally, there may be different aspects of the self that are activated during mortality salience inductions, which may vary based on cultural differences. How does the role of self-concept affect the mortality salience effects and can tests of Terror Management Theory account for this possible role. The above musings and questions are potential areas of further investigation.

## Appendix A

**Measure of National Identification****Russia**

1. I love Russia.
2. Other nations can learn a lot from us.
3. Being a Russian is an important part of my identity.
4. In today's world, the only way to know what to do is to rely on the leaders of our nation.
5. It is important to me to contribute to my nation.
6. Russia has the best army in the world.
7. It is important to me to view myself as a Russian.
8. It is important to me that everyone will see me as a Russian.
9. It is disloyal for Russians to criticize Russia.
10. It is important for me to serve my country.
11. Russia is better than other nations in all respects.
12. When I talk about Russians, I usually say "we" rather than "they."
13. There is generally a good reason for every rule and regulation made by our national authorities.

**U.S.**

1. I love America.
2. Other nations can learn a lot from us.
3. Being an American is an important part of my identity.
4. In today's world, the only way to know what to do is to rely on the leaders of our nation.
5. It is important to me to contribute to my nation.
6. The U.S. has the best army in the world.
7. It is important to me to view myself as an American.
8. It is important to me that everyone will see me as an American.
9. It is disloyal for Americans to criticize the U.S.
10. It is important for me to serve my country.
11. America is better than other nations in all respects.
12. When I talk about Americans, I usually say "we" rather than "they."
13. There is generally a good reason for every rule and regulation made by our national authorities.

## Appendix B

BELOW IS A LIST OF STATEMENTS DEALING WITH YOUR GENERAL FEELINGS ABOUT *YOURSELF*. IF YOU **STRONGLY AGREE**, CIRCLE **SA**. IF YOU **AGREE** WITH THE STATEMENT, CIRCLE **A**. IF YOU **DISAGREE**, CIRCLE **D**. IF YOU **STRONGLY DISAGREE**, CIRCLE **SD**.

		1. STRONGLY AGREE	2 AGREE	3. DISAGREE	4. STRONGLY DISAGREE
1.	I feel that I'm a person of worth, at least on an equal plane with others.	SA	A	D	SD
2.	I feel that I have a number of good qualities.	SA	A	D	SD
3.	All in all, I am inclined to feel that I am a failure.	SA	A	D	SD
4.	I am able to do things as well as most other people.	SA	A	D	SD
5.	I feel I do not have much to be proud of.	SA	A	D	SD
6.	I take a positive attitude toward myself.	SA	A	D	SD
7.	On the whole, I am satisfied with myself.	SA	A	D	SD
8.	I wish I could have more respect for myself.	SA	A	D	SD

9.	I certainly feel useless at times.	SA	A	D	SD
10.	At times I think I am no good at all.	SA	A	D	SD

**Ниже приведены высказывания, относящиеся к тому, как Вы обычно чувствуете относительно себя. Если Вы совершенно согласны, обведите цифру 1, если согласны - 2, если не согласны - 3, если совершенно не согласны - 4**

	Совершенно согласен	Согласен	Не согласен	Совершенно не согласен
1. Я чувствую, что я достойный человек, во всяком случае, не хуже, чем другие	1	2	3	4
2. Я чувствую, что у меня много хороших качеств	1	2	3	4
3. Я склонен чувствовать, что я неудачник	1	2	3	4
4. Я такой же способный, как многие другие люди	1	2	3	4
5. Я чувствую, что у меня не много оснований, чтобы гордиться собой	1	2	3	4
6. Я положительно отношусь к себе	1	2	3	4
7. В целом, я удовлетворен собой	1	2	3	4
8. Я хотел бы иметь больше уважения к себе	1	2	3	4
9. Я чувствую бесполезным веря от времени	1	2	3	4
10. Временами я чувствую, что у меня нет ничего хорошего	1	2	3	4

## Appendix C

### **Level of Religiosity**

1. How much does your religion provide meaning and purpose in your life?
2. How often do you ask for advice from a priest, pastor, or Holy person when you have to take an important decision in life?
3. How often do you think about God?
4. How often do you pray?
5. How often do you attend a religious ceremony?
6. How often do you visit temples/churches?

## Appendix D

**Positive and Negative Affect Scales (PANAS)**

Directions: This scale consists of a number of words that describe different feelings and emotions. Read each item and then circle the appropriate answer next to that word. Indicate to what extent you have felt this way during the past week, including right now. Use the following scale to record your answers.

