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POLARIZED ATTITUDES: THE INFLUENCE OF TERRORISM SALIENCE  
ON PREJUDICE TOWARD ARABS

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POLARIZED ATTITUDES: THE INFLUENCE OF TERRORISM SALIENCE ON  
PREJUDICE TOWARD ARABS

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## ABSTRACT

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The purpose of the current study was to untangle previous findings within the Terror Management Theory (TMT) literature suggesting that the activation of worldview defense causes an increased preference for the in-group culture and a decreased preference for the out-group culture. In our study we used the Affect Misattribution Procedure (AMP), an implicit measure which provided the opportunity to test TMT in a within subjects design. The AMP was used to assess participants' attitudes towards various in-group and out-group depictions. Unlike previous literature we separated these cultural groups based on valence, positive and negative. Analyses revealed that attitude changes following mortality salience (MS) are accounted for by differences in valence and not differences in culture, in-group/out-group. This finding provides further explanations of previous TMT findings and highlights a previously ignored variable with significant implications. We also examined the effects of terrorism salience (TS) to see if there was a link between attitudes towards Arab culture and this manipulation. Our results revealed that no relationship exists between TS and Arab culture when compared to a non-related out-group culture, Chinese.

## Polarized Attitudes: The Influence of Terrorism Salience on Prejudice toward Arabs

On September 11, 2001 the United States suffered a traumatic loss which affected nearly every citizen in some way. Accordingly, research suggests that attitudes toward Muslims and Arabs became more negative after the 9/11 attacks due to the association of Muslims and Arabs with terrorism. Research on behavior immediately after the 9/11 attacks suggests that many Americans expressed markedly more negative attitudes toward both of the aforementioned groups (Sheridan, 2006).

Rosenblatt, Greenberg, Solomon, Pyszczynski, and Lyon (1989) introduced Terror Management Theory (TMT) as a model for explaining attitude change such as the increase in prejudice against Muslims and Arabs after the 9/11 attacks. TMT argues that thoughts of death, even subtle and subliminal references to death, generate threat and cause people to defend their worldview. This increase in preference therefore, may manifest itself as a positive shift in attitude toward an individual's in-group. Simultaneously, people become more negative about anything that runs counter to their worldview. This discrepancy may in turn present itself in the form of more negative attitudes toward an individual's out-group. In TMT these shifts in attitude are called the worldview defense. The experimental emphasis on death or mortality is called *mortality salience* (MS).

Current research has not yet focused on what specifically occurs within the shifts in attitude caused by the activation of the worldview defense. The present study aims to extend TMT beyond the global measures of attitude frequently used in previous studies,

in an effort to evaluate attitudes with a measure which can better explicate the specific shifts in attitude which are occurring.

It is expected that attitude toward positive aspects of the in-group culture and negative aspects of the out-group culture will show the usual post-threat shift. That is to say that following MS, attitudes towards positive aspects of the in-group are expected to increase or become more positive while attitudes towards negative aspects of the out-group are expected to decrease or become more negative. However, our methodology will also provide data on two potential attitude shifts which have not previously been researched within the TMT literature. It is possible that shifts may occur in attitudes towards negative aspects of the in-group and positive aspects of the out-group which would provide new information on what exactly occurs following the activation of the worldview defense.

Research has shown that reference to terrorism and the 9/11 attacks activate the worldview defense in much the same way as MS, causing people to show greater preference for their own culture and more negative views of foreign cultures (Landau, et al., 2004). The experimental emphasis on terrorism can be called *terrorism salience* (TS). When comparing shifts in attitude after MS versus TS the outcomes have been the same (Landau et al., 2004). However, it is possible that the decreased preference for out-groups following TS is not equivalent to the decreased preference following MS if there is a specific relationship between the out-group and terrorism salience (i.e. following the 9/11 attacks an increased number of Americans associated Arabs with terrorism) (Sheridan, 2006).

The present study expects to show a distinction between the MS and TS manipulations. Specifically, it is proposed that TS will create a greater negative shift in attitudes towards negative aspects of an Arab out-group than an Asian out-group.

## Literature Review

### *Attitudes*

Attitudes are positive or negative evaluations of any object or activity (e.g., people, places, things, ideas, etc.) that can produce cognitive, affective, or behavioral responses. These responses work together to define who we are and how we experience and react to the world. Although there are a number of theories of attitude change, the most pertinent to the present study is Terror Management Theory (TMT; Greenberg, Pyszczynski, Solomon, Rosenblatt, & Lyon 1990).

### *Terror Management Theory*

Several points will help explain TMT and its importance to the current study. First, what is the theoretical origin of TMT? Second, what is the methodology that was developed to study TMT? Third, do the TMT related changes in attitude match the process seen in the development of prejudice? Fourth, how might a TS manipulation, such as a reminder of 9/11, operate like mortality salience in a study of TMT? Finally, how can the typical TMT methodology be strengthened?

### *What is the theoretical origin of Terror Management Theory?*

TMT is based on two basic assumptions. The first assumption is that all humans possess an instinctual desire for self-preservation. The second assumption is that when humans are made aware of their own mortality they typically experience heightened anxiety or, in the language of TMT, psychological terror (Rosenblatt et al., 1989). That is, they feel threatened. Accounting for these two assumptions, TMT posits that the creation and adoption of a cultural worldview has served to provide humans with a way to avoid

awareness of their own mortality (Rosenblatt, Greenberg, Pyszczynski, Solomon & Lyon, 1989).

According to Jonas and Fischer (2006) a cultural worldview consists of a system of cultural beliefs that create an ideology of death transcendence. For example, Christian culture embraces a worldview that includes escaping death through ascension into heaven. The cultural worldview allows believers to feel less threatened by their own mortality and thus provides a buffer from the anxiety created by thoughts of death.

*What is the methodology that was developed to study TMT?*

The majority of research on TMT has focused on using a MS manipulation in order to evoke thoughts of death and then measure attitude toward various aspects of the world (Rosenblatt, Greenberg, Solomon, Pyszczynski, and Lyon, 1989; Greenberg, Pyszczynski, Solomon, Rosenblatt, & Lyon 1990). The typical TMT experiment divides participants into two groups and then administers MS to one of the groups while the other group is administered a control non-MS manipulation. Subsequently, attitudes are typically measured with broad paper and pencil explicit measures. There is almost a universal result after MS. The MS group displays shifts in attitude and the control group does not.

Theoretically, thoughts of death are threatening and should therefore prompt the use of a worldview defense in which people protect, value, and identify with their own cultural worldview. The significant differences in attitudes, between experimental groups who experience mortality salience and control groups that do not, have been attributed to this worldview defense (Solomon, Greenberg, and Pyszczynski, 1991).

The worldview defense has been induced using a number of different MS methods. Some of these include writing about the experience of dying (Greenberg et al., 1990), viewing fatal accident footage (Nelson, Moore, Olivetti & Scott, 1997), being near a funeral home (Pyszczynski, et al., 1996), filling out a fear of death questionnaire (Rosenblatt et al., 1989), and subliminal presentation of words related to death (Ardnt, Greenberg, Pyszczynski, & Solomon, 1997). Regardless of the MS method used in the above studies, each came to very similar conclusions consistent with worldview defense.

For example, Greenberg, Solomon, and Pyszczynski (1997) showed that following MS people provided greater rewards for “heroes” and exacted greater penalties for “criminals” than the participants in the control group that did not experience MS. The researchers in this experiment considered the “hero” to be someone who upheld cultural norms, and the “criminal” to be a cultural transgressor who violated cultural norms. They concluded that following MS, participants rewarded people who shared and upheld their worldview and punished cultural transgressors more harshly. Logically, these differences in action were guided by differences in underlying attitudes (Rosenblatt et al., 1989).

