

The Effects of Mortality Salience and Social Isolation Salience on Individualistic and
Collectivistic Cognition

Jason Polykoff

Haverford College

Table of Contents

Abstract.....	3
INTRODUCTION	4
Terror Management Theory	4
Self-esteem	5
Cultural worldviews	6
Terror management theory methods	10
Dual defense model	11
Terror management theory and cognition	12
Criticisms of terror management theory	14
Coalitional Psychology	15
Culture, Individualism, and Collectivism	20
Culture	21
Individualism	22
Collectivism	23
Cognitive differences among individualists and collectivists	25
The Present Study	27
STUDY 1	30
Method	32
Participants & Design	32
Stimulus Materials	33
Procedure	35
Results	36
Discussion	36
STUDY 2	37
Method	39
Participants & Design	39
Stimulus Materials	40
Procedure	41
Results	42
Discussion	42
GENERAL DISCUSSION	43
References	55
Appendices	61

Abstract

Terror management theory asserts that humans have an inherent fear of dying, and when their death is made salient (mortality salience) they cling to their worldviews as a means to mitigate their fear. Coalitional psychology's claims diverge from this assumption, stating that it is not individuals' thoughts of death that cause them to attach to their worldviews, but instead, it is thoughts of being socially alone (social isolation salience). A study testing this assertion found no significant difference in thought accessibility between mortality salience and social isolation salience. Additionally, studies using cognitive tasks found that individuals from separate cultures (individualistic and collectivistic) think differently. The present study compared terror management theory claims and coalitional psychology claims on individualistic and collectivistic cognition. In Study 1, thought accessibility was examined using a word-completion task after participants were primed with individualistic or collectivistic thought, followed by mortality salience, social isolation salience, or neutral salience. In Study 2, participants completed two cognitive tasks, the Embedded Figures Task and the Self-Attribution Task, after being primed with the same saliences as the first study. Results from both studies produced no relevant significant findings. The potential confounds of the study's design and ideas for future research are discussed.

The Effects of Mortality Salience and Social Isolation Salience on Individualistic and Collectivistic Cognition

Psychological research attempts to deconstruct what individuals are thinking, and to analyze the features of human cognition that cause them to think that way. For instance, why are some individuals experts at finding “Waldo” in the *Where’s Waldo* books, while others are completely lost? Or, why would some individuals blame themselves for failing a math test, while others would blame the test for being too difficult? One could ascertain that these questions transcend personality differences, and lead to more of a cultural discrepancy. This implies that individuals from different cultures have unique and distinctive ways of thinking. If this were indeed true, it would be interesting to consider the cognitive differences between individuals of these cultures on existential concepts. For instance, do thoughts of one’s own death produce varying beliefs, ideas, and thoughts between these different cultures? What about the prospects of being socially alone? The present study will attempt to answer these questions and more, by looking at how individuals from different cultures cognitively respond to thoughts of their own death, and thoughts of social isolation.

Terror Management Theory

It is plausible to assume that when most individuals are questioned about their biggest fears, death is not at the forefront. More concrete entities are expressed, such as snakes, spiders, or heights. While most individuals have negative thoughts about the prospect of dying, in all probability they would claim that these thoughts have no effect on their lives. However, there is an assembly of psychological researchers who would assert just the opposite. These researchers would claim that not only is death humans’ deepest fear, but that this fear has a monumental influence on the construct of their behaviors and thoughts. The researchers of the

abovementioned assumption have extensively studied and written about this idea, which they have coined *terror management theory*. They believe this theory explains much of human behavior and cognition.

Humans have evolved into a unique species with complex mental capabilities, which have allowed them to understand and comprehend intricate aspects of life. Two particular higher level functions that humans possess are consciousness and self-consciousness (Pyszczynski, Solomon, & Greenberg, 2002). That is, they are aware of their environment and of their own existence, actions and thoughts. A byproduct of this ability is the understanding of one's eventual death. This idea separates humans from non-humans, and allows for the understanding of terror management theory.

Terror management theorists claim that all humans are born with an intrinsic knowledge of their impending death. This knowledge is said to overwhelm them and cause them to feel uncontrollable terror. The terror is caused by "...the unsettling awareness of one's inexorable death... [and the recognition] that death not only is unavoidable but also can often occur quite tragically and prematurely..." (Pyszczynski et al., 2002, p. 15). This theory states that humans are so overwhelmed by the fear of their impending death that they are unable to function. To remedy this, humans have adapted mechanisms to buffer their fear and reconcile their helplessness.

Self-esteem. According to terror management theorists, self-esteem is determined by how well individuals consider themselves a valued contributor to their culture. From infancy, humans from their respective cultures are constantly reminded what is behaviorally right and wrong. When children behave in culturally acceptable manners, they are rewarded with approval and/or admiration. When they behave in culturally unacceptable ways, they are scorned and disciplined.

Thus, infants are conditioned to believe that behaving in socially acceptable ways are, in a sense, good. With that, humans acquire positive feelings about themselves (self-esteem) by contributing to their culture's beliefs. As Pyszczynski and colleagues state, "As long as we feel like valuable contributors within the cultural worldview to which we subscribe, we can pursue our daily activities feeling confident and secure" (Pyszczynski et al., 2002, p. 26). Culture provides individuals with positive feelings about themselves, which in turn, raises self-esteem.

According to terror management theorists, self-esteem is a human entity that has been constructed through culture by its inhabitants (Solomon, Greenberg, & Pyszczynski, 2004). If individuals feel they are "objects of value in a world of meaning" than they will not fear death (Pyszczynski et al., 2002). Thus, self-esteem should act as a buffer against the anxiety of one's death. The higher individuals' self-esteem, the less anxious they are. Thus, terror management theorists believe that individuals who are forced to think of their own death will report varying levels of anxiety depending on their self-esteem. In order to test this hypothesis researchers conducted several studies testing participants' self-esteem against their levels of anxiousness.

Greenberg and colleagues (1992) produced a series of studies comparing increased self-esteem to anxiety reduction. The results indicated that individuals with higher self-esteem reported less anxiety (Study 1). They also showed that self-esteem can act as an anxiety buffer to the threat of an impending electrical shock, by looking at one's physiological arousal (Study 2). The researchers concluded that that self-esteem acts as an anxiety buffering tool. Once this conclusion was established, terror management theorists attempted to extend the research and compare thoughts of death with self-esteem, anxiety, and cultural worldviews.

Cultural worldviews. Like most obstacles that face an organism's survival, humans have adapted mechanisms to account for their paralyzing terror. Terror management theorists believe

that culture acts as a buffer for humans' fear of dying. Culture provides worldviews that explain existence and mitigate the mysteriousness of the afterlife. That is, it provides humans with the reassurance that their life is significant and meaningful, and not simply a countdown until their demise.

Humans have established many cultural worldviews that have helped them their fear of death. For example, individuals have adopted religious worldviews to aid them with the mysteriousness of the afterlife. Religion helps reassure humans about death by answering existential questions (e.g., is there a heaven and/or reincarnation?). This allows humans to feel a sense of immortality, which alleviates their fear of dying. As terror management theorists claim, "...cultural worldviews serve as an important anxiety reducing function by providing a sense of meaning and a recipe for attaining either symbolic or literal immortality" (Pyszczynski et al., 2002, p. 22). Symbolic immortality represents a legacy that humans are able to leave on Earth after their passing (e.g., offspring or artwork). He is inferring that culture acts as a tool that causes individuals to feel significant in the world, rather than a nonentity that will inevitably die. Humans not only use cultural worldviews to buffer their fear of death, but to diminish feelings of anxiety and establish a feeling on self-worth.

If culture acts as a device to provide meaning to one's life, then humans who were made to think of their own death would instinctively support advocates of their cultural worldviews, and defend against anything that would threaten them. Inducing individuals with salient thoughts of their own death is classified as *mortality salience*. Individuals induced with mortality salience act favorably to their own worldviews because it reaffirms the importance of their life. These same individuals would defend against a threat to their worldviews (worldview defense), because otherwise it would reduce the significance of their life and increase anxiousness (Salzman &

Halloran, 2004). Terror management theorists attempted to demonstrate mortality salience effects on worldview defense through a variety of studies.

Researchers have conducted many studies examining the effects of mortality salience on worldview defense. For example, one study attempted to look at worldview reactions according to moral transgressions. In a series of studies Rosenblatt, Greenberg, Solomon, Pyszczynski, and Lyon (1989) induced mortality salience in American municipal court judges who were then asked to set bonds for alleged prostitutes. The researchers chose prostitution because they felt that it represented a worldview counter to American morals. Researchers concluded that “Inducing subjects to think about their mortality presumably increased their need for faith in their values, and thus increased their desire to punish the moral transgressor,” by setting higher bonds (Rosenblatt et al., 1989, p. 683; Study 1). The researchers examined judges who had positive attitudes about prostitution and found that they did not set higher bonds. This is because prostitution is congruent with their worldviews, reducing the need for defense (Rosenblatt et al., 1989; Study 2). The researchers found that judges not only defended their cultural worldviews by punishing those that opposed them, but rewarded those whose worldviews were congruent with their own (Rosenblatt et al., 1989; Study 3).

Other studies lend support to mortality salience effects on worldview defense. For instance, one study found that under mortality salience Christian participants gave more positive judgments to other Christians, while giving more negative judgments to Jews (Greenberg et al., 1990; Study 1). Another study found that high authoritarian personalities induced with mortality salience gave poorer personality judgments to individuals that had contrasting views (Greenberg et al., 1990; Study 2). When examining youth culture, researchers discovered that high school students induced with mortality salience have more negative evaluations of an essay that is “anti-

youth,” and more positive evaluations of an essay that is “pro-youth,” than high school students not induced with mortality salience (Janssen et al., 1999). A study conducted on national identity found that Americans induced with mortality salience made more positive judgments about an interviewee that had favorable things to say about the U.S., and more negative judgments about an interviewee that had unfavorable things to say about the U.S., compared to a control group (Greenberg et al., 1990; Study 3). This study had consistent results when participants were subliminally induced with mortality salience as well (Arndt et al., 1997). All of the abovementioned studies provide empirical evidence for the notion that individuals who are made to think of their own death (mortality salience) will defend their worldviews against others who oppose them, and look positively upon individuals who agree with them.

Harmon-Jones, Simon, Greenberg, Pyszczynski, Solomon, and McGregor (1997) found that under mortality salience, individuals who were induced with high self-esteem reported less pro-U.S. bias than neutral self-esteem participants. The researchers concluded that the increased self-esteem reduced the participants’ need to defend their national identity, or worldview (Study 1). The researchers conducted a second study where instead of *inducing* participants with self-esteem, they examined their *dispositional* self-esteem. They found that the participants with high dispositional self-esteem acted similar to the participants in the first study who were induced with high self-esteem. That is, they showed lower levels of worldview defense, as compared to individuals with moderate dispositional self-esteem (Study 2). This evidence suggests that worldview defense is indeed reduced when individuals have high self-esteem. More importantly, this study demonstrates that mortality salience has interesting effects on how people react to their cultural worldviews.

In sum, the assumptions of terror management theory on human existence and behavior

can be traced back to the beginning of mankind. Adaptation and natural selection provided humans with a unique ability to process consciousness and self-consciousness. This ability has allowed for humans to conceive of their own impending death. Consequently, humans live in constant terror that they will die and be unable to leave a legacy on Earth. With this, humans have adapted culture to buffer this death anxiety, by providing them with a sense of meaning. This “sense of meaning” is manifested in self-esteem, which provides individuals with confidence and security, instead of anxiety and terror.

Terror management theory methods. The overall objective of terror management studies is to make participants aware of death and evaluate how they respond to various behavioral and cognitive measures. Videotape was one of the first methods used to generate thoughts of death in experimental participants. A video titled *Faces of Death* used death-related scenes to make participants feel a high state of anxiety (Greenberg et al., 1992). In another study, experimenters had participants positioned near a funeral home to elicit thoughts of death (Pyszczynski et al., 1996). While both of these are interesting and inventive ways to elicit thoughts of death, neither of them were used very frequently.

Subliminal priming has proven to be an efficient tool to effect individuals’ thoughts and behaviors. For example, a study performed on introductory psychology students found that participants viewed Chinese symbols more positively if they were subliminally primed with a picture of a person expressing happiness, and more negatively if they were subliminally primed with a picture of a person expressing anger (Murphy & Zajonc, 1993). The participants’ behaviors and attitudes towards inanimate objects were affected by unconsciously processed stimuli. Expanding on this idea, terror management theorists believed their participants could be induced with mortality salience by subliminal death-related words. A study by Arndt et al.

(1997) found that participants who were primed with the word *death* (mortality stimulus) had more death-related thought accessibility than participants subliminally primed with the word *field* (control stimulus). While this method was popular for inducing mortality salience, it still was not the most utilized.