(1) = Very slightly (2) = A little (3) = Moderately (4) = Quite a bit (5) = Extremely

or not at all

	<b>Very Slightly or Not at all</b>	<b>A Little</b>	<b>Moderately</b>	<b>Quite a Bit</b>	<b>Extremely</b>
1. Interested	1	2	3	4	5
2. Distressed	1	2	3	4	5
3. Excited	1	2	3	4	5
4. Upset	1	2	3	4	5
5. Strong	1	2	3	4	5
6. Guilty	1	2	3	4	5
7. Scared	1	2	3	4	5
8. Hostile	1	2	3	4	5
9. Enthusiastic	1	2	3	4	5
10. Proud	1	2	3	4	5
11. Irritable	1	2	3	4	5
12. Alert	1	2	3	4	5
13. Ashamed	1	2	3	4	5
14. Inspired	1	2	3	4	5
15. Nervous	1	2	3	4	5
16. Determined	1	2	3	4	5

17. Attentive	1	2	3	4	5
18. Jittery	1	2	3	4	5
19. Active	1	2	3	4	5
20. Afraid	1	2	3	4	5

**Инструкция:** Этот опросник содержит описание различных чувств и эмоций. Прочитайте каждое описание и обведите в какой мере Вы чувствовали себя в последнюю неделю, включая сегодня

	Совсем немного или не чувствовал	Немного	Умеренно	В большой мере	В очень большой мере
1. Заинтересованным	1	2	3	4	5
2. В состоянии стресса	1	2	3	4	5
3. Радостным	1	2	3	4	5
4. Расстроеным	1	2	3	4	5
5. Сильным	1	2	3	4	5
6. Виноватым	1	2	3	4	5
7. Испуганным	1	2	3	4	5
8. Враждебным	1	2	3	4	5
9. Чувствовал энтузиазм	1	2	3	4	5
10. Чувствовал гордость	1	2	3	4	5
11. Раздражительным	1	2	3	4	5
12. Тревожным	1	2	3	4	5
13. Чувствовал стыд	1	2	3	4	5
14. Вдохновенным	1	2	3	4	5

15. Нервозным	1	2	3	4	5
16. Решительным	1	2	3	4	5
17. Внимательным	1	2	3	4	5
18. Пугливым	1	2	3	4	5
19. Активным	1	2	3	4	5
20. Боящимся чего-то	1	2	3	4	5

## Appendix E

### Essay Samples

#### Pro-American Essay

The first thing that I noticed when I came to this country was individual freedom enjoyed by United States citizens. People are allowed to come and go as they please, excellent education and job training programs are available, and the quality of life of for people in this country is the best in the world. Even in areas where crime is prevalent, government officials and law enforcement officers can be trusted to protect the rights of all individuals. Even though the United States in the most powerful country in the world, they go out of their way to promote fairness and democracy in other nations and will even go to war to protect the rights of the citizens in foreign lands. I get angry when I hear people who complain about or criticize the United States and its government because clearly they have had the most profound positive effect on the world in general.

#### Anti-American Essay

When I first came to the United States, I arrived with the belief that it was the “land of opportunity”, but I was wrong. I soon realized that opportunities are plentiful if you are wealthy, but for persons of little means success is impossible. The only thing that people care about in the United States is money and how they can achieve more wealth than everyone else. There is no “brotherly love” here – instead, there is much prejudice - people join together and dominate smaller groups and individuals. Americans hardly think about the lives of foreigners unless those foreigners are identified as an enemy in war. America is a cold country that is totally insensitive to the needs and special problems of those who are new to this land – it thinks it is a great country but it is not.

#### Про-российский текст

Что отличает Россию от других стран – это ее люди с их невероятно глубоким внутренним миром, который связан многими узами с Российской историей. В России, люди способны на сердечное общение даже с теми людьми, с которыми они только недавно познакомились. Гостеприимство – это визитная карточка россиян. Гостям отдается все лучшее. Российская Федерация – это наиболее читающая страна, где много эрудированных людей.

#### Анти-российский текст

Русские - хмурые люди, ты не часто увидишь их улыбку на улице. Пьянство – это большая проблема в России. Люди также не заботятся об экологии: большие города загрязнены выхлопными газами и мусором. Большая проблема- коррупция. Русские завидуют успеху других и не могут разделить счастье другого. Многи люди нечестны и используют любые средства, чтобы достичь своей цели.

## Appendix F

**Evaluation of Essay Author**

Below are 30 words which describe personality characteristics. Please indicate your impressions of the author of the essay that you just read by indicating how applicable each of the following words seems to be to that individual. Place a number between 1 and 9 in the space next to each word to indicate how much you feel that it characterizes the target person. The numbers will indicate the following:

	1	2	3	4	5	6	7	8	9
	Not at all applicable				moderately applicable				extremely applicable
Rigid		_____		Patient				_____	
Honest		_____		Arrogant				_____	
Flexible		_____		Argumentative				_____	
Likeable		_____		Patriotic				_____	
Intelligent		_____		Warm				_____	
Reliable		_____		Snobbish				_____	
Contemptible		_____		Obnoxious				_____	
Tolerant		_____		Weak-Minded				_____	
Stable		_____		Self-Centered				_____	
Knowledgeable		_____		Hypocritical				_____	
Rational		_____		Generous				_____	
Kind		_____		Biased				_____	
Insensitive		_____		Ungrateful				_____	
Logical		_____		Naïve				_____	
Ignorant		_____		Opinionated				_____	

Overall, how positively or negatively do you feel about the author? \_\_\_\_\_

1 2 3 4 5 6 7 8 9  
Negatively

Positively



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