The rewarding of “heroes” and punishment of “criminals” suggests that people always prefer others who follow their cultural worldview because their conformity affirms that worldview. Conversely cultural transgressors are disliked because their nonconformity implies that the dominant worldview may not be valid. Thus, transgressors are punished for their nonconformity to reaffirm and protect the dominant worldview (Rosenblatt et al., 1989). Finally, MS amplifies these effects and causes our attitudes toward those who threaten the dominant worldview to become more negative.

*Terror Management Theory: Mortality Salience and the expression of prejudice*

People view their culture as their in-group and view as an out-group anyone who does not adhere to their own cultural norms. Prejudice in favor of one's own culture holds the in-group as good and morally just. Conversely, the mere existence of an out-group stands to challenge the universal validity of the in-group (Allport, 1954). Therefore, it is logical that one might protect the in-group by devaluing the out-group. According to Wills (1981) this downward comparison process has a significant influence on prejudice. Due to the unavoidable differences between worldviews, and the threats that these differences create, it is logical that individuals may respond with disapproval or even hostility toward cultures other than their own.

Due to prior findings which have evidenced a positive relationship between MS and intensity of perceived threat from out-group cultures, one might expect to find a similar relationship between MS and hostility levels directed toward this out-group, also described as prejudice. This is exactly what Greenberg et al. (1990) found. Greenberg et al. identified participants' religious affiliation and then had half of the participants write essays about death (MS) and half write essays about an unpleasant event not related to death (non-MS control). Following completion of the essays each participant received a packet containing demographic information on two other people, one was self-reported Jewish, and the other Christian. The participants rated each person using the Interpersonal Judgment Scale (Byrne, 1971), which requires the participant to rate the target group on five dimensions: intelligence, knowledge of current events, morality, adjustment, and the degree to which they would enjoy working with them. Greenberg et al. found that Christian participants in the MS condition rated Christian targets more positively and

Jewish targets more negatively compared to ratings by the Christian participants who did not experience MS.

In summary, MS has been shown to amplify both preference for the in-group and negative attitude toward the out-group. Therefore, MS can be viewed as intensifying prejudice.

*How might terrorism salience, a reminder of the 9/11 attacks, operate like mortality salience?*

Possibly the most interesting aspect of the MS effect is how specific it is to thoughts about death. Greenberg et al. (1997) examined the effects of substituting other negative events in place of MS within the typical TMT experiment. When participants wrote about failing an exam or experiencing pain in a dental procedure there were no shifts in attitudes indicative of worldview defense.

Further evidence for the unique place of mortality within the MS effect was shown in two studies by Rosenblatt et al. (1989). These studies compared an increase in general self-awareness with an increase in specific awareness of death. To increase general self-awareness they had participants complete a typical TMT experiment in front of a mirror, however, only half of the participants in each condition were exposed to MS. The MS and non-MS groups showed typical shifts in attitude regardless of the presence of the mirror. This suggests that the effects of MS are not attributable to an increase in general self-awareness. Rosenblatt et al. also considered the possibility that the effects of MS might be caused by increased physiological arousal. This hypothesis was tested by measuring both physiological changes and changes in attitude after MS compared to a non-MS control. The typical MS versus non-MS attitude changes were observed,

however, there were no significant differences in physiological responses between the two groups. These two studies suggest that the shift in attitude central to worldview defense is caused by thoughts of death and not by an increase in general self-awareness or by physiological arousal.

The specific awareness of death central to MS can be created in a number of ways. For example, Rosenblatt et al. (1989) compared the effects of writing an essay about the events related to one's own death versus filling out Boyar's (1964) Fear of Death Scale. Boyar's scale requires participants to rate statements such as "The idea of never thinking again after I die frightens me" on a Likert scale. After both MS conditions, as a measure of attitude, the participants set bond for a hypothetical prostitute. The prostitute was a cultural transgressor and attitudes toward the prostitute should have been negative. Rosenblatt et al. found that both MS groups set similar bond amounts for the prostitute, suggesting that these MS manipulations are equivalent.

However, at least one effective salience manipulation may not be an explicit reference to death. Landau et al. (2004) found that both typical MS and reminders of 9/11 increased support for President Bush whereas thoughts of pain did not produce such shifts in attitude. This increase in support for President Bush was interpreted by the authors to signify an increase in preference for the in-group because all of the participants in the study were American citizens. Based on this it can be assumed that thoughts of 9/11 may serve the same role as MS in TMT research. Within the TMT framework, emphasizing the events of 9/11, or similar acts of terrorism, can be called *terrorism salience* (TS).

*Can the typical TMT methodology be strengthened?*

The experiments studying TMT have been almost exclusively between subjects designs and they have used broad explicit measures of attitude. Previous studies weren't able to observe within subjects changes in attitude nor were they able to look at much detail in the measurement of attitude. One potential improvement on the typical design could be the use of a within subjects design in order to observe changes in attitude while accounting for subject variance. The Affect Misattribution Procedure (AMP) is an implicit measure of attitude which was recently developed by Payne, Cheng, Govorun, and Stewart (2005) and it allows pre and post measures to be used with the same participants.

Before describing the AMP it is important to distinguish between explicit and implicit measures of attitude versus explicit and implicit attitudes. Fazio and Olson (2003) provide a concise framework within which to view these constructs. Specifically they assert that "...implicit attitudes are ones for which individuals lack awareness" (p. 302). Under this framework, explicit attitudes would be beliefs of which the individual is aware. On the other hand, implicit measures of attitude "...provide estimates of individuals' attitudes without our having to directly ask them for such information." (p. 303). Explicit measures are techniques in which the participant is specifically asked about an attitude.

There is a logical relationship between these types of attitude and types of measurement. Specifically, a participant couldn't answer explicit questions about implicit attitudes. Without awareness of the attitude there is no information available with which to answer a question. Conversely because implicit measures assess attitudes

without requiring that the participants actively review or evaluate their attitudes these measures can be used even when the attitude is outside the participants' awareness.

Thus, an implicit measure can provide additional evidence for TMT in a methodology which accounts for subject variance and allows the assessment of more specific aspects of the theory.

The AMP is an implicit measure of attitude. In the procedure a priming image is presented immediately before an ambiguous or neutral target image. The target image is rated as either more or less pleasant than average, providing a clear two point rating scale. Affect aroused by the prime would be related to the attitude toward the prime. For example, images toward which you have a negative attitude create a negative affect and conversely, images toward which you have a positive attitude create a positive affect. The AMP, which asks for judgments about the neutral target, is implicitly measuring attitudes because participants are misattributing the affect aroused by the priming image to the neutral target image.

Payne et al. (2005) in their development of the AMP showed that it was a robust measure. The results were consistent across a wide range of stimulus durations for both the prime and the target. They obtained similar results both when participants were explicitly warned to rate the target image and ignore the prime and when they were not given any such warning. These data, along with the strong relationship that they found between the AMP and self-reported political attitudes and between the AMP and self-reported racial preferences of both Black and White participants, demonstrates that the AMP is an effective implicit measure of attitude. They also reported other promising findings including the AMP's high reliability and large effect sizes. Finally, the method

is easy to use; it can be administered in less than 5 minutes (Payne et al.). Finally, this type of rating scale has been shown to be less “noisy” than the response times typically used with other implicit measures such as the Implicit Association Test (Payne, Burkley, and Stokes, 2008).

Because the AMP is an implicit measure it can be used in a repeated-measures methodology. Thus, it is possible to use a mixed factorial design to combining within participant measures on pre versus post salience comparisons, with between groups comparisons on other variables, such as type of salience used.

One example of using the AMP to study TMT is provided by Moody and Gordon (2008). They designed their study so that each participant completed the AMP then wrote an essay on pain completed the AMP a second time and then wrote an essay on either 9/11 or mortality and completed the AMP a third time. The AMP images used were the same every time, except the order of their presentation was varied for each presentation. In this study the baseline, pain salience control and MS conditions were tested within one group and the baseline, pain salience control and TS conditions were tested within a second group. No previous TMT research could use within group comparison because the explicit attitude measures could only be used once with a group.