Perhaps the most conventional method for inducing mortality salience is supraliminal priming, where individuals write about their own death. Through writing tasks, participants consciously consider the emotions and physical feeling of their own death. Individuals who write about their own death are forced into having death salient thoughts (Greenberg et al., 2004). These individuals are almost always matched against a control group who are asked to write about something random, such as watching television (Greenberg et al., 2004). The experimenters would compare each group's dependent measures after being made to think about their own death. Over 90 studies on terror management theory have validated this method's effects (Arndt et al., 2002). Over time, researchers have modified this method by implementing "distracter tasks" to make death-related thoughts more accessible.

Dual defense model. Terror management theory researchers have come to understand the function of individuals' cognitive defense mechanisms and have improved their methods accordingly. Terror management theorists posit that consciously thinking about death causes cognitive distress within humans because it produces such an unbearable terror. In order to remedy this anxiety individuals attempt to mitigate conscious awareness to death, by suppressing their death-related thoughts. This action is called *proximal defense*. However, even though the death thoughts are suppressed, they are still highly accessible. Consequently, individuals can be manipulated into extracting these death-related thoughts. To counter this, humans have evolved *distal defenses*, a strengthening of one's worldview (Pyszczynski et al., 2002). Thus, in order for

mortality salience effects to influence worldview defense, researchers must present death-related stimuli (e.g., write about one's own death) and allow it to be repressed (proximal defense). Once repressed, the death-related thoughts are no longer in conscious awareness, but are still highly accessible. When individuals are forced to think about death again (dependent measure) death thoughts become easily available, which consequently results in worldview defense (distal defense).

In order to account for these dual defenses terror management researchers have implemented a delay after mortality is made salient. This delay (e.g., Positive and Negative Affect Schedule [PANAS]; Watson, Clark, & Tellegen, 1988) allows for the suppression of death-related thoughts. Terror management theorists believe that if participants perform the dependent measures immediately following death salience, death will be in conscious thought and participants will show no signs of worldview defense. Greenberg et al. (1994) performed a series of studies demonstrating the importance of a delay following death salience. This experiment found greater worldview defense due to subtle inducement of mortality salience (Study 1); a delay task that is not death-related is better at producing distal defenses than a delay task that incorporates death (Study 2); worldview defense occurs when a delay task immediately follows mortality salience (Study 3); and death relevant themes are accessible only after a delay, and not immediately after mortality is made salient (Study 4).

Terror management theory and cognition. Much of the research presented thus far has been concerned with individuals' attitudes and emotions as a result of mortality salience. However, some studies have examined the effects of mortality salience effects on human cognition. More specifically, researchers believe that thoughts central to one's worldview will become more accessible under mortality salience (Arndt et al., 2002). That is, if an individual is

family-oriented, then when induced with mortality salience thoughts of family will become more accessible.

A series of studies performed by Arndt et al. (2002) looked at this idea in relation to accessible nationalistic thoughts. They performed their study on American college students with the assumption that individuals will show pro-U.S. defenses when induced with mortality salience. Additionally, they tested individuals' accessible thoughts by having them complete word fragments that could either be read as a nationalistic word or a non-nationalistic word (e.g. patr_ _ _; patriot or patrols). The results indicated that men increase their accessibility of nationalistic themes once induced with mortality salience (Study 1). A second study found that men under mortality salience have accessible nationalistic thoughts, and women under mortality salience have more romantic relationship accessible thoughts (Study 2). Arndt and colleagues concluded that nationalistic words were accessible to men because it corresponded to their worldviews, and romantic relationship words were more accessible to women because it fit their cultural worldviews.

Another body of research that has looked at mortality salience's relationship to cognition has dealt with self-serving attributions. As reported, when individuals are induced with mortality salience they attempt to boost their self-esteem in order to reduce anxiety. Research also indicates that people will protect their self-esteem by attributing successes to themselves, and failures to external sources. That is, death-related thoughts would cause individuals to make self-serving attributions in order to heighten their self-esteem and reduce anxiety.

Mikulincer & Florian (2002) found that individuals who were induced with mortality salience reported more self-serving attributions to event outcomes than a control group (Study 1 and Study 2). They also found that participants who were able to report causal attributions to

their performance reported less death-related thoughts than participants that did not report causal attributions (Study 3). The researchers concluded that individuals under mortality salience maintain self-esteem through self-serving attributions, which in turn, produce less accessible death-related thoughts. Also, individuals who do not attribute causes to an outcome do not have an opportunity to protect their self-esteem, and thus are more susceptible to death-related thoughts. The abovementioned studies indicate that there are strong effects on individuals' cognitive processes when they are induced with mortality salience.

Criticisms of terror management theory. Not surprisingly many individuals are skeptical of terror management theory and its resulting studies. An article by Buss (1997) questions terror management's link to evolutionary theory. While the theory does a good job of explaining how terror management spurs from an inherent human survival instinct, where humans reduce their anxiety of death allowing them function on Earth, he claims that "survival is important from an evolutionary perspective only insofar that it promotes reproduction" (Buss, 1997, p. 23). Buss feels that terror management theory makes no claims that promote reproductive fitness and thus is not a function of evolution. Along those same lines, some critics claim that a mechanism for reducing anxiety is maladaptive. They feel that humans have adapted the feeling of anxiety to warn us against danger, and that a mechanism that reduces this feeling would actually cause humans to behave detrimentally to their own wellbeing (Leary & Schreindorfer, 1997).

Buss also criticizes terror management theory's inability to explain why thoughts of death produce anxiety and not a host of other psychological reactions. Additionally, Buss argues that terror management theory does not give clear details as to the differences in social motivation between men and women (Buss, 1997). On the whole, men and women behave, feel, and attend to very different things. Buss claims that if terror management theory is relevant to all humans,

then why do we see such clear sex differences?

Other critiques attack terror management's overall assumptions. For instance, the theory claims that individuals have an inherent fear of death. However, others would suggest that it is not death that frightens people; it is the possibility of never-ending suffering that creates this worry (e.g., hell). This is especially true for individuals who believe they will suffer undeservingly. Additionally, they posit that it would not make sense that some individuals would prefer death to life if death is so frightening (Lerner, 1997).

Muraven and Baumeister (1997) critique terror management's assertion that *all* behavior spurs from the human instinct to live. In his article the researchers take a closer look at specific behaviors that seem counter to the theory's claim. The most obvious human behavior that runs counter to terror management theory's claim is suicide. Humans are clearly not protecting their survival by killing themselves. Another incongruent behavior is sex. People are able to survive their whole lives without having sex, yet people still do it. Additionally, sex can actually decrease one's chances of survival due to AIDS, problems during birth, and venereal diseases. While all of these criticisms seem to invalidate terror management theory, none of the aforementioned critiques have provided any type of concrete data.

Coalitional Psychology

While the aforementioned critiques are valid, none of them were able to discredit terror management theory through any type of experimental evidence. However, one study has provided empirical evidence that runs counter to terror management theory's assertion that it is the awareness of individuals' mortality that causes them to defend their cultural beliefs. Using an evolutionary approach Navarrete and colleagues (2004) showed that individuals respond to death-related stimuli, not only because of a fear of death, but because of a need to acquire social

support.

Many of the criticisms shared by Navarrete et al. are opinions shared by many terror management critics. For instance, like Buss (1997), they believe that there is something intrinsically wrong with identifying terror management theory as a survival instinct. They feel that in order for people to have a survival instinct, they have to have some sort of awareness of their impending death. However, because only humans have the ability to foresee their eventual death, all organisms cannot have a survival instinct, as terror management theorists claim. Additionally, they argue that while natural selection allows for the adaptation of mechanisms that will help animals avoid *situations* that could cause death, animals have not adapted mechanisms that will help them avoid *death*. So while animals may avoid a deadly predator, they do not have a mechanism that will cause them to avoid dying. The researchers also agree with Leary and Schreindorfer's (1997) criticism that any type of mechanism that inhibits anxiety would be inauspicious. They add to this reservation by stating that anxiety reduction is unfavorable because people may feel better temporarily, but they are still susceptible to dying. They use an analogy of a woman sitting on a railroad track while a train speeds towards her. Her worldviews may make her feel less anxious, but she is still going to be hit by the train (Navarrete et al., 2004).

The researchers claim that the behaviors resulting from mortality salience can better be explained through a coalitional psychology approach. That is, that individuals have accessible worldviews because "...of adaptive mechanisms that facilitate the formation of social networks, interpersonal attachments, and coalitions" (Navarrete et al., 2004, p. 372). In other words, people have an inherent desire to be part of a group because groups are especially adaptive in times of emergency. From an evolutionary perspective this makes sense because groups have proven

adaptive to survival in emergency situations such as predation pressure. For instance, groups function as more eyes and ears against a predator, more individuals to fight off a predator, and the chances of one individual surviving a predator attack increases as the group size increases.

The researchers claim that groups benefit individuals in times of emergency, which have caused people to adapt a strong preference for social relationships in emergency situations. With this, coalitional psychologists postulate that individuals who have been exposed to certain types of threatening stimuli will show "...increases in pro-normative attitudes towards one's relevant reference groups" (Navarrete et al., 2004, p. 373). These attitudes towards one's reference group are what terror management theorists coin, worldview defense. Thus, coalitional psychologists say that worldview defense is not restricted *death* stimuli, but can be *any* threat-related stimuli.

Coalitional psychologists believe that any type of stimulus that poses a threat to social relationships will result in worldview defense. This occurs because of a need to maintain alliances. Thus, Navarrete and colleagues (2004) felt that making individuals aware of a threat against their resources, and of being socially isolated, will produce the same behaviors as making individuals aware of their own mortality. Their rationale is that the loss of personal property (theft-salience) will cause individuals to worry about their resources, triggering them to look for social support and to seek vengeance on the thieves. In addition, making individuals aware of the threat of being socially alone (social isolation salience) will cause individuals to desire to be included in social groups. Thus, the researchers hypothesized that inducing theft-salience and social isolation salience in participants will result in the same worldview defense behavior as mortality salience.

Their first study compared four groups (mortality salience, theft-salience, social isolation salience, and a control) and the worldview defense they exhibit. The study was performed on

American students who rated themselves as having a high American identity. Once participants were induced with each salience they read two essays written by foreign students. One essay criticized the U.S. while the other essay praised the U.S. The results indicated that individuals induced with mortality salience, theft-salience and social isolation salience had higher reports of a pro-American bias compared to the control condition; however only the mortality salience and theft-salience showed significant differences. The researchers concluded that their predictions were correct and that individuals who were faced with *any* threatening situation to their social relationships conformed "...to the standards of their ingroup by overtly embodying those norms" (Study 1).

A second study was conducted to test whether participants were thinking about death when induced with theft-salience and social isolation salience. If the participants did have death-related thoughts when induced with these two saliences than it would disprove their assumptions. In order to test this idea, American participants were split into the same four groups as the first study. After being induced with their respective saliences, individuals completed Arndt et al.'s (1997) word completion task to test whether death thoughts were accessible. This task had incomplete words that represented either a death-related word or a non-death-related word (e.g., coff__ ; "coffin" or "coffee"). Results indicated that death-related words were highly accessible to the participants in the mortality salience group, but not the theft-salience or social isolation salience groups. The researchers concluded that participants induced with theft-salience and social isolation salience were not thinking about death when they showed pro-U.S. biases (Study 2).

Navarrete et al. (2004) performed a third and fourth study to test their hypotheses on individuals from Costa Rica. They claimed that the Costa Rican culture has different cultural

values than the United States. More specifically it is a “smaller-scale society... [that is] not exposed to a university education, with differing cultural values regarding death and personal autonomy” (Navarrete et al., 2004, p. 382). The researchers believed that if their assumptions were correct, then it would hold true for individuals cross-culturally.

The procedure for these studies followed the same basic format of the first two studies. Participants were split into the same four groups, and were induced into each respective salience through supraliminal essays, whose directions were translated from English to Spanish. Participants read two essays that were written by individuals from another Latin American country. The results indicated that individuals induced with theft-salience and social isolation salience had significant pro-Costa Rican bias compared to the control, while the mortality salience group did not significantly differ from the control group (Study 3).

The researchers were intrigued by the large difference in pro-Costa Rican bias between the mortality-salience group and the social isolation group. They believed that this large difference could be a result of the varying cultural beliefs of the two countries. Costa Rica has traditionally been considered more of a group oriented culture than the U.S., and thus it would fit that Costa Ricans would be more threatened by social isolation. In order to see if the differences in the two saliences were a function of Costa Rica’s communal culture, the researchers conducted a final study that compared the participants’ collective thought tendencies under mortality salience and social isolation salience. They found that again that the social isolation salience group reported significantly higher pro-Costa Rican biases (by itself and as a function of collectivistic thought) compared to the control, while the mortality salience group did not. They concluded that in a culture where communal thought is valued more than individual thought, people who have “strongly internalized sociocentric values” should be more reactive to threats of

social isolation than those who do not (Study 4).

Overall, the researchers concluded that worldview defense could be induced by other means besides mortality salience. More specifically, worldview defense is a result of a threat to one's social relationships. Additionally, they concluded that their hypothesis is even more valid considering it holds true over two very different cultures (Navarrete et al., 2004). As of now terror management theorists have yet to address the results of this study. Thus, a more comprehensive study comparing terror management theory against the coalitional psychology findings is needed. An examination concerning culture seems most applicable, considering these two theories make assumptions about human cognition based on culture.

Culture, Individualism, and Collectivism

According to terror management theory, culture plays a large role in how people buffer their fear of death. Culture provides worldviews that explain life and mitigate the mysteriousness of death. Terror management theorists assume the processes described in their theory are uniform across all cultures. This is a fascinating assumption considering the vastly different cultures in the world. For simplicity purposes, researchers have organized many of the world's cultures into two distinct groups: individualistic cultures and collectivistic cultures. These two types of societies seem to vary in attitudes, beliefs, and behaviors. What is interesting to consider is whether there are indeed differences in how individuals in these separate cultures respond to thoughts of their own death. That is, whether an individual in a culture focused on collective group goals will have the same cognitive effects as a person in a culture where the individual's needs are in the forefront, once they are both induced with mortality salience. Before making any educated guesses it is important to understand the origins of culture, and the variations between individualistic and collectivistic societies.

Culture. Every human is part of some type of culture. The culture can be as large as one's country, or as small as one's family. Culture is believed to "...represent a coalescence of discrete behavioral norms and cognitions shared by individuals within some definable population that are distinct from those shared within other populations" (Lehman et al., 2004, p. 690). Terror management theorists would say that culture was adapted as a mechanism to defend against one's fear of death. From a coalitional psychology perspective, it is believed that humans have adapted mechanisms that make forming groups attractive. Either way, these mechanisms have caused individuals to adopt cultural norms (common beliefs, expectations, and practices) to maintain group cohesion (Lehman et al., 2004). Thus, it is assumed that most individuals think, feel, and behave similarly within the same culture.

While there may be varying interpretations of how culture was formed, all approaches are linked by the same common idea; most individuals within a culture share the same beliefs, behaviors and thoughts. However, while one culture and its inhabitants may believe in one idea, another culture may believe in something entirely different. Many researchers have been intrigued by the notion that various cultures act differently, and have performed studies to assess these differences and make inferences about them. While it is understood that there are many similarities and differences between cultures, researchers have organized most cultures beneath two umbrellas: individualism and collectivism. Nisbett, Peng, Choi, and Norenzayan (2001) justify these two culture-types through a historical overview of Ancient Greek and Chinese societies. They report that Ancient Greeks were individualistic because they believed in personal freedom, debate, personal agency, and discovery, while the Ancient Chinese believed in collective agency, community rights, ingroup harmony, and reciprocal social obligation (Nisbett et al., 2001). They relate these culture-types to present day individualistic (Greek/Western) and

collectivistic (Chinese/Easterner) cultures.

Individualism. It is interesting to consider what attributes would cause a society to become individualistic. According to Triandis (1989) the complexity of the culture and affluence of its individuals has a strong influence on its identity. He reports that a complex culture provides many possibilities for ingroups. That is, the more industrialized and rational a culture is the more opportunities individuals within that culture have to form groups. Additionally, the affluence of the individuals provides them with the ability to join one of these ingroups, or to create one of their own. Because ingroups are so accessible, individuals have the ability to leave ingroups whenever they please. As a result, ingroups do not put much social pressure on its individuals to conform to the group; otherwise they would leave and join an ingroup that is more desirable. Thus, people can behave according to their own needs without feeling anxiety about the possibility of being forced to leave their ingroup. This is one explanation for why and how society's become individualistic.

Today, North American, and Northern and Western European countries are considered individualistic cultures. It is believed that children within these cultures are raised such that they adopt individualistic behaviors. For example, in these countries children are raised to be self-reliant, independent, and creative (Triandis, 1989). Individualistic individuals are thought to put their personal goals ahead of their ingroup's goals, and are less attentive to the views of the ingroup. They also feel more detached from their ingroups than collectivists. They choose to handle competition on their own and do not rely on others for help. Along the same lines, individualists tend to make decisions and rely on themselves rather than take the advice of others. Finally, when compared to collectivistic individuals, individualists have less concern for their ingroup (Triandis, Bontempo, Villareal, Asai, & Lucca, 1988). An interview of 200 U.S.

Americans (individualists) showed that they are self-reliant, independent, separated from family, religion, and community, hedonistic, utilitarian, competitive, fair, trust others, value competence, involved in community life and associations, reject arbitrary authority, and helpful to the community if they get something in exchange (Bellah, Madsen, Sullivan, Swindler, & Tipton, 1985). It is important to note that all of the qualities listed are general patterns of individualism found in American citizens, and may or may not be found in other individualistic cultures.

Collectivism. Most of the attributes that make up collectivistic cultures vary from the patterns found in individualistic cultures. For instance, it is thought that a society becomes collectivistic because there are very few accessible ingroups for its residents. This allows for group demands by group members without having to worry about group members leaving and joining another ingroup. Additionally, to encourage support, ingroups will reward its affiliates. In turn, “as rewards from ingroup membership increase, the more likely it is that a person will use ingroup goals as guides for behavior” (Triandis, 1989, p. 510). Rewarding individuals for their compliance tends to foster commitment to the culture’s collectivism.

The cultures that are traditionally collectivistic include Latin American, Asian, and African societies. Parents in these societies raise their children differently than individualists, and in a way that cultivates collectivistic traditions. In these cultures, children are raised to be obedient, reliable and behave properly. Parents attempt to emphasize the importance of community to their children, and deemphasize autonomy. They train their children to think and act this way so that they grow up putting the group’s goals ahead of their own personal goals, which is the basic foundation of a collectivistic culture (Triandis, 1989). Another trait found in collectivists is their tendency to worry about how their actions will affect the ingroup. They do not want to be a hindrance to the groups’ mission. Furthermore, collectivists share resources and

depend on others in their ingroup (Hui & Triandis, 1986; as cited in Triandis, 1989). Once again, all of these traits are common among collectivistic cultures but are not required traits. This is because there are individual differences among the population that make up a culture. It is important to look at the variations of individuals that consider themselves individualistic or collectivistic within these societies.

Individuals within a society do not always adhere to societal norms. It is quite possible for a group member to have a self-concept that challenges their society's identity. That is, it is possible to have both individualistic and collectivistic individuals living within both cultures. Individuals that consider themselves individualistic are said to have an idiocentric self-concept. That is, they are concerned with their own goals over the goals of others. Collectivistic individuals are said to have allocentric self-concepts, meaning their personal goals are in line with the goals on their ingroup, and will forgo their own needs to support those goals (Triandis et al., 1988).

While it is more common to find collectivistic individuals within a collectivistic society, it is possible to discover individualistic individuals within these communities as well. Interestingly, while both of these types of individuals live in these collectivistic societies, they each have very different behaviors, feelings and beliefs. For instance, Triandis et al. (1988) compared these two types of individuals within collectivistic cultures and found striking differences. For one, collectivists within a collectivistic culture accept the norms of the ingroup without any questioning. It is said that "acceptance of ingroup norms is an unstated assumption of the culture that they do not challenge" (Triandis et al., 1988, p. 325). Individualists that live in collectivistic cultures however, are hesitant to except the ingroup's norms, and at times are even cynical of them. They challenge the norms and inquire about there validity. Triandis and

colleagues found that while these individuals question the norms of their culture, they still conform.

Like collectivistic cultures, individualistic cultures include both types of individuals as well. Comfortable in their environment, individualists are perfectly willing to achieve their goals independently and disregard the input of others. However, collectivistic individuals within these individualistic communities are concerned about the lack of community support. They feel these societies are too self-absorbed and do not consider the needs of others. Similarly to the individualistic citizens of the collectivist cultures, collectivists will question, but adhere to the norms of the society (Triandis et al., 1988). While there are individual differences within each culture, on the whole it is much more common to see a congruency between culture-type and individual-type. Additionally, the individuals that do differ seem to conform to the cultural norm. This is what allows for such strong differences between these two cultures. What is even more interesting is that these differences manifest themselves not only in the individuals' behaviors, but in their cognitive processes as well.

Cognitive differences among individualists and collectivists. In Nisbett and colleagues' (2001) article, they claim that "social organization" has an effect on one's "cognitive processes" through indirect attention of the environment and direct communication. What they concluded was that Easterners see wholes, Westerners see parts; Easterners are better at seeing relationships among elements in a field, Westerners are better at telling apart objects embedded in a field; Westerners feel they have control over an object or environment, Easterners do not. The researchers presented studies to prove the validity of their conclusions. Thus, they feel one's culture has an affect on how one thinks.

To show that Easterners attend to objects as holistic and not in parts, Nisbett and

colleagues (2001) presented a study using Rorschach cards. In this study European Americans (Westerners) and Chinese Americans (Easterners) were presented Rorschach cards and asked to give a response about them. The researchers found that the Chinese Americans tended to give responses that dealt with the entire card. That is, they talked about all the aspects of the card. Conversely, the European Americans tended to give responses that dealt with specific aspects of the card. From this, the researchers concluded that Easterners have a tendency to attend to holistic information, while Westerners seem to attend to specific details of an object (Abel & Hsu, 1949; as cited in Nisbett et al., 2001).

Another study proved that Easterners attend to the entire field of a given context, while Westerners attend to specific focal information. In this study, Japanese (Easterners) and American (Westerners) participants were presented animated scenes of fish and other underwater objects and were asked to report what they saw. The researchers reported that the Japanese participants attended to the entire setting. That is, they reported seeing not only the fish, but the other objects within the background of the animation as well. The American participants however, seemed to focus only on the objects that were in the center of attention, or focal objects. Additionally, the Japanese participants were able to report changes in the background scenery better than the American participants. The researchers concluded that the Japanese participants were much better at observing the entire context of the animated scene, while the American participants focused more on specific objects in focal attention (Masuda & Nisbett, 2001).

Nisbett and colleagues (2001) reported a study that examined cognitive differences between individualists and collectivists in relation to field dependence. They hypothesized that individualists would be better at separating an object from a field because they are better at

“decontextualization and analysis” (Nisbett et al., 2001, p. 297). Using a Rod and Frame Test, participants reported when they felt a rod, which sits inside a rectangular box that moves, is vertical. If one is able to separate the position of the rod from the position of the frame, than one is field independent. The results indicated that Easterners were in fact field dependent, as they were not able to report when the rod was vertical as well as the Westerners. Thus, the researchers concluded that Westerners are better at separating figures from their field (Ji, Peng, & Nisbett, 2000). In other study by Kühnen and colleagues (2001), the researchers supraliminally influenced the participants into having collectivistic and individualistic thought patterns by having them write ways in which they differ (individualistic) or are similar (collectivistic) to an ingroup (e.g., family). They presented the participants with an Embedded Figures Test, “...a series of complex visual patterns [where participants are] asked to discern smaller geometrical figures that are embedded in them” (Kühnen, Hannover, Roeder, Shah, Schubert, Upmeyer, & Zakaria, 2001, p. 400). The more difficult it is for people to separate the visual patterns from the small figures, the more field dependent they are. The results indicate that the participants who were primed to think interdependently (collectivistic) were more field dependent than the participants who were primed to think independently (individualistic). This is similar to the Rod and Frame study that indicated that Easterners (collectivistic) were more field dependent than the Westerners (collectivistic). Overall, the studies indicate that collectivistic individuals process information differently than individualistic individuals.

The Present Study

Since the introduction of terror management theory there has been a great deal of literature supporting its validity. More specifically, researchers have performed studies that demonstrate its astounding effects on self-esteem and worldview defense. Thus far, however,

there are still very few terror management studies that have tested the effects of mortality salience on cognition. While there have been a few studies that have tested thought accessibility, and self-serving attribution, there is still much to be learned from the effects of mortality salience on thought patterns (Arndt et al., 2002; Arndt et al., 1997; Navarrete et al., 2004; Mikulincer & Florian, 2002). The researchers will use the present study to extend beyond the literature and investigate the effects of mortality salience upon cognition using three popular cognitive tasks, a word completion task, The Embedded Figures Task (EFT), and the Self Attribution Task (AT; Witkin, 1950; McArthur, 1972).

To date there is only one study that challenges terror management theory's assumptions through empirical research. Navarrete et al. (2004) contested terror management theory's claim that individuals have an inherent fear of *death*, asserting individuals' desire to form social groups as a more plausible explanation. In turn, they introduced social isolation salience as an alternative to mortality salience. Due to Navarrete and colleague's intriguing findings, the researchers of the present study would like to expand the terror management theory and coalitional psychology findings, and compare mortality salience effects to social isolation effects on cognition. More specifically, we will look at the accessible thoughts obtained by mortality salience and social isolation salience, as well as the effects of each salience on the cognitive tasks mentioned previously.