Moody and Gordon (2008) monitored carry over effects by including several control test images in each of the three test phases. These were images with known affective valence. These images were essentially manipulation checks. The ratings for these known positives and known negatives were consistent with their valence across all conditions demonstrating that there were not carry over effects and the repeated measures methodology is valid.

However, while Moody and Gordon (2008) found significant difference in baseline attitudes toward Islamic and Western cultures before MS, they failed to find significant changes in attitudes toward Islamic and Western cultures following MS. They suggested that this failure to find typical MS and TS effects may have been due to a methodological flaw. They used images that were only paired on the dimension of culture, Islamic or Western, and ignored the positive and negative valence of each image. Due to the lack of research into the underlying processes of TMT, it is possible that this failure to distinguish between positive and negative images for each group confounded the results. The present study will disentangle this confound.

### Statement of the Problem

All of the past research of TMT used a between-subjects methodology and paper and pencil explicit measures to capture broad attitudes. The current study used a within groups methodology and an implicit measure aimed at more specific attitudes. With this methodology we aim to uncover some of the underlying processes of TMT that were not previously measured by the broad explicit measures.

Numerous studies, including those of the initial TMT researchers have shown an increased preference for in-group following MS, however, no studies have been conducted to look at whether specific aspects of the in-group are preferred. In the present study we used our implicit measure to differentiate between attitudes toward positive versus negative aspects of the in-group. It is our hypothesis that following MS participants' attitudes toward positive aspects of the in-group images will increase significantly.

TMT researchers have also consistently shown that following MS participants express greater disapproval for out-groups. In the present study we used our implicit measure to differentiate between attitudes toward positive versus negative aspects of the out-group. It is our hypothesis that following MS participants' attitudes toward negative aspects of the out-group images will decrease significantly.

The present study also looked more directly at the effects of various types of salience. In previous studies various MS and TS manipulations have been shown to have the same effect on attitude, however, researchers have failed to consider whether TS effects might vary if there is a specific relationship between the out-group and terrorism salience. Our hypothesis is that TS will produce a larger negative shift in attitudes

toward negative aspects of Arabs as an out-group than towards negative aspects of Chinese as an out-group.

In conclusion, the present study will provide a more detailed picture of the processes operating in TMT and further examine the differences between MS and TS.

#### Hypotheses

1. Following MS, participants' difference scores for ratings of neutral images preceded by positive American primes will be higher than the difference scores for ratings of neutral images preceded by any other type of prime.
2. Following MS, participants' difference scores for ratings of neutral images preceded by negative Arab primes will be lower than the difference scores for ratings of neutral images preceded by any other type of prime.
3. Following TS, participants' difference scores for ratings of neutral images preceded by negative Arab primes will be lower than difference scores for ratings of neutral images preceded by negative Chinese images.

## Study 1

### Method

#### *Participants*

The participants were 38 undergraduate students at Western Carolina University who were petitioned for participation from undergraduate courses. All 38 participants self-identified as American citizens.

#### *Design*

The study is a 2 (culture: American, Arab) x 2 (valence: positive, negative) x 2 (time: Pre-MS, Post-MS), within subjects design. The culture, valence, and time variables are all within subjects variables.

#### *Measures and Materials*

*Demographic Questionnaire* (Appendix A). The questionnaire consists of 6 questions concerning participant characteristics. It includes a single item which assesses the degree of group affiliation on a 7 point Likert scale to capture the degree of affiliation with two groups, American and Christian (adapted from Perreault and Bourhis, 1998).

*Test Stimuli*. The participants watched videos that included 46 groups of images, each of which contained a prime, a neutral target and a filler stimulus. The primes include 3 pleasant and 3 unpleasant images from the International Affective Picture System (IAPS) (Lang, Bradley, and Cuthbert, 1995) used by Payne, Cheng, Govorun, and Stewart (2005). These primes serve as a method of checking the validity of the procedure by making sure that known positives are rated positively and known negatives are rated negatively. There were 40 cultural primes, 20 each for American and Arab culture, matched on explicit cultural ratings and valence. These 40 primes were selected from a

larger group that was pre-screened for cultural iconic value and emotional valence. The images were rated for cultural iconic value with 2 as most iconic and -2 as least iconic. The cultural ratings for the images ranged from 0.69 to 2.0 for American images and .60 to 1.29 for Arabic images. The images were rated between -2, most negative, and 2, most positive. The ten most positive and the ten most negative images for each culture were selected for use in the current study. The positive American images had valence ratings from 0.92 to 1.39 and the negative American images had valence ratings from -0.04 to -1.61. The positive Arabic images had valence ratings from .30 to 1.21 and the negative Arabic images had valence ratings from -0.05 to -1.54. Each prime appeared only once per testing session. The neutral targets consist of patterns of gray squares, of varying darkness, arranged in various semi-random 12 x 12 matrices. Each neutral target appeared only once per testing session. Following the neutral gray square target images, filler images were presented. The filler was a blue square containing a numeral which corresponds to the number of the image which was just presented.

### *Procedure*

Participants were tested in a group setting in a typical university classroom. When the participants arrived they were asked to read over and sign the consent form (Appendix B) and then begin the experiment if they agreed to participate. After completing the consent form the participants were instructed to turn to the demographic questionnaire (Appendix A), which was stapled below the consent form, and fill it out before participating.

The study began with instructions that explained to participants that they would be asked to rate images which occurred as part of a sequence. They were told that each

sequence consisted of three images: a warning image, the neutral gray square target image, and the blue square filler image. The instructions explicitly explained to the participants to honestly and candidly make their ratings based on the neutral gray square target images and to look at but ignore the warning image. During this instructional period and during both test sessions the participants judged the 46 neutral target images on a 4 point Likert scale including: (1) less pleasant than average, (2) somewhat less pleasant than average, (3) somewhat more pleasant than average, and (4) more pleasant than average. The instructional period included four practice trials using prime images unrelated to this study.

Following the training they began the first of the two 46 image test sessions. The prime images and neutral targets were randomized and occurred in a different order and in different pairings in each test. The image sets were projected as a 24" x 24" image on a screen in the front of the classroom. In each image sequence the prime image was presented for 500 ms followed by the neutral gray square target image for 1000 ms and finally followed by the blue square filler image for 5 s (Appendix C). The responses are recorded on standard Scantron forms which were modified so that only four selection options were available.

Test 1 ended after the participants rated 46 target images. The participants then wrote an essay for one minute in response to the MS prompt which was:

*“Please describe briefly the emotions that the thought of your own death arouses in you.*

*Write down, as specifically as you can, what you think will happen to you as you*

*physically die and once you are physically dead.”*

After writing for one minute, participants were asked to stop and begin work on a word search game which they received after completing their essays. They were instructed to work on the word search until told to stop. The participants worked on the word search for five minutes.

Test 2 then began and participants were asked to rate 46 new target images in the same way as Test 1. Test 2 ended after the participants rated 46 target images. Participants were then debriefed on the true nature of the study and asked not to share their knowledge of the experiment with any of their peers.

## Results

### *Variables*

The dependent variables collected during this study were ratings of images on a 4 point Likert scale. The four rating choices were coded into numerical ratings in the following fashion: “Less pleasant than average” = 1, “Somewhat less pleasant than average” = 2, “Somewhat more pleasant than average” = 3, and “More pleasant than average” = 4. Each participant provided a rating for each image based on this rating system both before and after the salience manipulations in both studies. These rating scores were averaged for each of the four sets of image groups, both before the salience manipulation and afterwards, to provide an average score. For study one the eight average score groups are the pre and post salience scores for each of the four following image groups: positive Arab, negative Arab, positive American, and negative American. The average scores reported range from 1-4.