Much of terror management theory's and coalitional psychology's claims about human behavior and cognition are rooted in culture. Terror management theory states that humans use culture as a means to buffer their unyielding fear of death (Pyszczynski et al., 2002). Coalitional psychologists believe that humans have an inherent desire to form and maintain social groups, which is recognized as culture (Navarrete et al., 2004). However, as stated previously,

researchers have categorized culture into two groups, individualism and collectivism. Reports indicate that individuals who live in these separate cultures have distinct ways of thinking (Nisbett et al., 2001). Considering culture is the foundation of both the theories to be examined, it would be illogical not to take the separate cognitive processes of these two culture-types into account. With that, the researchers of the present study will test the effects of mortality salience and social isolation salience on individualistic and collectivistic cognition. To our knowledge this will be the first study ever conducted comparing mortality salience and social isolation salience effects on these two culture-types.

In all, we will use the present study to test and extend the literature on:

1. The effects of mortality salience on cognition via cognitive tasks
2. Compare mortality salience effects to social isolation salience effects on cognition
3. Compare individualistic cognition and collectivistic cognition under mortality salience and social isolation salience

In order to effectively study each of the aforementioned ideas we will divide our research into two studies. Study 1 will test thought accessibility using the word completion task, and Study 2 will test cognitive processes using the EFT and the AT. Participants will be primed with either individualistic thought or collectivistic thought AND either mortality salience, social isolation salience, or neutral salience (control). In all, there will be six conditions: collectivistic thought with mortality salience, social isolation salience, or neutral salience, and individualistic thought with mortality salience, social isolation salience, or neutral salience. We will use the present study to compare and expand the current literature on terror management theory and coalitional psychology.

STUDY 1

Research shows that individualistic and collectivistic individuals think differently. Individualists are self-reliant, independent, utilitarian, competitive, and separated from family, religion, and community (Bellah, Madsen, Sullivan, Swindler, & Tipton, 1985). This is in stark contrast to collectivists who are community-based, deemphasize autonomy, put group's goals ahead of their own personal goals, share resources, and depend on others in their ingroup (Triandis, 1989; Hui & Triandis, 1986; as cited in Triandis, 1989). Because of these distinctions in cognition, it is fair to assume that individuals within each culture produce varying accessible thoughts. The current study will test individualistic and collectivistic thought accessibility using a word completion task.

Word completion tasks have proven to provide quality results for testing thought accessibility. For instance, a study found that individuals exposed "to media-portrayed thin idealised female images" caused participants to report many appearance and weight-related words on a word completion task. The researchers concluded that exposure to certain types of media cause individuals to have body image and weight accessible thoughts (Tiggemann et al., 2004). While much of the research on terror management theory has used death-related words in the word completion task, for the purposes of the present study, we will test individualistic and collectivistic thought accessibility using *death*-related words, *alone*-related words, and *fear*-related words.

Most of the research indicates that participants induced with mortality salience produce accessible death-related thoughts (Arndt et al., 2002; Arndt et al., 1997; Navarrete et al., 2004; Mikulincer & Florian, 2002). Navarrete and colleagues (2004) demonstrated this in their study comparing mortality salience and social isolation salience. They performed a word completion

task on American participants to show that mortality salience causes death-related thoughts, while social isolation salience does not (Navarrete et al., 2004, Study 2). Interestingly, this is the only known study to use a word completion task to look at mortality salience effects compared to social isolation salience effects on death-related thoughts. However, Navarrete and colleagues only performed the word completion task in America, an individualistic culture. From a coalitional psychology perspective, participants primed with either mortality salience or social isolation salience should cling to their ingroups and think more collectivistically. Thus, coalitional psychologists believe it is plausible that collectivistic individuals primed with social isolation salience could have accessible death-related thoughts. This is because being alone could elicit thoughts of death to individuals who value being part of a group. With that, we will use Study 1 to test whether social isolation salience causes collectivistic individuals to think of death.

In addition, while studies have looked at “death” related words on a word completion task, no study has ever used “alone” related words to test thought accessibility. Considering we are using a social isolation salience prime, it is important to see if it is making participants actually think of being alone. Additionally, no study has ever tested mortality salience effects on alone thought accessibility. Thus, it is possible that mortality salience and social isolation salience could each generate thoughts on being alone. Similarly, no study has ever looked at accessible “fear” related thoughts. Considering both mortality salience and social isolation salience suggest notions of fear, it only seems reasonable to test for this as well. Thus, our word completion task will encompass *death*, *alone*, and *fear*-related words. We will test to see if one’s culture has an effect on word accessibility under these saliencies.

We predict that, from a terror management viewpoint, no matter what culture condition participants are in (collectivistic or individualistic) they will report more death related words

when they are primed with mortality salience than if they are primed with social isolation salience or neutral salience. Terror management theorists would have no predictions for participants primed with social isolation salience, because it is not relevant to their theory. From a coalitional psychology perspective, participants primed with individualism and mortality salience will report the most death related words, while participants primed with individualism and social isolation will report the most alone related words. However, they predict that participants primed with collectivistic thought will report more death related words under both mortality salience and social isolation salience than neutral salience. This is because they believe that collectivistic individuals may process death related thoughts when seclusion is made salient.

Method

Participants & Design

A total of 86 (m = 30, f = 55, Unspecified = 1) Haverford College students participated in this experiment. The participants ranged between the ages of 18-22 years ($M = 19.38$, $S.D. = 1.38$). A majority of our participants were raised in the United States (84.9%), while others were raised in countries such as, Puerto Rico, Japan, India, England, Italy, Jamaica, Nepal, Norway, and Austria. Participants were recruited through introductory psychology classes, online postings, and experimenter contact. The introductory psychology students received credit for participating, while the others were entered into a \$50.00 lottery.

This was a 2 x 3 x 3 mixed factorial design. Participants received either an individualistic or collectivistic self prime, followed by either a mortality salience, social isolation salience, or neutral salience prime. Afterwards, they completed a word completion task that included references to death, social isolation, or fear words.

Stimulus Materials

Triandis (1995) devised a 32-item nine-point Likert-type questionnaire that was used to measure one's inherent allocentric and/or idiocentric tendencies (Appendix A). Half the questions were worded such that they represented allocentric (collectivistic) thoughts (e.g. "If my classmate gets a prize I would feel proud"; $\alpha = .71$); while the other half were worded such that they represented idiocentric (individualistic) thoughts (e.g. "I often do 'my own thing'"; $\alpha = .65$). The higher one rated the allocentric or the idiocentric questions, the higher their inherent collectivistic or individualistic tendencies.

A 10-item five-point Likert-type questionnaire was devised by Rosenberg (1965) to measure one's self-esteem (Appendix B). The questionnaire was comprised of questions pertaining to how individuals perceive themselves (e.g. "I feel that I'm a person of worth, at least on an equal plane with others"; $\alpha = .91$).

Participants received either an individualistic or collectivistic self prime. Self primes were administered supraliminally through a writing task, and a pronoun search task. The individualistic self prime, asked participants "to write about what makes you different from your family and friends" (Appendix C). In the collectivistic self prime, individuals were asked "to write about what you have in common with your family and friends" (Traifimow et al., 1991; Appendix D). In the individualistic pronoun search task participants were instructed to circle pronoun words in a paragraph describing a city scene (Appendix E). The individualistic self prime had all first person singular pronoun words (Appendix F), while the collectivistic self prime had all first person plural pronoun words (Brewer & Gardner, 1996; Appendix G).

Participants received either a mortality salience, social isolation salience, or neutral salience prime. They were induced with mortality salience by a supraliminal writing task, asking

them to describe “the emotions that the thought of *your own death* arouses in you” and to write “as specifically as you can, what you think will happen to you physically when you *die*” (Appendix H). Participants were induced with social isolation salience by replacing the words “your own death” in the first segment with the words, “being socially isolated from your friends and family,” and the word “die” in the second segment with the words, “are alone” (Appendix I). Lastly, participants were induced with a neutral salience by replacing the same words as above with “watching TV” and “watch TV” (Appendix J).

Participants were asked to complete a Positive and Negative Affect Schedule (PANAS; Appendix K). This 20-item five-point Likert-type questionnaire is used to measure participants’ self perceived feelings and emotions. Half the items represented negative emotions (e.g., “distressed” or “nervous”; $\alpha = .81$), while the other half represented positive emotions (e.g., “excited” or inspired”; $\alpha = .87$). This acted as a delay task so that the participants suppressed the self primes and salience primes (Watson, Clark, & Tellegen, 1988).

As the dependent measure, participants perform a word completion task (Appendix L). This task included 32 incomplete word fragments that the participant completed to create a whole word. The task included six death-related words (e.g. coff_ _; “coffin” or “coffee”; Greenberg et al., 1994), six social isolation related words (e.g. _olo; “solo” or “polo”), six fear-related words (e.g. s_ are; “scare” or “share”), and 14 neutral words (e.g. _ouse; “mouse” or “house”). For the current study, the researchers generated the social isolation related words and the fear-related words. All words were equated for word frequency. This task conveyed what words are accessible to the participant following each salience manipulation. A suspicion probe was administered following the word completion task. Lastly, writing utensils and a stopwatch were required materials for the study.

Procedure

In order to be eligible to participate in this study participants must have completed an online questionnaire, which was electronically mailed to them once they signed up to participate. The online questionnaire consisted of a demographics form (Appendix M), the Triandis (1995) individualism and collectivism questionnaire (designed to inform the researchers of the participant's inherent allocentric or idiocentric disposition), and the Rosenberg (1965) self-esteem scale. Participants were required to take this online questionnaire at least two days before coming into the lab so that the questions had no affect on the study's primes.

At the lab, participants were randomly assigned to one of the six priming groups and tested in rooms of one to four individuals. Participants filled out a consent form (Appendix N), read the instructions posted in the packet (Appendix O), and began the experiment. The first task the participants performed was the individualistic or collectivistic self-prime writing task. They had two minutes to complete this task. The researcher informed the participants when their two minutes were complete. Next, the participants had two minutes to complete the pronoun search task. Once again the researcher informed the participants when their two minutes were complete. The next task was the mortality salience, social isolation, or neutral salience writing task. Participants were given two minutes to complete the first segment, and another two minutes to complete the second segment. For each segment, the participants were informed when their time was complete. Following these tasks, participants completed the rest of the study at their own pace. The participants then filled in the PANAS questionnaire and the word completion task. After filling out a suspicion probe (Appendix P), participants were told the study was over and informed that they will receive a debriefing form via electronic mail.

Results

A mixed factorial ANOVA found a significant interaction between salience primes and word type $F(4, 150) = 2.65, p < .05$. Post hoc tests revealed that scores for participants in the neutral salience reported significantly higher *alone* words ($M = .51, S.D. = .18$) than *death* words ($M = .31, S.D. = .20$; Tukey's HSD, $p < .05$). No other means were significantly different in the salience prime (Table 1). There were no significant main effects among culture prime and word $F(2,150) = .88, p > .05$. There was also no significant three-way interaction between culture prime, salience prime, and word, $F(4, 150) = .67, p > .05$. Additionally, there were no significant main effects among word type and the covariates of inherent individualism or collectivism, positive or negative affect, or self-esteem ($p > .05$).

Table 1. Mean and standard deviation proportions for word type and salience prime on the word completion task.

		SALIENCE PRIME		
		Death (N = 30)	Social Isolation (N = 28)	Neutral (N = 28)
WORD TYPE	Death	$M = .39, S.D. = .23$	$M = .35, S.D. = .24$	$M = .31^*, S.D. = .20$
	Alone	$M = .36, S.D. = .17$	$M = .38, S.D. = .20$	$M = .51^*, S.D. = .18$
	Fear	$M = .42, S.D. = .25$	$M = .46, S.D. = .22$	$M = .45, S.D. = .18$

*Indicates a significant difference at $p < .05$

Discussion

The results indicate a significant difference between the participants' salience group and accessible words. However, after performing a post-hoc test it was discovered that only participants in the neutral salience group reported more *alone* words than *death* words. No other salience group reported significantly different accessible words. Upon further analysis, the results indicate that there were no significant results between accessible words and inherent

individualistic or collectivistic thought, positive or negative affect, or self-esteem.

Although we were testing the effects of individualism and collectivism on thought accessibility for participants induced with mortality salience and social isolation salience, we managed not to find any relevant reported significant accessible words. For instance, our findings indicate that individuals under mortality salience do not report having significantly more accessible death-related words. These results seem contrary to past literature, which found that death-related words were accessible when participants were primed with mortality salience (Arndt et al., 1997; Navarrete et al., 2004; Mikulincer & Florian, 2002). Additionally, our results show that none of our participants reported a significant amount of accessible alone or fear-related words. While it is feasible to assume that mortality salience would not elicit thoughts of fear, or of being alone, one would at least imagine that social isolation salience would produce alone-related thoughts.

Because we were unable to produce any significant results relating to word accessibility, we find it difficult to make any conclusions about individualistic and collectivistic culture on thought accessibility under mortality salience and social isolation salience. We believe, however, that the vast research supporting mortality salience's effects on death thought accessibility is too substantial to terminate our study. Thus, we feel we are still able to proceed onto our second. It is our hope that a different dependent variable will generate the effects that prior research has demonstrated. With that, we will use the EFT and the AT to produce the desired effects.

STUDY 2

This study will compare individualistic collectivistic cognition under mortality salience, social isolation salience, and neutral salience, using two cognitive tasks, the Embedded Figures Task and the Self Attribution Task. Each of these tasks tests cognitive performance according to

culture differences. As stated previously, individualists and collectivists think differently and thus have different interpretations of the world. The present study will attempt to test those differences.

We will investigate and see if mortality salience or social isolation salience effect how individualists and collectivists perform on the EFT. Past research indicates that collectivists are more field dependent than individualists, seeing objects in wholes rather than parts. Individualists, in contrast, are field independent and see objects in parts rather than whole entities (Abel & Hsu, 1949; as cited in Nisbett et al., 2001; Masuda & Nisbett, 2001; Ji et al., 2000). To confirm this finding Kühnen and colleagues (2001) initiated an EFT on a group of participants and found that individualists were better at reporting simple figures within a series of complex visual patterns, providing evidence of their field independency.

We believe that from a terror management theory perspective, participants primed with individualism will become more individualistic, and those primed with collectivism will become more collectivistic. This is because they will each cling to their respective individualistic and collectivistic worldviews. Thus, we predict that individualistic primed participants will be better at finding simple figures within complex figures than collectivistic primed participants. However, from a coalitional psychology perspective participants primed with either mortality salience or social isolation salience will cling to their ingroups and think more collectivistically. This is because they will both desire to connect to an ingroup. Thus, the participants in both salencies should be more field dependent causing them to perform worse on the EFT than the control group.

How individuals attribute causes to events has a lot to do with their culture. More specifically, individuals from collectivistic cultures attribute different causes to events than those

from individualistic cultures. prior research indicates that “individualism carries with it dispositional causality” and that “social context, situational constraints, and social roles figure prominently in person perception and causal reasoning” of collectivists (Miller, 1984; Morris & Peng, 1994; as cited in Oyserman et al., 2002, p. 35, p. 5). We plan to investigate individualistic and collectivistic thoughts on how individuals attribute causes to events once they have been primed with mortality salience or social isolation.

The two saliencies should produce similar results on the AT as they would on the EFT. Thus, from a terror management theorist’s perspective, we predict that individualists under mortality salience will attribute dispositional causes to events, while collectivists will make situational attributions. From a coalitional psychology viewpoint, we predict that participants under both mortality salience and social isolation salience will attribute more situational causes to an event.

Method

Participants & Design

A total of 94 ($m = 32$, $f = 62$) Haverford College students participated in this experiment. The participants ranged between the ages of 18-22 years ($M = 19.60$, $S.D. = 1.31$). A majority of our participants were raised in the United States (86.7%), while others were raised in countries such as, Bangladesh, China, India, Dominican Republic, Italy, Russia, Costa Rica, and South Korea. Participants were recruited through introductory psychology classes, online postings, and experimenter contact. The introductory psychology students received credit for participating, while the others received \$5.00 for participating.

This was a 2 x 3 x 2 mixed factorial design. Participants received either an individualistic or collectivistic self prime, followed by either a mortality salience, social isolation salience, or

neutral salience prime. Afterwards, they completed both the EFT and the AT.

Stimulus Materials

Most of materials are the same as Study 1, including the individualism ($\alpha = .76$) and collectivism ($\alpha = .75$) measures, the self esteem questionnaire ($\alpha = .92$), and the PANAS that tested positive emotions ($\alpha = .88$) and negative emotions ($\alpha = .80$). However, this study incorporated the addition of the EFT (Witkin, 1950) and the AT (McArthur, 1972) as new dependent measures, which will replace the word completion task.

The Embedded Figures Task (Appendix Q) measures individuals' field dependence by asking them to locate, and trace, a simple figure (e.g. triangle) within a complex figure (a series of lines and shapes that form a figure). Participants located and traced eight different simple figures within 23 different complex figures, creating 23 total puzzles. Three to five, black and white, simple figures, accompanied their respective complex figures for each page. The researcher recorded how many simple figures were found out of the 23 presented.

The Self Attribution Task (Appendix R) examines if individuals assign dispositional or situational causes to random events (e.g., "Markus received a "B" grade on his biology exam..."). A dispositional response is one that attributes a personal cause to an event (e.g., "...because he did not study hard enough"). A situational response is one that attributes a contextual cause to an event (e.g., "...because the test was hard"). Participants rated nine total events in the task. The names used in the events were controlled for gender such that there were three conventional male names (e.g., Markus), three female names (e.g., Miranda), and three unisex names (e.g., Jamie). The AT was rated by two independent coders for reliability. We averaged the two coders' scores together to obtain our dependent variable. Inter-rater reliability on each of the nine attribution task items ranged from kappa = .50 to .87, indicating moderate to

high agreement between coders. Lastly, writing utensils, a blue and a red pen, and a stopwatch were required materials for the study.

Procedure

This study followed the same basic procedure as study 1, where the participants read the instruction sheet (Appendix S) and the researcher fielded questions. The participants completed the same tasks as Study 1, except participants took the Embedded Figures Task and the Self Attribution Task instead of the word completion task. To control for order effects, participants were randomly assigned to take either the Embedded Figures Task or the Self Attribution Task first, with the other following immediately afterwards.

Participants read the instructions to the Embedded Figures Task and the instructor fielded questions. The instructor reiterated key instructional points to the participants (e.g., “The simple figure will appear in the same size and orientation within the complex figure”), and then prompted them to begin. Participants used blue pens to trace the simple figure within the complex figure. If they made an error, they used a red pen to correct their mistake. They were instructed to put their writing utensil down when five minutes were complete. The participants were instructed to skip #12 on the task because of an incongruence between the size of the simple figure and its embedded match in the complex figure.

Participants read the instructions for the Self Attribution Task and the instructor fielded questions. The participants began attributing causes when the instructor prompted them to begin. They were asked to put their writing utensil down when five minutes were complete. Following the completion of each task, participants were told the study was over and informed that they will receive a debriefing form via electronic mail.

Results

A mixed factorial ANOVA found a main effect for the culture prime on the AT, $F(1,91) = 5.60, p < .05$. A comparison of the means indicates that the individualistic primed group reported more dispositional attributions ($M = 1.42, S.D. = .03$), while the collectivistic primed group reported more situational attributions ($M = 1.52, S.D. = .03$). There was no main effect for salience prime on the AT, $F(2, 91) = .59, p > .05$. There was no significant interaction between culture and salience prime on the AT, $F(2,91) = 1.06, p > .05$. Additionally, there were no main effects for the culture prime on the EFT, $F(1,91) = 1.50, p > .05$, or the salience primes on the EFT, $F(2,91) = .70, p > .05$. There was also no significant interaction between culture prime, salience prime, and results on the EFT $F(2,91) = .36, p > .05$. Finally, there were no main effects among the AT or the EFT and the covariates of inherent individualism or collectivism, positive or negative affect, or self-esteem ($p > .05$).

Discussion

The results indicate that participants primed with individualism reported significantly different responses on the Self Attribution Task compared to the participants primed with collectivism. More specifically, participants primed with individualism reported more dispositional causes to events than participants primed with collectivism, who reported more situational causes. These findings support prior research which showed that individualistic individuals tend to give dispositional attributions to events, while collectivistic individuals produce situational attributions (Morris & Peng, 1994, Study 3; as cited in Oyserman et al., 2002). We found no other significant results for any of the other measures.

While the above finding supports past research on individualistic and collectivistic cognition, it is a trivial finding given that it was not what we were testing. Following terror

management theory assumptions, we predicted that participants under mortality salience would show individualistic thought behavior if primed with individualism, and collectivistic thought behavior if primed with collectivism. Through a coalitional psychology lens, we predicted that participants induced with either mortality salience or social isolation salience would show collectivistic thought behaviors, whether they were collectivistic or individualistic. Our results indicate that neither of these predictions came to fruition.

It is hard to conclude that mortality salience and/or social isolation salience have no effect on individualistic and collectivistic thought, considering our nonsignificant results have been found significant in prior research. For instance, studies have found that participants induced with mortality salience report more dispositional attributions to events than control participants (Casebolt, 1995). However, in our current study we were unable to discover any such findings. Additionally, separate research has shown that individualists perform significantly better on the EFT, finding more embedded simple figures, than collectivists (Kühnen et al., 2001). Once more, our study failed to produce similar results. Considering we have found nonsignificant results to previously proven outcomes, it is difficult to make any assumptions about our predictions and the validity of terror management theory and/or coalitional psychology theory.

GENERAL DISCUSSION

The intention of the current study was to extend the research on the effects of mortality salience on individuals' thought processes. In addition, we wanted to compare contrasting theories presented by terror management theorists and coalitional psychology theorists. Lastly, we intended to compare mortality salience effects with social isolation salience effects on individualistic and collectivistic cognition. In order to test these ideas we conducted two separate

studies.

Study 1 compared thought accessibility in participants induced with mortality salience, social isolation salience, or neutral salience by way of a word completion task. We wanted to look at individualistic and collectivistic culture's effect on thought accessibility in participants primed with these three saliences. Our results showed no significant findings, disallowing us to make any conclusions about the effects of culture on thought accessibility under these saliences. However, due to significant results from past research, we felt it was possible to move onto our second study.

Study 2 looked at mortality salience effects and social isolation salience effects on individualistic and collectivistic thought, using the Embedded Figures Task (EFT) and the Self Attribution Task (AT). We predicted that terror management theory would indicate that individuals induced with mortality salience would be field independent on the EFT and produce dispositional attributions on the AT, while those induced with collectivism would be field dependent on the EFT and produce situational attributions on the AT. From a coalitional psychology perspective, we predicted that individuals primed with mortality salience AND social isolation salience would be field dependent on the EFT and produce situational attributions on the AT. Similar to Study 1, we produced no significant results, prohibiting us from validating our predictions.

The findings from the present study disallow us to support many of the theories and ideas presented by past researchers. First, we were unable to support the past research on individualistic and collectivistic cognition. More specifically, the research stating there are unique differences in how individualists and collectivists attribute events and how they interpret objects in a field. We found nonsignificant results for each of these cognitive behaviors, which

past research found to be valid. For example, a study was performed comparing American and German participants (individualists) to Russian and Malaysian participants (collectivists) on the EFT. It was found that Americans and Germans were significantly more field independent, while Russians and Malaysians were significantly more field dependent (Kühnen et al., 2001). This study shows that individualists are more field independent and collectivists are more field dependent on the EFT. While this study indicates that on the EFT individualists are field independent and collectivists are field dependent, our study showed no significant differences in field dependence on the EFT. This was found for participants who were primed with individualism and collectivism, and for participants that were inherently individualistic and collectivistic. The only finding that was congruent with past literature was the participants' performance on the AT. Besides this result however, our nonsignificant findings prohibit us from supporting the literature comparing individualistic to collectivistic cognition.

We were also unable to support terror management theory findings. The terror management assumptions we tested in our study produced nonsignificant results. The first terror management hypothesis occurred in Study 1 when testing mortality salience effects on death thought accessibility. Terror management theorists claim that there is "high accessibility of death-related thoughts in mortality salience effects" (Greenberg et al., 1994, p. 625). Nonetheless, our results indicated that participants under mortality salience did not show death thought accessibility. Additionally, terror management theory states "Self-esteem may fortify a frontline, direct defense against death-related concern and may do so by reducing the accessibility of death-related constructs" (Harmon-Jones et al., 1997, pp. 33-34). Thus, terror management theory says that individuals with high self-esteem should show less death thought accessibility than those with lower self-esteem. However, in our study there was no significant

interaction between self-esteem and death-related words. Our second study produced similar nonsignificant findings.

According to terror management theory, individuals use cultural worldviews as a way to buffer against their fear of death, and that those who are primed with mortality salience display worldview defense by embracing those worldviews (Salzman & Halloran, 2004; Pyszczynski et al., 2002). When we administered the EFT and the AT in Study 2, from a terror management theory perspective, participants should have embraced the culture (individualistic or collectivistic) that they were primed with, and demonstrated this through the tasks. Thus, under mortality salience individualistic primed participants should have been more field independent on the EFT and produced more dispositional attributions on the AT, while collectivistic primed participants should have been field dependent on the EFT and produced more situational attributions on the AT. But, once again the results indicated that this did not occur for either the EFT or the AT. Additionally, like Study 1 there was no significant interaction between self-esteem and the dependent measures. Considering none of terror management theory's claims were confirmed in our study, we are unable to lend support to terror management theory assumptions.