In order to compare the shifts from pre- to post-salience for each group of images, difference scores were calculated by subtracting the pre-salience scores from the post-

saliency scores. These difference scores are the average change from pre-saliency to post-saliency for each set of images, providing four distinct difference scores for each study that correspond to the four image groups presented. Positive difference scores reflect a positive shift in ratings from pre- to post-saliency, while negative difference scores reflect a negative shift in ratings from pre- to post-saliency.

### *Analyses*

To test Hypotheses 1 and 3, a 2 (culture: American, Arab) x 2 (valence: positive, negative) x 2 (time: pre-MS, post-MS) repeated measures analysis of variance (ANOVA) with culture, valence and time all serving as within-subjects factors was conducted on the ratings of neutral stimuli. An alpha level of .05 was set for all of the following analyses. The predicted three-way interaction of culture x valence x time failed to reach significance,  $F(1, 37) = 1.48, p > .05$ . Means pertaining to this interaction effect are displayed in Table 1.

Although the predicted interaction effect failed to reach significance, each hypothesis was tested in a series of planned comparisons. Recall that Hypothesis 1 stated that following MS ratings of the neutral images would become more positive in the positive American prime condition than in any other condition. In contrast with Hypothesis 1, the pre to post-MS shift in ratings for neutral images following positive American primes ( $M = 0.13, SD = 0.45$ ) was not significantly different from the shift in ratings for neutrals following positive Arab primes ( $M = 0.10, SD = 0.52$ ),  $t(37) = 0.03, p > .05$ . However, the pre to post-MS shift in ratings for neutrals following positive American primes was significantly different from the shift in ratings for neutrals following negative American primes ( $M = -0.04, SD = 0.51$ ),  $t(37) = 2.82, p < .05$ , and

negative Arab primes ( $M = -0.04$ ,  $SD = 0.46$ ),  $t(37) = 1.72$ ,  $p < .05$ . Finally, the pre-MS ratings of neutral following positive American primes ( $M = 2.57$ ,  $SD = 0.60$ ) and the post-MS ratings of neutral following positive American primes ( $M = 2.70$ ,  $SD = 0.71$ ) were significantly different,  $t(37) = -1.79$ ,  $p < .05$ . This is evidence that the ratings of neutral images following positive American primes increased significantly from pretest to posttest.

Hypothesis 2 stated that following MS, the ratings of neutral stimuli would become more negative in the negative Arab prime condition than in any other condition. A series of planned comparisons revealed that contrary to Hypothesis 2, the pre to post-MS shift in ratings for neutral images following negative Arab primes was significantly different from the shift in ratings for neutrals following negative American primes,  $t(37) = 1.94$ ,  $p < .05$ . However, the data show that this significant finding was not in the hypothesized direction. The pre to post-MS shifts in ratings following negative Arab primes went down ( $M = -0.04$ ,  $SD = 0.46$ ), as did the shift in ratings following negative American primes ( $M = -0.13$ ,  $SD = 0.51$ ), but the negative shift was significantly larger in the negative American prime condition.

Second, The pre to post-MS shift in ratings for neutrals following negative Arab primes was significantly different from the shift in ratings for neutrals following positive American primes ( $t(37) = -1.72$ ,  $p < .05$ ) and positive Arab primes ( $t(37) = -1.74$ ,  $p < .05$ ). The data show that the pre to post-MS shifts in ratings following negative Arab primes went down and the shift in ratings following positive American primes ( $M = 0.13$ ,  $SD = 0.45$ ) and positive Arab primes ( $M = 0.10$ ,  $SD = 0.52$ ) went up and these shifts were different from one another.

The pre-MS ratings of neutral following negative Arab primes ( $M=2.34$ ,  $SD=0.57$ ) and the post-MS ratings of neutral following negative Arab primes ( $M=2.32$ ,  $SD=0.62$ ) were not significantly different ( $t(37) = 0.53$ ,  $p < .05$ ). This is evidence that the ratings of neutral images following negative Arab primes did not decrease significantly from pretest to posttest.

Although the overall analysis and planned comparisons did not support our hypotheses, the 3-way ANOVA did reveal three significant effects of potential interest. First, the 3-way ANOVA did reveal a significant time x valence interaction,  $F(1, 37) = 8.15$ ,  $p < .05$ . This interaction suggests that there was a difference in ratings from pretest to posttest for neutral stimuli and the shift varied for negative versus positive primes (Figure 1). Further investigation of this interaction revealed that post-MS ratings following positive primes ( $M=2.63$ ,  $SD=0.11$ ) were more positive than pre-MS ratings following positive primes ( $M=2.51$ ,  $SD=0.09$ ) and post-MS ratings following negative primes ( $M=2.28$ ,  $SD=0.10$ ) were more negative than pre-MS ratings following negative primes ( $M=2.37$ ,  $SD=0.08$ ). This was seen regardless of the prime image culture.

The culture x valence interaction was also found to be significant,  $F(1, 37) = 5.16$ ,  $p < .05$ . This interaction took an unexpected form (Figure 2). Ratings of neutral images were highest after American positive primes ( $M=2.63$ ,  $SD=0.10$ ) and lowest after American negative primes ( $M=2.31$ ,  $SD=0.08$ ) across the pre and post-MS conditions.

Finally, there was a significant main effect of valence,  $F(1, 37) = 13.37$ ,  $p < .05$ . The ratings for neutral images following positive primes ( $M = 2.57$ ,  $SD = 0.57$ ) were significantly higher than the ratings for neutral images following negative primes ( $M = 2.32$ ,  $SD = 0.49$ ). There were no other significant interaction effects or main effects.