We were also unable to confirm coalitional psychology's theory in relation to terror management theory. None of the coalitional psychology claims were found significant in our study. For instance, Navarrete and colleagues (2004) concluded that "the cognitive consequences of thinking about being... isolated are not explicable in terms of the elicitation of thoughts of death" (Navarrete et al., 2004, p. 391). In Study 1 however, we found no significant results showing this to be true. Not only did participants show no death-related accessibility to mortality salience, but they never confirmed that they were thinking of something other than death when

primed with social isolation salience. Thus, coalitional psychology's claim that individuals are not thinking about death when primed with mortality salience was never found.

Navarrete and colleagues (2004) predict that, "exposure to particular types of aversive stimuli, including... death, should lead to increases in pro-normative attitudes towards one's relevant reference groups" (Navarrete et al., 2004, p. 373). If this were indeed true, than the results of Study 2 should indicate that participants primed with both individualism and collectivism should have more collectivistic thought patterns when primed with either mortality salience or social isolation salience. This is because the participants would be latching onto their ingroups, which is a collectivistic behavior. However, the results of our study indicate that neither the participants in the individualistic or the collectivistic groups showed collectivistic behaviors on the EFT. Additionally, only the collectivistic primed group showed a collectivistic behavior on the AT, the individualistic group did not. If anything, this result would favor terror management theory, and contradict a coalitional psychology approach.

While we were unable to support neither terror management theory nor coalitional psychology assumptions, we feel that there has been far too much research supporting each of these theories for us to rule out their significance. A more probable conclusion for the nonsignificant results of our study lies in our study's design. That is, it is possible that the internal validity of our study was confounded, which helped contribute to our lack of findings. It must be acknowledged, however, that we diligently organized a well thought out and logical study. That is, we conducted an extensive literature review on the topics of terror management theory, coalitional psychology, and culture. In addition, we constructed the methods for both studies in accordance with past research. Both of our culture primes were successful techniques for inducing individualism and collectivism in prior studies (Traifimow et al., 1991; Brewer &

Gardner, 1996). The methods we used for inducing the mortality salience prime and the social isolation prime were also shown to work in past studies (Greenberg et al., 2004; Arndt et al., 2002). Most importantly our dependent variables, including the word completion task (Tiggemann et al., 2004; Arndt et al., 2002; Arndt et al., 1997; Navarrete et al., 2004; Mikulincer & Florian, 2002), the EFT (Witkin, 1950; Kühnen et al., 2001), and the AT (Witkin, 1950; Kühnen et al., 2001), have all been used in prior studies and have produced significant results. Thus, we find it perplexing that our study was unable to produce any relevant significant results. However, we will attempt to discuss a few possible errors that may have contributed to our nonsignificant findings. After reevaluating the entire study, we feel we may have located a few sources to our setbacks.

Our first assumption is that our dependent measure for Study 1 may have been flawed. While word completion tasks are common thought accessibility measures for the effects of mortality salience, most of the studies that incorporate them, and receive significant results, include only a few test words (measured variable), and complete the task with filler words (random word fragments). For instance, Arndt and colleagues (1997) used only four test words and 16 fillers in their study on worldview defense; Greenberg and colleagues (1994) used six test words and 14 fillers to look at thought accessibility after a distracter task; Harmon-Jones and colleagues (1997) used eight test words and 18 fillers in their study of mortality salience and self-esteem; and Navarrete and colleagues (2004) used six test words and 19 fillers when comparing terror management theory to coalitional psychology. In all, these studies show an approximate 1 to 3 ratio of test words to filler words.

The word completion task we used in our study incorporated six death-related words, six alone-related words, and six fear-related words. We completed our word completion task with 14

filler words. This means that we had four more test words than filler words, for an approximate 1.3 to 1 ratio of test words to filler words. This is by far a smaller ratio of test words to filler words than the studies that have produced significant results. Additionally, because of the subject matter of our study, all the test words in the task had negative connotations. For instance, we had words like “corpse,” “skull,” and “funeral” for death; “outcast,” “lonely,” and “exclude” for social isolation; and “fright,” “horror,” and “panic” for fear. Because of their negative implications of these words, they are extremely recognizable. Thus, it is our belief that the substantial amount of test words compared to filler words combined with their identifiable negative nature, allowed for the participants to recognize what we were testing, and affect their responses on the task.

This claim is substantiated through the replies given by the participants on the suspicion probe. For instance, one participant felt the study “...was testing whether thinking about something distressing would lead me to choose words/feelings that are in turn more distressing like death.” Another participant was cognizant of the negative undertone of the test words, stating, “The words could easily be made into rather dark ones and the essays were about death.” Finally, one participant was able to fully explain the purpose of our study, “I think that this experiment was testing if thinking about being alone would make us fill in words involving being alone/separated.” In all, the suspicion probe responses lend support to the assumption that participants may have been conscious to the function of the word completion task, which could have altered their responses.

While there seems to be much evidence pointing to the failure of our Study 1 dependent measure, we must call attention to the fact that we did not obtain significant results in our second study as well. This would indicate that there was a confound in our entire experiment that was

not distinct to our first study's dependent measure. Instead, it would indicate that the confound was most likely fixed within our procedure. With this, we must look at our procedure and analyze all factors that could have contributed to our nonsignificant results.

A second assumption as to why our design produce nonsignificant results is that there was an oversight in how participants were primed. In both Study 1 and Study 2 we used writing tasks to first supraliminally prime participants into individualistic or collectivistic thought behaviors, and then supraliminally prime them into mortality salience, social isolation salience or neutral salience. It is quite possible that we "over primed" our participants. That is, that because we used two primes, we managed to diminish the effects of one, or both of them. Our study is not the first study to combine mortality salience with an additional prime. Other studies have found significant results by coupling mortality salience with primes such as, lust, self-esteem, and negative or positive ethnic stereotypes (Arndt et al., 2002; Harmon-Jones et al., 1997; Landau et al., 2006). However, according to our research this is the first study that has ever combined a mortality salience prime with an individualistic and a collectivistic prime. Additionally, this is the first ever study to combine a social isolation salience prime with any other prime. Because we have no other studies to compare our double-priming method, we cannot help but to conclude that priming mortality salience and/or social isolation salience along with an individualistic and/or collectivistic prime could weaken the effects of one, or all, of the primes.

A third assumption as to why we did not receive significant results is that our participants were aware of our supraliminal primes, and that a subliminal method of priming may have been more sensible. Whenever a study uses supraliminal priming it runs the risk of making the participants aware of the study's intentions. By explicitly trying to prime participants through

writing tasks, one is running the risk of having them become cognizant of a manipulation. Participants' expressed this in their responses to the suspicion probe. When asked what the study was about, one participant said, "The only thing I can think is that it was testing how the previous stuff [primes] could alter how I felt/how I filled in words." Other participants replied, "How thinking about family and death affected my ability to think," or "How ones family and friends [a]ffects one[s] personality and emotions," and "Something to do with my unconscious thoughts." These responses make it clear that there were participants that understood they were being manipulated to think a certain way.

Perhaps subliminally priming our participants would have been a more productive way of manipulating thought patterns. This could have been a beneficial strategy for a couple of reasons. First, it would have implicitly influenced our participants' cognition, protecting against any participant knowledge of a manipulation. Second, it would have allowed us to administer the dependent variable without including a distracter task. Arndt and colleagues (1997) express this idea when talking about mortality salience effects on worldview defense. They say, "whereas our typical supraliminal [mortality salience] induction does not produce effects on worldview defense until after a delay and distraction, subliminally presented death reminders produce immediate effects on worldview defense" (Arndt et al., 1997, p. 47). Third, completing the dependent measure immediately following priming seems to produce more significant results. A study comparing supraliminal versus subliminal mortality salience priming found that subliminal priming "increased accessibility of death-related themes and increased defense of the [cultural worldview]" more than supraliminal priming (Arndt et al., 1997, study 3, p. 384). All of these reasons provide evidence as to why a subliminal method for inducing our primes may have been a better strategy.

It is important to note, however, that supraliminal priming is a common method for inducing priming. As mentioned previously, over 90 studies have used supraliminal writing tasks as a means to induce mortality salience in its participants, and have produced significant results (Arndt et al., 2002). Because a considerable amount of findings using supraliminal methods of priming have proven successful, we decided to use this method in our study with the belief that it would work well. However, our results seem to indicate contrary.

Considering the present study was innovative and new research in the fields of terror management theory, coalitional psychology, and culture, we feel it is important that it be examined further in future studies. This study's findings bring about many ideas for further research on individualistic and collectivistic thought as it relates mortality salience and social isolation salience effects. In view of the fact that we were unable to produce any relevant results, replicating the current study with modifications to its design seems most pertinent. Thus, a design that corrects our setbacks in the current study may produce significant and innovative results.

Our first suggestion for future studies is to revise the word completion task. As mentioned, the small ratio of test words to filler words, combined with their clear negative connotation in the word completion task, may have contributed to our nonsignificant results. With this, we propose that a new study incorporate a 1 to 3 ratio of test words to filler words. This can be interpreted in two ways. First, the task could integrate the same 18 test words that we used in our study; however, it would need to include approximately 54 filler words as well. This would produce a 1 to 3 ratio of test words to filler words. Second, the study could include three different word completion tasks for death-related, alone-related, and fear-related words. Each of these tasks should have about six test words and 18 filler words. Instituting one, or both, of these

methods on the word completion task will reduce the overt intentions of the task.

Another suggestion for further research would be to subliminally prime the participants. Since our study included two separate supraliminal primes, the participants recognized that they were being manipulated, which could have affected our results. Thus, a study that uses a subliminal prime will account for this possible confound by masking the intentions of the manipulation (Arndt et al., 1997, Study 1, Study 3). We recommend subliminally priming the saliences for participants with the words *death* for mortality salience, *alone* for social isolation salience, and *field* for the neutral salience. The words “death” and “field” have proven efficient primes in prior studies (Landau et al., 2006; Arndt et al., 2001; Arndt et al., 1997). To date, there are no studies suggesting that individualistic or collectivistic cognition can be subliminally primed, only supraliminally primed. With this, we suggest including subliminal salience primes, but keeping the culture primes supraliminal. Including this strategy into the methods of future studies could protect the primes from being recognized.

A final suggestion for further research also involves the study’s primes. It was suggested earlier that having two primes in the course of one study could produce null effects. That is, that one prime may cancel out the other prime, which would affect the results of the study. To protect against this, we suggest that future studies relating individualistic and collectivistic thought on mortality salience and social isolation salience be conducted on individuals from these two culture-types. That is, that the study be conducted on individuals who are from Latin American, Asian, and African societies (collectivistic) with individuals from North American, and Northern and Western European countries (individualistic). This would eliminate the need for the culture primes, because the participants would already have inherent individualistic or collectivistic thought patterns. While our culture primes appeared to work (as evident by the AT, but not the

EFT), using only one prime would eliminate the possibility of a potentially damaging double-prime effect.

Altogether, we feel that a future study that implements a more thorough word completion task, along with subliminal salience primes on inherent individualistic and collectivistic individuals will produce significant results. All of these modifications should account for the possible confounds in the present study. This should, in turn, produce valuable findings that can be further analyzed and expanded upon.

In sum, the present study attempted to analyze the effects of mortality salience and social isolation salience on individualistic and collectivistic cognition. We conducted two studies that produced nonsignificant and irrelevant results. However, the implications of the results for this topic are far too important to discontinue all research. Instead, we recommend continuing to examine this body of work by evaluating our mistakes and altering the study's design. We feel that if our suggestions are taken into account for further studies, then original and influential findings will be revealed.

References

- Abel, T.M., & Hsu, F.I. (1949). Some aspects of personality of Chinese as revealed by the Rorschach Test. *Journal of Projective Techniques*, *13*, 285-301.
- Arndt, J., Allen, J. J. B., & Greenberg J. (2001). Traces of terror: Subliminal death primes and facial electromyographic indices of affect. *Motivation and Emotion*, *25*, 253-277.
- Arndt, J., Cook, A., and Greenberg, J. (2002). Mortality salience and the spreading activation of worldview-relevant constructs: exploring the cognitive architecture of terror management. *Journal of Experimental Psychology: General*, *131*, 307-324.
- Arndt, J., Greenberg, J., Pyszczynski, T., & Solomon, S. (1997). Subliminal exposure to death related stimuli increases defense of the cultural worldview. *Psychological Science*, *8*, 397-385.
- Arndt, J., Greenberg, J., Schimel, J., Pyszczynski, T., & Solomon, S. (2002). To belong or not to belong, that is the question: terror management and identification with gender and ethnicity. *Journal of Personality and Social Psychology*, *83*, 26-43.
- Bellah, R.N., Madsen, R., Sullivan, W.M., Swindler, A., & Tipton, S.M. (1985). *Habits of the heart: Individualism and commitment in American life*. Berkeley, CA: University of California Press.
- Brewer, M.B., & Gardner, W. (1996). Who is this "we"? Levels of collective identity and self representations. *Journal of Personality and Social Psychology*, *71*(1), 83-93.
- Buss, D.M. (1997). Human social motivation in evolutionary perspective: Grounding terror management theory. *Psychological Inquiry*, *8*, 22-26.
- Casebolt, J. R. (1995). Terror management and attributional derogation of AIDS victims. *The Sciences and Engineering*, *56*, 1148.