Figure 1

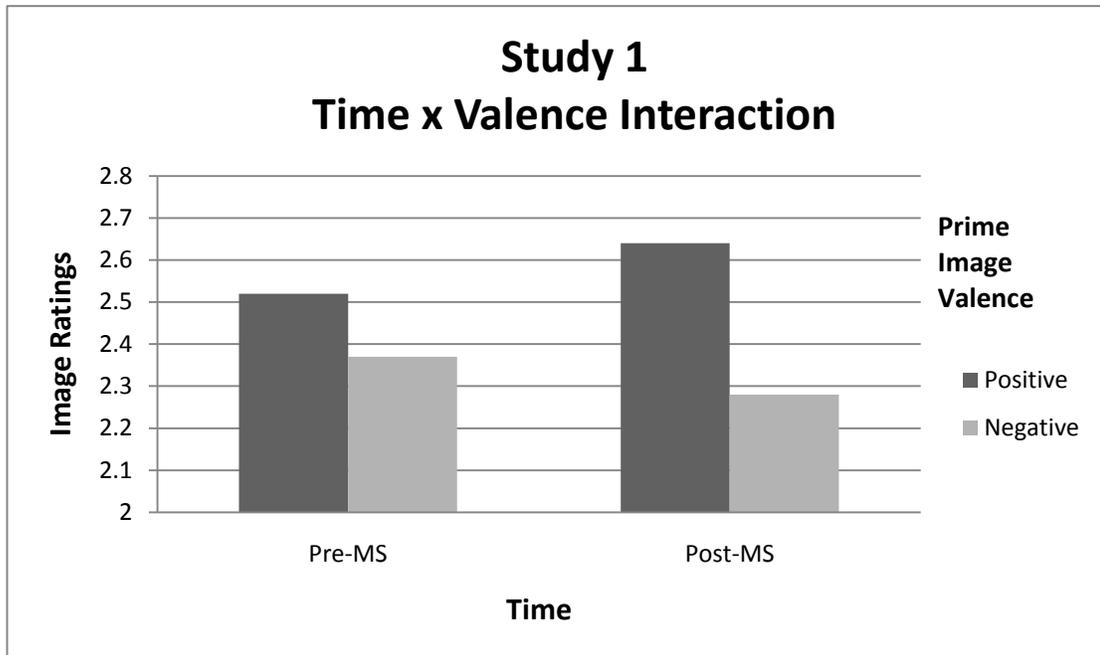
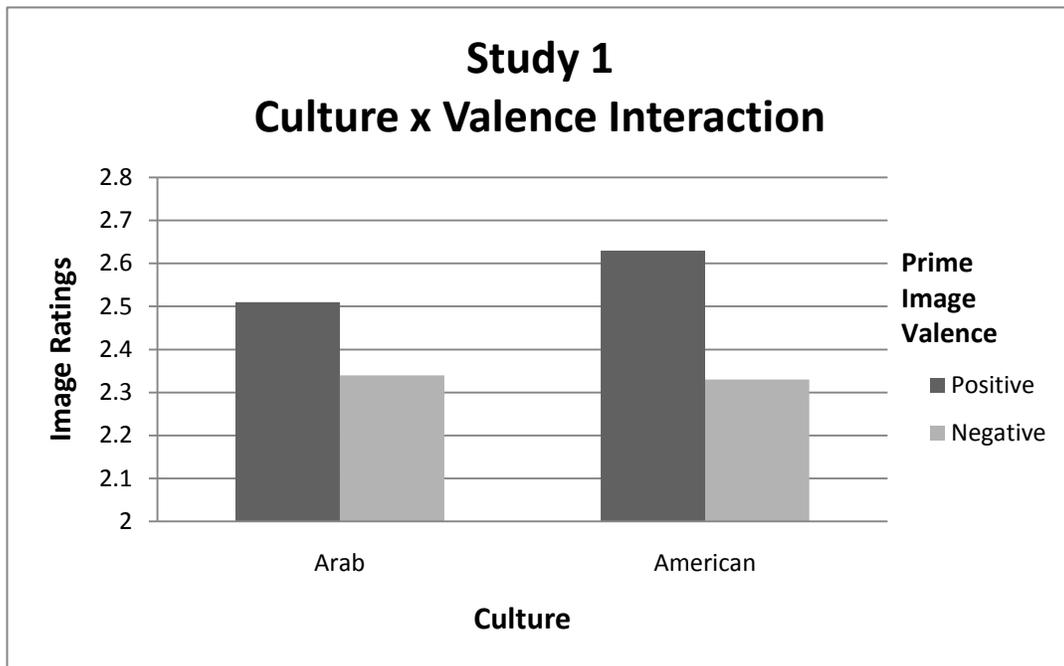


Figure 2



## Discussion

Analyses of the data from study 1 yielded mixed results with regard to the first two hypotheses. The MS manipulation caused a significant positive shift in ratings of neutral images following positive American primes from pre-MS to post-MS. However, the failure to show a significant negative shift in ratings of neutral images following negative Arab primes from pre-MS to post-MS caused some difficulty in the interpretation of the data. Perhaps these results go beyond previous TMT research which states that shifts are simply based on in-groups and out-groups. The current finding suggests that valence rather than culture may play an integral role in post-MS shifts in attitude.

While the post-MS positive shift in the ratings of neutral images following positive American primes was significant, it was not significantly different from the positive shift seen with positive Arab primes. In previous literature there is no examination of the effects of MS on attitude toward positive versus negative aspects of cultures, i.e. positive Arab, or negative American. In our data we found a previously unreported positive shift for the positive out-group primes. Since the ratings of positive out-group images increased following MS it seems that previous TMT studies may not have captured the whole picture of the effects of worldview defense activation. The positive shift after the positive out-group primes suggest that MS may not be causing a negative shift in attitudes towards all aspects of out-group cultures. Instead there may be a positive shift in positive aspects of any culture.

Secondly, we had hypothesized that the MS manipulation would create a more significant post-MS negative shift in the ratings of neutral images following negative

Arab primes. While this shift occurred the ratings of neutral images following negative American primes experienced an even more negative post-MS shift. This provides some very interesting insight into the dynamics of effects of MS.

According to TMT, MS should create a worldview defense effect causing a positive shift in ratings after in-group primes and a negative shift in ratings after out-group primes. However, this may not be occurring. The ratings following negative in-group primes showed a negative shift and rating after positive out-group primes showed a positive shift. Thus, based on our findings it appears that the valence of the prime is more important than the culture. That is, positive aspects of both cultures were more positive after MS and negative aspects of both cultures were more negative after MS. The activation of the worldview defense may not be causing a negative shift in attitudes specific to the out-group culture; instead, it may be causing a negative shift in attitudes towards negative aspects of any culture.

This study showed that the AMP procedure worked by showing that images that were explicitly rated as negative or positive in the pilot study were again rated as negative or positive in the implicit measure. We were also able to show that the MS manipulation worked in the majority of cases; however, we failed to find success with it in regards to the negative Arab images. This failure may be attributable to problems with the prime images used in these studies. This will be more fully explained below.

The most notable findings of study 1 shed an interesting light on the entire body of TMT literature by highlighting the importance of taking valence into consideration. We showed considerable evidence that image valence plays the most significant role in the effects of MS on image ratings, i.e. MS causes negative images regardless of culture

to be rated more negatively and positive images regardless of culture to be rated more positively. This finding might suggest that MS isn't creating a worldview defense of our own specific culture, but instead is creating a humanity defense, whereby we prefer positive aspects of humanity over negative ones.

## Study 2

### Method

#### *Participants*

The participants were 29 undergraduate students at Western Carolina University who were petitioned for participation from undergraduate courses. All 29 participants self-identified as American citizens.

#### *Design*

The study is a 2 (culture: Chinese, Arab) x 2 (valence: positive, negative) x 2 (time: pre-MS, post-MS) design. The culture, valence and time variables are all within subject variables.

#### *Measures and Materials*

*Demographic Questionnaire* (Appendix A). The questionnaire used in study 2 was identical to the questionnaire used in study 1.

*Test Stimuli.* The participants watched videos that included 40 groups of images, each of which contained a prime, a neutral target and a filler stimulus. The 40 cultural primes, 20 each for Arab and Chinese culture, were matched on explicit cultural ratings and valence. The Arab images were the same 20 used in Study 1. The ten most positive and the ten most negative images for Chinese culture were selected for use in the current study. The images were rated for cultural iconic value with 2 as most iconic and -2 as least iconic. The cultural ratings for the 20 Chinese images ranged from 0.87 to 2. The positive Chinese images had valence ratings from 0.71 to 1.55 and the negative Chinese images had valence ratings from -0.13 to -1.51. The neutral targets consist of patterns of gray squares, of varying darkness, arranged in various semi-random 12 x 12 matrices.

Each neutral target appeared only once per testing session. Following the neutral gray square target images, filler images were presented. The filler was a blue square containing a numeral which corresponds to the number of the image which was just presented.

### *Procedure*

Participants in study 2 were tested simultaneously alongside participants in study 3. Participants in study 2 were tested using a procedure identical to that of study 1; however, the prime images used in study 2 were different from those in study 1.

## Results

### *Variables*

For study two the eight average score groups are the pre and post salience scores for each of the four following image groups: positive Arab, negative Arab, positive Chinese, and negative Chinese. The variables used in study 2 were analyzed in the same manner as in study 1.

### *Analyses*

A 2 (prime image: American, Arab) x 2 (prime image valence: positive, negative) x 2 (time: pretest, posttest) repeated measures analysis of variance (ANOVA) with prime image, valence and time all serving as within-subjects factors was conducted on the ratings of neutral stimuli. An alpha level of 0.05 was set for all of the following analyses.

The three way interaction of culture x valence x time three way failed to reach significance,  $F(1, 28) = 1.78, p > .05$ . Means pertaining to this interaction effect are displayed in Table 2.

The time x valence interaction was significant,  $F(1, 28) = 11.63, p < .05$ . This interaction suggests that there was a difference in ratings from pretest to posttest for neutral stimuli and the shift varied for by negative versus positive primes (Figure 3). Further investigation of this interaction revealed that post-MS ratings following positive primes were becoming more positive and post-MS ratings following negative primes were becoming more negative. This was seen regardless of the prime image culture.

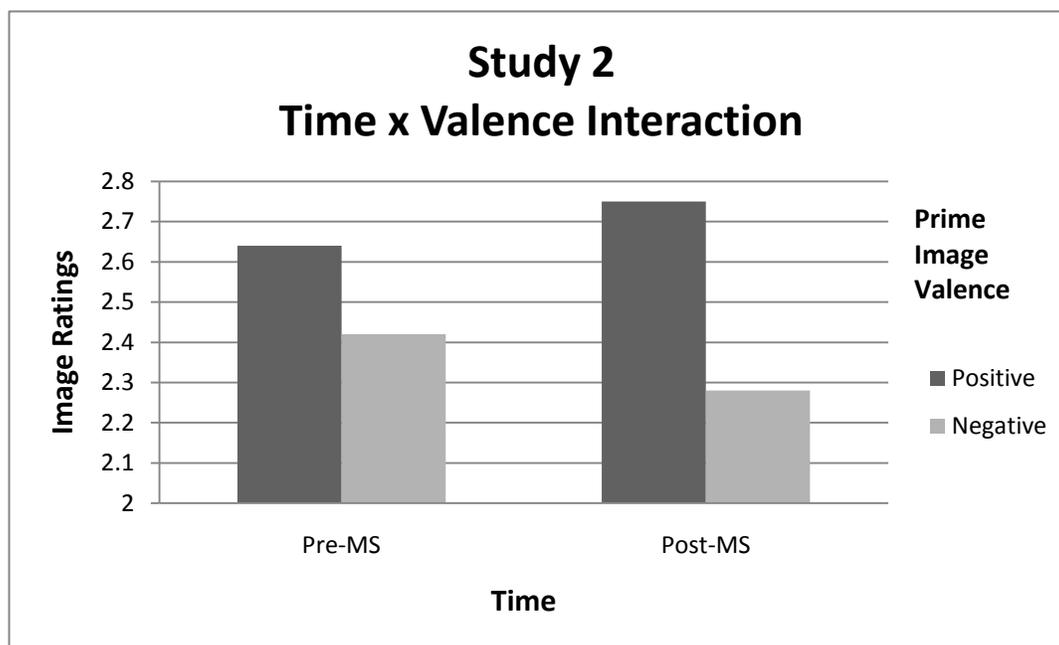
The culture x valence interaction was not found to be significant,  $F(1, 28) = 0.94, p > .05$ . Failure to find significance for this two way interaction means that the difference between ratings associated with Chinese and Arab culture were not dependent on the valence of the prime.

The culture x time interaction failed to reach significance,  $F(1, 28) = 0.01, p > .05$ . This means that the shift in ratings from pre to post-MS did not differ for ratings associated with Chinese primes and those associated with Arab primes.

We then moved on to examine the main effects and found that the main effect of time failed to reach significance,  $F(1, 28) = 0.26, p > .05$ . There was no significant difference between pretest and posttest scores when ignoring the effects of valence and culture.

The main effect of culture also failed to reach significance,  $F(1, 28) = 0.03, p > .05$ . This failure to find a main effect suggests that when ignoring the effects of time and valence, there was no significant difference between the ratings associated with Chinese primes and the Arab primes.

Figure 3



Significance was found for the main effect of valence,  $F(1, 28) = 15.26, p < .05$ . The ratings for neutral images following positive primes ( $M = 2.69, SD = 0.56$ ) were significantly higher than the ratings for neutral images following negative primes ( $M = 2.35, SD = 0.50$ ).

### Discussion

We found that our findings in study 2 for the Arab images in the MS condition replicated the findings for the Arab images in study 1. Both studies found that there was a tendency of the ratings of neutral images following positive Arab images to become more positive following MS, and the ratings of neutral images following negative Arab images to become more negative following MS, however, in study 2 neither of these shifts reached significance. Again we failed to show a significant negative shift in the ratings of neutral images following negative Arab primes from pre to post MS; however, in study 2 the shift approached significance and was very close. The failure of finding a significant negative shift from pre- to post-MS for negative Arab images is very likely due to an insufficient level of negative valence for the negative Arab images. The negative American images were slightly more negative on average than the negative Arab images and this may provide an explanation for why the negative American images did shift significantly in study 1 while the Arab images did not in either study.

## Study 3

### Method

#### *Participants*

The participants were 28 undergraduate students at Western Carolina University who were petitioned for participation from undergraduate courses. All 28 participants self-identified as American citizens.

#### *Design*

The study is a 2 (culture: Chinese, Arab) x 2 (valence: positive, negative) x 2 (time: pre-TS, post-TS) design. The culture, valence and time variables are all within subject variables.

#### *Measures and Materials*

*Demographic Questionnaire* (Appendix A). The questionnaire used in study 3 was identical to the demographic questionnaire used in studies 1 and 2.

*Test Stimuli*. The images used and the order in which they were presented in study 3 was identical to the images and orderings in study 2 because participants in these two studies were tested simultaneously.

#### *Procedure*

Participants in study 3 were tested simultaneously along with participants in study 2; therefore, the procedures were identical aside from the type of salience manipulation used. In study 3 after the participants rated the 40 images, concluding test 1, they wrote an essay in response to the prompt,

*“Please describe briefly the emotions that the thought of the terrorist attacks on September 11, 2001, arouse in you. Write down, as specifically as you can, what happened during the terrorist attacks on September 11, 2001.”*

This prompt was used to induce TS, while the prompt in study 2 was used to induce MS.

After writing for one minute, participants were told to stop and the study continued in a fashion identical to study 2.

## Results

### *Variables*

The variables in study 3 were analyzed in the same manner as the variables in studies 1 and 2.

### *Analyses*

To test Hypothesis 3, a 2 (culture: Chinese, Arab) x 2 (valence: positive, negative) x 2 (time: pre-TS, post-TS) repeated measures analysis of variance (ANOVA) with culture, valence and time all serving as within-subjects factors was conducted on the ratings of neutral stimuli. An alpha level of 0.05 was set for all of the following analyses.

The predicted three way interaction of culture x valence x time three way failed to reach significance,  $F(1, 27) = 0.09, p > .05$ . Means pertaining to this interaction effect are displayed in Table 3.

Although the predicted interaction effect failed to reach significance, the hypothesis was tested using a planned comparison.

Hypothesis 3 stated that following TS, participants' difference scores for ratings of neutral images preceded by negative Arab primes would be lower than difference scores for ratings of neutral images preceded by negative Chinese images. The pre to

post-TS shifts in ratings following negative Arab primes went down ( $M = -0.10$ ,  $SD = 0.59$ ), as did the shift in ratings following negative Chinese primes ( $M = -0.12$ ,  $SD = 0.47$ ), however these shifts were not significantly different from one another ( $t(27) = -0.13$ ,  $p > .05$ ). We also found that the pre-TS ratings of neutral images following negative Arab primes ( $M=2.23$ ,  $SD=0.56$ ) and the post-TS ratings of neutral images following negative Arab primes ( $M=2.13$ ,  $SD=0.57$ ) were not significantly different ( $t(27) = -0.13$ ,  $p > .05$ ). This means that the ratings of neutral images following negative Arab primes did not significantly decrease from pre-TS to post-TS.

Although the overall analysis and planned comparison did not support our hypothesis, the 3-way ANOVA did reveal three significant effects of potential interest. First the 3-way ANOVA did reveal several significant main effects despite failing to find significance for any of the 2-way interactions.

The main effect of time was significant,  $F(1, 27) = 5.99$ ,  $p < .05$ . Further examination of this significant main effect revealed that ratings of neutral images pre-TS ( $M = 2.53$ ,  $SD = 0.48$ ) were significantly higher than the ratings of neutral images post-TS ( $M = 2.51$ ,  $SD = 0.49$ ).