- Greenberg, J., Pyszczynski, T., Solomon, S., Rosenblatt, A., Veeder, M., Kirkland, S., & Lyon, D. (1990). Evidence for terror management theory II: The effects of mortality salience on reactions to those who threaten or bolster the cultural worldview. *Journal of Personality and Social Psychology*, *58*, 308-318.
- Greenberg, J., Pyszczynski, T., Solomon, S., Simon, L., & Breus, M. (1994). Role of conscious and accessibility of death-related thoughts in mortality salience effects. *Journal of Personality and Social Psychology*, *67*, 627-637.
- Greenberg, J., Solomon, S., Pyszczynski, T., Rosenblatt, A., Burling, J., Lyon, D., Simon, L., Pinel, E. (1992). Why do people need self-esteem? Converging evidence that self-esteem serves an anxiety-buffering function. *Journal of Personality and Social Psychology*, *63*, 913-922.
- Harmon-Jones, E., Simon, L., Greenberg, J., Pyszczynski, T., Solomon, S., & McGregor, H. (1997). Terror management theory and self-esteem: Evidence that increased self esteem reduces MS effects. *Journal of Personality and Social Psychology*, *72*, 24-36.
- Hui, C.H., & Triandis, H.C. (1986). Individualism-collectivism: A study of cross-cultural researchers. *Journal of Cross Cultural Psychology*, *17*, 225-248.
- Janssen, J., Dechesne, M., & Knipperberg, A.V. (1999). The psychological importance of youth culture: A terror management approach. *Youth and Society*, *31*, 152-167.
- Ji, L., Peng, K., & Nisbett R.E. (2000). Culture, control, and perception of relationships in the environment. *Journal of Personality and Social Psychology*, *78*, 943-955.
- Kruglanski, A.W., & Webster, D.M. (1991). Group members' reactions to opinion deviates and conformists at varying degrees of proximity to decision deadline and environmental noise. *Journal of Personality and Social Psychology*, *61*, 212-225.

- Kühnen, U., Hannover, B., Roeder, U., Shah, A. A., Schubert, B., Upmeyer, A., & Zakaria, S. (2001). Cross-cultural variations in identifying embedded figures: Comparisons from the United States, Germany, Russia, and Malaysia. *Journal of Cross-Cultural Psychology, 32*, 365-371.
- Kühnen, U., Hannover, B., & Schubert, B. (2001). The semantic-procedural interface model of the self: The role of self-knowledge for context-dependent versus context-independent modes of thinking. *Journal of Personality and Social Psychology, 80*, 397-409.
- Landau, M. J., Goldenberg, J. L., Greenberg, J., Gillath, O., Solomon, S., Cox, C., Martens, A., & Pyszczynski, T. (2006). The siren's call: Terror management and the threat of men's sexual attraction to women. *Journal of Personality and Social Psychology, 90*, 129-146.
- Leary, M.R. & Schreindorfer L.S. (1997). Unresolved issues with terror management theory. *Psychological Inquiry, 8*, 26-29.
- Lehman, D.R., Chiu, C., Schaller, M. (2004). Psychology and Culture. *Annual Review of Psychology, 55*, 689-714.
- Lerner, M.J. (1997). What does the belief in a just world protect us from: The dread of death or the fear of undeserved suffering? *Psychological Inquiry, 8*, 29-32.
- Masuda, T. & Nisbett, R.E. (2001). Attending holistically versus analytically: Comparing the context sensitivity of Japanese and Americans. *Journal of Personality and Social Psychology, 81*, 922-934.
- Mikulincer, M., & Florian, V. (2002). The effects of mortality salience on self-serving Attributions: Evidence for the function of self-esteem as a terror management mechanism. *Basic and Applied Social Psychology, 24*, 261-271.
- Miller, J. G. (1984). Culture and the development of everyday social explanation. *Journal of*

Personality and Social Psychology, 46, 961–978.

Morris, M. W., & Peng, K. (1994). Culture and cause: American and Chinese attributions for social and physical events. *Journal of Personality and Social Psychology*, 67, 949–971.

Muraven, M. & Baumeister R.F. (1997). Suicide, sex, terror, paralysis, and other pitfalls of reductionist self-preservation theory. *Psychological Inquiry*, 8, 36-40.

Murphy, S.T., & Zajonc, R.B. (1993). Affect, cognition and awareness: Affective priming with suboptimal and optimal stimulus. *Journal of Personality and Social Psychology*, 64, 723-739.

Navarrete, C.D., Kurzban, R., Fessler, M.T., & Kirkpatrick, L.A. (2004). Anxiety and intergroup bias: Terror management or coalitional psychology? *Group Processes & Intergroup Relations*, 7, 370-397.

Nisbett, R.E., Peng, K., Choi, I., & Norenzayan, A. (2001). Culture and systems of thought: Holistic versus analytic cognition. *Psychological Review*, 108, 291-310.

Oyserman, D., Coon, H. M., Kimmelmeier, M. (2002). Rethinking individualism and collectivism: Evaluation of theoretical assumptions and meta-analyses. *Psychological Bulletin*, 128, 3-72.

Pyszczynski, T., Greenberg, J., & Solomon, S. (2005). The machine in the ghost: A dual process model of defense against conscious and unconscious death-related thought. In J.P. Forgas, K.D. Williams, & S.M. Laham (Eds.), *Social motivations: Conscious and unconscious processes* (pp. 40-54). New York, NY: Cambridge University Press.

Pyszczynski, T., Solomon, S., & Greenberg, J. (2002). *In the Wake of 9/11: The psychology of terror*. Washington, DC: American Psychological Foundation.

Pyszczynski, T., Wicklund, R., Florescu, S., Gauch, G., Koch H., Solomon, S., and Greenberg, J.

- (1996). Whistling in the dark: exaggerated consensus estimates in response to incidental reminders of mortality. *Psychological Science*, 7, 332-336.
- Rosenberg, M. (1965). *Society and the adolescent self image*. Princeton, NJ: Princeton University Press.
- Rosenblatt, A., Greenberg, J., Solomon, S., Pyszczynski, T., & Lyon, D. (1989). Evidence for terror management theory I: The Effects of mortality salience on reactions to those who violate or uphold cultural values. *Journal of Personality and Social Psychology*, 57, 681-690.
- Salzman, M.B., & Halloran, M.J. (2004). Cultural trauma and recovery: cultural meaning, self-esteem, and the reconstruction of the cultural anxiety buffer. In J. Greenberg, S.L. Koole, T. Pyszczynski (Eds.), *Handbook of Experimental Existential Psychology*. (pp. 231-246). New York, NY: Guilford Press.
- Solomon, S., Greenberg, J., & Pyszczynski, T. (2004). The cultural animal: Twenty years of terror management theory and research. In J.Greenberg, S.L. Koole, & T., Pyszczynski (Eds.), *The Handbook of Experimental Existential Psychology* (pp. 13-33). New York, NY: Guilford.
- Tiggemann, M., Hargreaves, D., Polivy, J., & McFarlane, T. (2004). A word-stem completion task to assess implicit processing of appearance-related information. *Journal of Psychosomatic Research*, 57, 73-78.
- McArthur, L. A. (1972). The how and what of why: Some determinants and consequences of causal attribution. *Journal of Personality and Social Psychology*, 22, 171-193.
- Trafimow, D., Triandis, H.C., & Goto, S.G. (1991). Some tests of the distinctions between the private self and the collective self. *Journal of Personality and Social Psychology*, 60, 649-655.

Triandis, H.C. (1989). The self and social behavior in differing cultural contexts. *Psychological Review*, 96, 506-520.

Triandis, H.C. (1995). *Individualism and collectivism*. Boulder: Westview Press.

Triandis, H.C., Bontempo, R., Villareal, M.J., Asai, M., & Lucca N. (1988). Individualism and collectivism: cross-cultural perspectives on self-ingroup relationships. *Journal of Personality and Social Psychology*, 54, 323-338.

Watson D., Clark, L.A., & Tellegen, A. (1988). Development and validation of brief measures of positive and negative affect: the PANAS scales. *Journal of Personality and Social Psychology*, 54, 1063-1070.

Witkin, H. A. (1950). Individual differences in ease of perception in embedded figures. *Journal of Personality*, 19, 1-15.

Appendices

Appendix A

Using the 9-point scales provided, please rate the extent to which you agree with the following statements.

1. I prefer to be direct and forthright when I talk to people.

Strongly Disagree Strongly Agree

2. My happiness depends very much on the happiness of those around me.

Strongly Disagree Strongly Agree

3. I would do what would please my family, even if I detested that activity.

Strongly Disagree Strongly Agree

4. Winning is everything.

Strongly Disagree Strongly Agree

5. One should live one's life independently of others.

Strongly Disagree Strongly Agree

6. What happens to me is my own doing.

Strongly Disagree Strongly Agree

7. I usually sacrifice my self-interest for the benefit of my group.

Strongly Disagree Strongly Agree

8. It annoys me when other people perform better than I do.

Strongly Disagree Strongly Agree

9. It is important for me to maintain harmony within my group.

Strongly Disagree Strongly Agree

10. It is important to me that I do my job better than others.

Strongly Disagree Strongly Agree

11. I like sharing little things with my neighbors.

Strongly Disagree Strongly Agree

12. I enjoy working in situations involving competition with others.

Strongly Disagree Strongly Agree

13. We should keep our aging parents with us at home.

Strongly Disagree Strongly Agree

14. The well-being of my classmates is important to me.

Strongly Disagree Strongly Agree

15. I enjoy being unique and different from others in many ways.

Strongly Disagree Strongly Agree

16. If a relative were in financial difficulty, I would help within my means.

Strongly Disagree Strongly Agree

17. Children should feel honored if their parents receive a distinguished award.

Strongly Disagree Strongly Agree

18. I often do "my own thing".

Strongly Disagree Strongly Agree

19. Competition is the law of nature.

Strongly Disagree Strongly Agree

20. If my classmate gets a prize I would feel proud.

Strongly Disagree Strongly Agree

21. I am a unique individual.

Strongly Disagree Strongly Agree

22. To me, pleasure is spending time with others.

Strongly Disagree Strongly Agree

23. When another person does better than I do, I get tense and aroused.

Strongly Disagree Strongly Agree

24. I would sacrifice an activity that I enjoy very much if my family did not approve of it.

Strongly Disagree Strongly Agree

25. I like my privacy.

Strongly Disagree Strongly Agree

26. Without competition it is not possible to have a good society.

Strongly Disagree Strongly Agree

27. Children should be taught to place duty before pleasure.

Strongly Disagree Strongly Agree

28. I feel good when I cooperate with others.

Strongly Disagree Strongly Agree

29. I hate to disagree with others in my group.

Strongly Disagree Strongly Agree

30. Some people emphasize winning; I am not one of them.

Appendix B

Below you will find a number of personal belief statements. Please indicate your agreement or disagreement with each statement by clicking the appropriate response.

33. I feel that I'm a person of worth, at least on an equal plane with others.

Always False	Usually False	Sometimes True or False	Usually True	Always True
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

34. My opinion of myself tends to change a good deal.

Always False	Usually False	Sometimes True or False	Usually True	Always True
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

35. I feel that I have a number of good qualities.

Always False	Usually False	Sometimes True or False	Usually True	Always True
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

36. I find that on one day I have one opinion of myself, and on another day I have a different opinion.

Always False	Usually False	Sometimes True or False	Usually True	Always True
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

37. All in all, I am inclined to feel that I am a failure.

Always False	Usually False	Sometimes True or False	Usually True	Always True
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

38. I am able to do things as well as most other people.

Always False	Usually False	Sometimes True or False	Usually True	Always True
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

39. I have noticed that my ideas about myself seem to change very quickly.

Always False	Usually False	Sometimes True or False	Usually True	Always True
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

40. I feel I do not have much to be proud of.

Always False	Usually False	Sometimes True or False	Usually True	Always True
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

41. I take a positive attitude toward myself.

Always False	Usually False	Sometimes True or False	Usually True	Always True
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

42. On the whole, I am satisfied with myself.

Always False	Usually False	Sometimes True or False	Usually True	Always True
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

43. Some days I have a very good opinion of myself; other days I have a very poor opinion of myself.

Always False	Usually False	Sometimes True or False	Usually True	Always True
<input type="checkbox"/>				

44. I wish I could have more respect for myself.

Always False	Usually False	Sometimes True or False	Usually True	Always True
<input type="checkbox"/>				

45. I certainly feel useless at times.

Always False	Usually False	Sometimes True or False	Usually True	Always True
<input type="checkbox"/>				

46. I feel that nothing, or almost nothing, can change the opinion that I currently hold of myself.

Always False	Usually False	Sometimes True or False	Usually True	Always True
<input type="checkbox"/>				

47. At times I think I am no good at all.

Always False	Usually False	Sometimes True or False	Usually True	Always True
<input type="checkbox"/>				

Appendix E

Please read the paragraph on the next page carefully and circle all the PRONOUNS found within the paragraph. The pronouns may be singular (e.g. he, she, me, I, you, mine, yours, etc.) or plural (e.g. we, they, our, their, etc). Please take your time.