The main effect of culture failed to reach significance,  $F(1, 27) = 4.08$ ,  $p > .05$ . This failure to find a main effect suggests that when ignoring the effects of time and valence, there was no significant difference between the ratings associated with Chinese primes and the Arab primes.

Significance was found for the main effect of valence,  $F(1, 27) = 15.39$ ,  $p < .05$ . The ratings for neutral images following positive primes ( $M = 2.69$ ,  $SD = 0.46$ ) were

significantly higher than the ratings for neutral images following negative primes ( $M = 2.25$ ,  $SD = 0.39$ ).

### Discussion

For hypothesis 3 the data failed to support the prediction that the attitude toward a salience related out-group, Arab, would experience a more significant negative shift following TS than attitude toward an out-group not typically associated with terrorism, Chinese. Unexpectedly the ratings of neutral images following negative Chinese primes showed a negative shift from pre-TS to post-TS which was very similar to the shift in the ratings of neutral images following negative Arab primes. The third hypothesis was originally based on the assumption that terrorism salience would be more closely associated with Arab culture and that Arabs, as an out-group, would be rated more negatively than the Chinese out-group. This effect did not occur; in fact ratings of neutral images following both negative Arab primes and negative Chinese primes decreased at a very similar rate.

When looking for possible explanations for our failure to support our hypothesis we initially checked the AMP to see if it was successful. We found that in fact it was the images that were rated explicitly as more positive in the pilot study which were rated implicitly as more positive in both study 2 and study 3. However, this methodology check didn't provide information about the negative shift which occurred for both positive and negative primes in study 3. It is possible that the TS is causing a worldview defense which is not associated with valence, however, the absence of in-group culture primes makes it impossible to determine if the TS effect is culture dependent instead of valence dependent.

## Exploratory Analyses

### Results

In an attempt to analyze the efficacy of the AMP along with the specific image primes used in this study, an analysis was run on the ratings of the primes after collapsing across time and culture. This provided ratings which fell into one of two categories according to valence, positive or negative. For study 1 a paired samples t-test on the ratings of neutral images following the two groups of primes (negative and positive) was run and a significant effect was found,  $t(37) = -3.66$ ,  $p < .05$ . This significant effect shows that neutral images following negative primes ( $M=2.32$ ,  $SD=0.49$ ) were rated significantly more negatively than the neutral images following positive primes ( $M=2.57$ ,  $SD=0.57$ ) in study 1.

A second analysis was conducted after ratings were collapsed across time, culture and the between subjects variable of salience in order to look specifically at valence alone. After combining these collapsed scores from studies 2 and 3 we ran an identical paired samples t-test on the ratings of the two groups of primes (negative and positive) and again found a significant effect,  $t(56) = -5.54$ ,  $p < .05$ . This significant effect shows again that ratings of neutral images following negative primes ( $M=2.30$ ,  $SD=0.45$ ) were significantly more negative than ratings of neutral images following positive primes ( $M=2.70$ ,  $SD=0.51$ ).

To test for differences between the effects of the salience manipulations a series of analyses combining the data from studies 2 and 3 were run.

First a 2 (culture: American, Arab) x 2 (valence: positive, negative) x 2 (salience: MS, TS) x 2 (time: Pretest, Posttest) mixed factorial analysis of variance (ANOVA) with

culture, valence and time all serving as within-subjects factors and salience as a between-subjects factor was conducted on the ratings of neutral stimuli.

The four way interaction effect between culture x valence x time x salience failed to reach significance,  $F(1, 55) = 0.48, p > .05$ . The three way interaction between culture x valence x salience failed to reach significance,  $F(1, 55) = 2.57, p > .05$ .

The three way interaction of salience x culture x time also failed to reach significance,  $F(1, 55) = 0.03, p > .05$ .

The last three way interaction of culture x time x valence also failed to reach significance,  $F(1, 55) = 1.28, p > .05$ .

However, the three way interaction of salience x time x valence was significant,  $F(1, 55) = 4.68, p < .05$ . This interaction suggests that effects of the salience manipulations varied between groups differently from pre-test to post-test, depending on the valence of the prime image preceding the neutral image which was rated. This interaction is potentially due to the unexpected shifts in the TS condition. In the MS condition shifts occurred in the expected directions, ratings associated with positive primes increased in the posttest compared to pretest and ratings associated with negative primes decreased in the posttest compared to pretest. In the TS condition, the ratings associated negative primes experienced the predicted negative shift in the posttest compared to pretest; however, the ratings of images associated with positive primes experienced an unexpected negative shift from pre-test to post-test. This difference likely fueled the significance of the three-way interaction in this ANOVA.

In examining the six 2 way interactions, we found that all of them failed to reach significance.

We looked at the main effects and found that the main effect of valence was significant,  $F(1, 55) = 30.48, p < .05$ , which shows that ratings of neutral stimuli preceded by positive primes were significantly higher ( $M = 2.69, SD = 0.51$ ) than ratings of neutral stimuli preceded by negative primes ( $M = 2.30, SD = 0.45$ ).

In looking at the main effect of time we found significance,  $F(1, 55) = 5.25, p < .05$ , showing that participants in the pretest rated images significantly more positively ( $M = 2.53, SD = 0.41$ ) than they did in the posttest ( $M = 2.46, SD = 0.43$ ).

The main effects of salience and culture both failed to reach significance. In examining these findings it is important to note and understand the significant three way interaction between time, valence, and salience. The main effects alone are misleading without an understanding of this interaction which shows that there was a difference from pretest to posttest which differed between salience conditions for both positive and negative images.

In the TS condition both positive and negative images experienced a negative shift from pretest to posttest, however, in the MS condition positive images experienced a positive shift from pretest to posttest while ratings associated with negative primes experienced a negative shift. This created the significant three way interaction. This explicates the main effect of time. While the posttest scores appear to be more negative than the pretest scores this really depends upon the unexpected negative shift in ratings of the images following positive primes in the TS condition.

### Discussion

The most interesting finding from this set of data was not based on any of the hypotheses; instead it was the unexpected finding of the interaction between the valence

and salience. Participants in the MS condition experienced the typical shift in ratings for neutral images preceded by positive and negative primes, ratings associated with positive primes increased and ratings associated with negative primes decreased. Further, and most significant, valence was more important than culture.

A second unexpected finding, that is inexplicable, was the effect of TS manipulation. After TS ratings decreased for both negative *and* positive primes. The divergent effects of the two salience manipulations suggest that there is a difference between MS and TS. Previous studies had shown more negative attitudes toward out-group cultures after TS. However, given the findings of studies 1 and 2, it would have been reasonable to expect TS to produce a positive shift in attitude toward positive prime images and a negative shift in attitude. Thus the finding that TS appears to be associated a decrease in ratings of both positive and negative out group primes is puzzling.

Perhaps with TS, culture is more important than valence? This could be tested if the post-TS shifts were measured for in-group primes. Due to the limitations of this study, in-group primes were not included in the second study, however, in future research it would be interesting to observe the shift in ratings of in-group images following TS compared to MS. If the TS condition is creating a true cultural worldview defense it would activate more positive attitudes toward our in-group and more negative attitudes toward out-groups. In contrast to this effect the MS manipulation may be activating a shared humanity defense whereby positive aspects of humanity are viewed more positively and negative aspects of humanity are viewed more negatively, across cultures. This hypothesis is in-line with the current findings. Thus, the TS manipulation may be activating what was previously operationalized as the worldview defense, which is, a

culturally specific defense whereby in-groups are viewed more positively and out-groups more negatively.

## General Discussion

According to the findings in this study the take away lesson appears to be that people have a preference for pleasantries. Our data suggests that when the worldview defense is activated that the polarization of attitudes which occurs is dependent on valence. Previous literature on TMT hasn't taken this variable into account and instead has previously attributed the negative shift in attitudes towards out-groups as a culturally specific shift. It appears now that this shift may not be culturally specific; instead it may be due the valence associated with the aspect of the culture in question. If participants are asked to rate an out-group following MS it may be that instead of activating all aspects of that out-group culture they are instead activating only the negative aspects of that culture. If this is the case, our study has shown that negative aspects of any culture decrease following MS and this shift could be accounting for previous TMT findings. Conversely, it could be that when questioned about their own in-group that they focus on the positive aspects which we have shown increase following MS across cultures. These new findings could provide alternate explanations to go along with previous research in this area and could potentially guide a new direction of TMT research focused more heavily on valence.

While we found valence to be important across cultures for MS, we found a different effect for TS. Our hypothesis proved to be incorrect; however, in testing this hypothesis we uncovered an unexpected trend in the effects of TS. TS appears to cause a negative shift in attitudes across valence and out-group culture. This overall negative shift was surprising and poses an interesting question for future research. It will be intriguing to untangle the effects of TS found in this study, specifically by replicating this

study using an in-group. If a difference exists between the shifts of in-groups and out-groups following TS, it could be that it is activating a separate defense mechanism from MS.

Valence appears to be a key component of TMT no matter how the theory is examined. It will be important to investigate if these findings can be replicated within the typical explicit TMT methodology. Are previous TMT ideals going to hold up following future replications of the importance of valence?

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## Appendix A

## Demographic Questionnaire

1. Are you currently an American citizen?
  - 1 Yes
  - 2 No
  
2. Generally speaking, do you usually think of yourself as a Republican, Democrat, Independent, or what?
  - 1 Strong Democrat
  - 2 Not very strong Democrat
  - 3 Independent - close to Democrat
  - 4 Independent
  - 5 Independent - close to Republican
  - 6 Not very strong Republican
  - 7 Strong Republican
  - 8 Other
  
3. We hear a lot of talk these days about liberals and conservatives. Where would you place yourself on the following scale of political views?
  - 1 Extremely Liberal
  - 2 Liberal
  - 3 Slightly Liberal
  - 4 Moderate, middle of the road
  - 5 Slightly Conservative
  - 6 Conservative
  - 7 Extremely Conservative
  - 8 Don't know
  
4. How would you describe yourself?
  - 1 White or Caucasian
  - 2 Black or African-American
  - 3 Asian
  - 4 Native American
  - 5 Multiracial
  - 6 Hispanic
  - 7 Other
  
5. How central to your identity is being an American?
 

1	2	3	4	5	6	7
Not at all						Very Much
  
6. How central to your identity is being a Christian?
 

1	2	3	4	5	6	7
Not at all						Very Much

## Appendix B

### Mood and Artistic Appeal Consent Form

#### **What is the purpose of this research?**

The purpose of this research is to examine attitudes towards a variety of different images after writing a series of essays on different topics.

#### **What will be expected of me?**

You will be asked to fill out a few short questionnaires after watching short video clips and rating the items in the video as “more pleasant than average” or “less pleasant than average.”

#### **How long will the research take?**

The entire testing process should take about 50 minutes.

#### **Will my answers be anonymous?**

Yes, your answers are anonymous. Your name will not be used at all in this research. You will be asked not to put your name on the questionnaires or the brief written responses and the researcher will in no way connect you and the answers or essays you have provided.

#### **Can I withdraw from the study if I decide to?**

You may choose to withdraw from the research at anytime. You may also decline to respond if you do not wish to answer.

#### **Is there any harm that I might experience from taking part in the study?**

There is no foreseeable harm to the participants. Your mood may change but the change should be short lived.

#### **How will I benefit from taking part of the research?**

This research will provide information on how changes in an individual’s mood may change that person’s response to art. Your participation will contribute to a better understanding of human visual ability. If you are interested you may view the results at <http://paws.wcu.edu/wgordon/artandmood.htm> The preliminary results should be posted near the end of this semester.

#### **Who should I contact if I have questions or concerns about the research?**

Contact Caleb Corwin ([cjcorwin1@catamount.wcu.edu](mailto:cjcorwin1@catamount.wcu.edu)) . You may also contact Dr. Winford Gordon ([wgordon@wcu.edu](mailto:wgordon@wcu.edu) or 828-227-3366), faculty supervisor of the experiment. You may also express concerns to Dr. Meagan Karvonen ([kavonen@wcu.edu](mailto:kavonen@wcu.edu)) or 828-227-3323), the chair of the University Institutional Review Board or to:

Institutional Review Board  
Office of Research and Graduate Studies  
109F University Outreach Center  
828-227-7398

Name: \_\_\_\_\_

Date: \_\_\_\_\_

Signature: \_\_\_\_\_

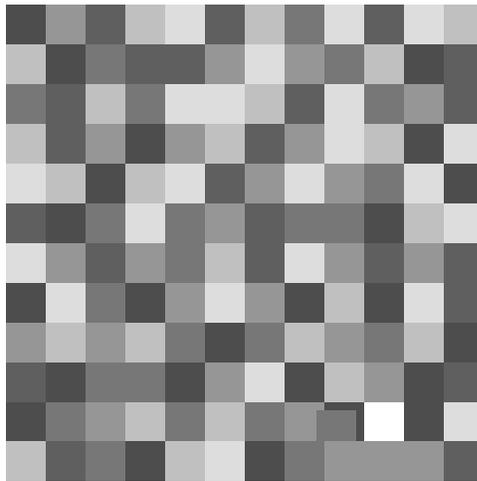
## Appendix C

## Examples of Prime, Target and Backward Masking Stimuli

Typical Prime



Typical Target



Typical Backward Mask

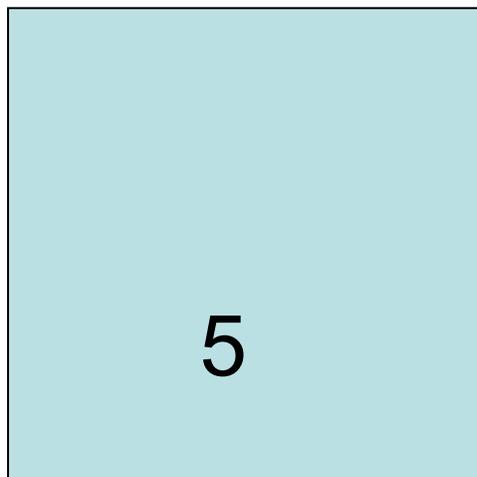


Table 1

*Means and Standard Deviations for Study 1*

Image Type	N	Mean	SD
Positive Arab			
Pre MS	38	2.46	0.55
Post MS	38	2.56	0.74
Negative Arab			
Pre MS	38	2.36	0.57
Post MS	38	2.32	0.62
Positive American			
Pre MS	38	2.57	0.60
Post MS	38	2.70	0.71
Negative American			
Pre MS	38	2.37	0.46
Post MS	38	2.24	0.64

Table 2

*Means and Standard Deviations for Study 2*

Image Type	N	Mean	SD
Positive Arab			
Pre MS	29	2.65	0.59
Post MS	29	2.70	0.57
Negative Arab			
Pre MS	29	2.41	0.56
Post MS	29	2.30	0.65
Positive Chinese			
Pre MS	29	2.63	0.61
Post MS	29	2.80	0.65
Negative Chinese			
Pre MS	29	2.43	0.48
Post MS	29	2.25	0.54

Table 3

*Means and Standard Deviations for Study 3*

Image Type	N	Mean	SD
Positive Arab			
Pre TS	28	2.74	0.44
Post TS	28	2.59	0.47
Negative Arab			
Pre TS	28	2.23	0.56
Post TS	28	2.13	0.57
Positive Chinese			
Pre TS	28	2.78	0.51
Post TS	28	2.66	0.67
Negative Chinese			
Pre TS	28	2.39	0.36
Post TS	28	2.27	0.49