Appendix F

A. I go to the city often. My anticipation fills me as I see the skyscrapers come into view. I allow myself to explore every corner, never letting an attraction escape me. My voice fills the air and street. I see all the sights, I window shop, and everywhere I go I see my reflection looking back at me in the glass of a hundred windows. At nightfall I linger, my time in the city almost over. When finally I must leave, I do so knowing that I will soon return. The city belongs to me.

Appendix G

B. We go to the city often. Our anticipation fills us as we see the skyscrapers come into view. We allow ourselves to explore every corner, never letting an attraction escape us. Our voices fill the air and street. We see all the sights, we window shop, and everywhere we go we see our reflections looking back at us in the glass of a hundred windows. At nightfall we linger, our time in the city almost over. When finally we must leave, we do so knowing that we will soon return. The city belongs to us.

Appendix H

The Projective Life Attitudes Assessment

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

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

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

Appendix I

The Projective Life Attitudes Assessment

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

3. PLEASE DESCRIBE THE EMOTIONS THAT THE THOUGHT OF BEING SOCIALLY ISOLATED FROM YOUR FRIENDS AND FAMILY AROUSES IN YOU.

4. WRITE DOWN AS SPECIFICALLY AS YOU CAN, WHAT YOU THINK WILL HAPPEN TO YOU PHYSICALLY WHEN YOU ARE ALONE.

Appendix J

The Projective Life Attitudes Assessment

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

5. PLEASE DESCRIBE THE EMOTIONS THAT THE THOUGHT OF WATCHING TV AROUSES IN YOU.

6. WRITE DOWN AS SPECIFICALLY AS YOU CAN, WHAT YOU THINK WILL HAPPEN TO YOU PHYSICALLY WHEN YOU WATCH TV.

Appendix K

PANAS – Positive and Negative Affect Schedule

This scale consists of a number of words that describe different feelings and emotions. Read each item and then mark the appropriate answer in the space next to the word. Indicate to what extent [INSERT APPROPRIATE TIME INSTRUCTIONS HERE]. Use the following scale to record your answers.

1	2	3	4	5
Very slightly Or not at all	a little	moderately	quite a bit	extremely
_____	interested		_____	irritable
_____	distressed		_____	alert
_____	excited		_____	ashamed
_____	upset		_____	inspired
_____	strong		_____	nervous
_____	guilty		_____	determined
_____	scared		_____	attentive
_____	hostile		_____	jittery
_____	enthusiastic		_____	active
_____	proud		_____	afraid

Appendix L

Please complete the following by filling in letters in the blanks to create words. Write in one letter per blank. Some words may be plural.

1) PLA __	17) COFF __
2) CO __ SE	18) POST __
3) _ ANIC	19) _ ERMIT
4) __ OK	20) DREA _
5) _ OLO	21) CL __ K
6) MUS __	22) __ NERAL
7) _ EAR	23) P _ P _ R
8) OUT _ AST	24) EXCL _ _ _
9) __ NG	25) K __ GS
10) SK _ LL	26) _ RIGHT
11) TAB __	27) CHA __
12) SI __ LE	28) S _ ARE
13) __ ASS	29) TRA __
14) HOR _ _ _	30) LO _ ELY
15) DE _ D	31) DE _ AY
16) WAT __	32) _ OUSE

Appendix M

Please take this survey in a quiet place where you will not be interrupted, and answer all questions as honestly as possible. Although we are asking you to provide your student ID number, your responses will be both confidential and anonymous. Your identity will not be revealed in any way - we simply need a means by which to differentiate your data from that of others. Thank you very much for your participation.

I. Student ID number:

II. Age:

III. Sex:

IV. Race/Ethnicity: If "Other/Multiracial", please specify:

V. Country of birth:

VI. Country of general residence for the past 10 years:

Appendix N

Consent form

Purpose and Procedure: The purpose of this research is to learn more about how personality is associated with different modes of thought and performance on psychological tasks. Specifically, we are interested how individual differences impact the way individuals think about and respond to different situations and complete various cognitive exercises. To investigate these questions, we have developed this experimental protocol that we ask you to complete. First you will complete a questionnaire assessing your personality. Then you will complete several reading and writing tasks, answer questions about your thoughts and feelings, followed by cognitive tasks. We plan on recruiting approximately 200 participants for this study.

Credit: Completing this study takes about 30-40 minutes, and you will receive 1-hour of experimental credit for your participation.

Benefits/Risks: Based on participant feedback in past studies using a similar procedure, it is anticipated that participants will find these tasks engaging. Furthermore, this research project involves no foreseeable risks or discomforts to you beyond those that you might ordinarily encounter in daily life. Specific benefits associated with your participation in this project include insight gained into the psychological mechanisms involved in cognition, and the type of research that examines these topics.

Confidentiality: The data collected in this study will be confidential and anonymous. Although you are providing your name on this form, please note this information will be kept separate from your data, it will not be connected to your data. Furthermore, your identity will not be revealed in any publication or presentation of the results of this research. In addition, the investigators will not be probing for “right” or “wrong” answers, and they are not concerned with any single person’s responses. They are interested in the response of college students as a group.

Voluntary Nature of Participation: Your participation in this research project is voluntary. In addition, you can decline to answer any question you don’t want to answer or discontinue your participation at any time without any penalty.

Contact Information: If you have any questions about this research project or your rights as a research participant, please contact Profs. Marilyn Boltz (mboltz@haverford.edu) or Benjamin Le (ble@haverford.edu). You may also address concerns to Prof. Rob Scarrow (rscarrow@haverford.edu), chairperson of Haverford College’s IRB (a committee with oversight on human subject research).

You have been informed about this study’s purpose, procedures, possible benefits and risks. In addition, you voluntarily agree to participate in this study. By signing this form, you are not waiving any of your legal rights.

Your name (please print)

Signature

Date

Appendix O

Condition # _____

In the following packet you will be asked to perform a series of word related tasks. We ask that you read the instructions for each task carefully.

For the first task you will be asked to write for two minutes. Following this, you will perform a proofreading/pronoun search for an additional 2 minutes. During each task the researcher will be in the room and will notify you when to begin and when to finish writing. Following these two writing tasks, you will direct your attention to the computer screen in front of you, where you will be asked to complete an activity. Instructions for the activity will be provided for you on the computer screen. After completing the computer activity you will go back to the packet to complete one last word task.

As we proceed through your packet of material, we ask that you do not skip ahead to upcoming pages.

Do you have any questions?

Appendix P

Condition _____

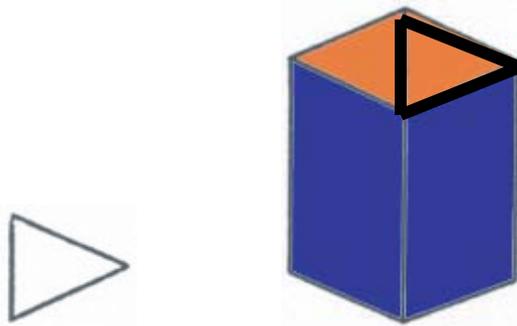
Please answer the following question:

1. What do you think this experiment was testing?

Appendix Q

On the following pages, you will be presented with simple images on the left and complex images on the right. Your task will be to locate and then outline the simple figure within the more complex figure.

Below is one example in which the simple figure on the left is outlined in black within the complex figure.



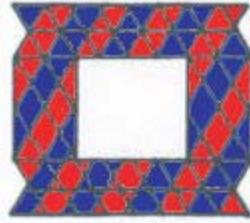
During this task, you will be presented with 24 similar puzzles, and you will have 5 minutes to complete as many as possible. Once you find the simple figure, outline its shape within the complex figure on the right, using the pen we have provided you.

Please note that when you are looking for the simple figure within the complex figure, it will be the same size and in the same orientation.

If you have any questions, please ask the experimenter at this time.

When instructed to do so, turn the page and begin.

1)



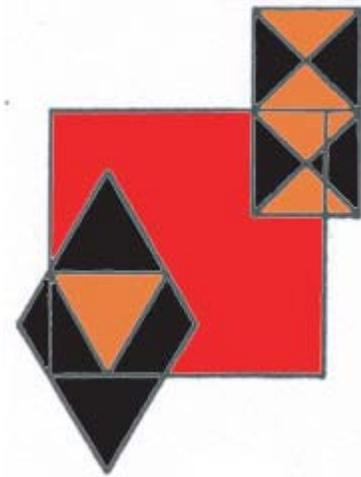
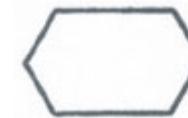
2)



3)



4)



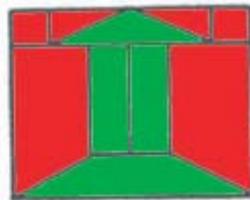
5)



6)



7)



8)



9)



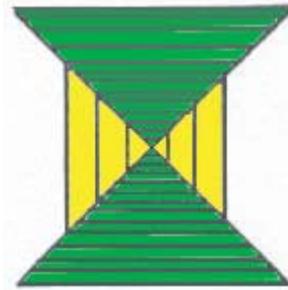
10)



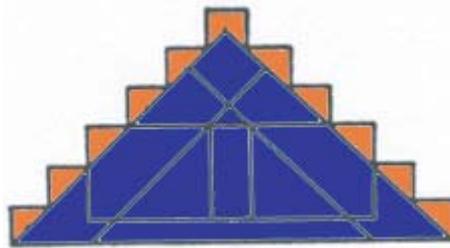
11)



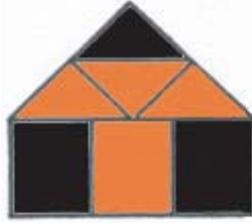
12)



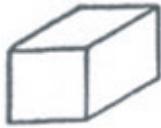
13)



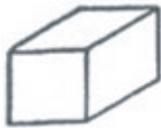
14)



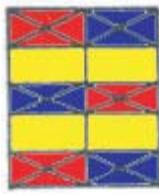
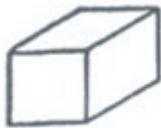
15)



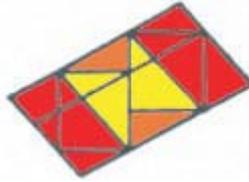
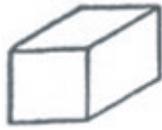
16)



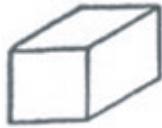
17)



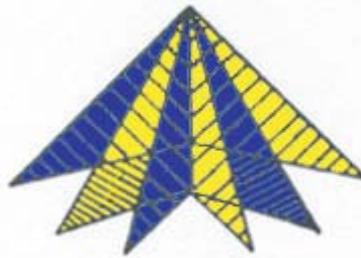
18)



19)



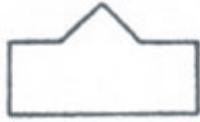
20)



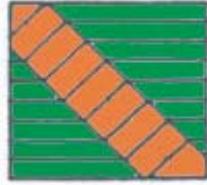
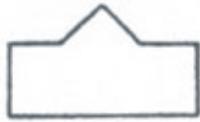
21)



22)



23)



24)



Appendix R

This questionnaire contains a number of statements which report the occurrence of some event. After each statement, we would like you to decide, on the basis of the information given, what probably caused the event to occur. Please indicate your response in the space provided after each statement. Given that there are no right or wrong answers, we would like you to write the first thought that immediately comes to mind.

1) Tiffany helped an old lady carry groceries across the street.

2) Miranda showed up over an hour late for her appointment.

3) Markus received a "B" grade on his biology exam.

4) Mitchell went to a party and did not talk to anyone.

5) Jamie spoke enthusiastically in class.

6) Ellerie uses the computer often.

7) Pat was rude to a fellow classmate.

8) Darren smiled happily.

9) Hannah attended a talk on economic policy.

Appendix S

Condition # _____

The following study will be used to obtain base-line personality measures on a series of tasks. During the first half of the study, which should last about 10 minutes, you will be asked to partake in several activities: a free-writing personality task, a proof-reading activity, another free-writing task, and a short questionnaire. For the second part of the study, you will perform two final tasks. We ask that you read the instructions for each task carefully.

For the first task, you will be asked to write for 2 minutes. Next, you will complete a pronoun search for another 2 minutes. You will then complete a second 4-minute writing task followed by a short questionnaire. For the second half of the study, the researcher will direct you to the last two tasks, which will each take 5 minutes to complete.

During each task, the researcher will be in the room and will notify you when to begin and when to finish writing.

As we proceed through your packet of material, we ask that you do not skip ahead to upcoming pages or talk to other participants.

Do you have any questions?