

MORTALITY SALIENCE AND REACTIONS
TOWARD CRITICAL INGROUP AND OUTGROUP MEMBERS

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DECLARATION

I hereby declare that this thesis is a presentation of my original work, and has been written by me in its entirety, as part of the program of study leading to the award of the degree of Doctor of Philosophy (By Research) at the National University of Singapore.

I have duly acknowledged all the sources of information which have been used in this thesis.

This thesis has also not been submitted for any degree in any university previously.

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ABSTRACT

The current research examined how mortality salience influences reactions toward critical ingroup and outgroup members. First, a pilot study was conducted to test the typical personal mortality salience induction in a Singaporean sample. Of more relevance, in three experiments, people derogated an ingroup critic more when they were reminded of their death, relative to the control condition. Besides, among mortality salient participants, evaluations of the ingroup critic were also more negative compared to evaluations of the outgroup critic. The increased derogation of the ingroup critic under mortality salience occurred when participants processed the criticism before the critic's group membership information, but not when they received the criticism after the group membership information (Experiment 1). Also, such derogation was mediated by an increase in perceived threat under mortality salience (Experiment 2). Finally, mortality salient participants were more likely to derogate the ingroup critic when the criticism was unjustified, but not when the criticism was justified (Experiment 3). Implications for terror management theory and reactions to group-directed criticism are discussed.

Keywords: Terror Management Theory, Mortality Salience, Intergroup Sensitivity Effect, Intergroup Processes, Group Criticism

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CHAPTER ONE

Introduction

Consider the scenario where a Singaporean citizen voices his criticism about how Singaporeans in general are not doing enough to prevent crimes. Some Singaporeans might agree with this critic and express their liking for him. On the other hand, other Singaporeans might reject this critic and defend Singaporeans. Would reactions toward this Singaporean critic differ if it were a normal day, as opposed to a day during the Severe Acute Respiratory Syndrome (SARS) outbreak? Likewise, Americans have exhibited mixed reactions toward the suspect of the 2013 Boston Marathon bombings, Dzhokar Tsarnaev. Some believe that he should be treated and accorded his rights as an American citizen, while others think that he should be treated as “enemy-combatant” and denied Miranda rights¹ (Williams, 2013; Yost, 2013). When reminded of the fragility of life and the inevitability of death through images and news reports concerning terrorism or death, would death thoughts lead people protect or reject an ingroup member who behaved negatively?

Since the 2001 September 11 terrorist attack on the World Trade Center in the heart of New York, TMT (TMT: Greenberg, Solomon, & Pyszczynski, 1997; Greenberg, Solomon, & Arndt, 2008) has gained popularity as a relevant framework in understanding peoples’ reactions in response to reminders of death.. The dominant finding in terror management research has been increased ingroup favoritism and increased outgroup derogation among mortality salient participants, relative to their control counterparts (e.g. Castano, Yzerbyt, Paladino, & Sacchi, 2002b; Greenberg et al., 1997; Greenberg & Kosloff, 2008; Greenberg et al., 1990). Terror management research suggests that one of the reasons for increased ingroup favoritism and outgroup derogation under mortality salience is the heightened need to defend

¹ The Miranda warning, or Miranda rights, is a set of warnings read by United States police to individuals who are in custody that their statements are admissible against them as evidence in court proceedings.

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the validity of one's worldview. While a large body of research has shown the prevalence of increased ingroup favoritism and increased outgroup derogation under mortality salience, it is noteworthy to highlight that most research has presumed that ingroup members are attitudinally similar and outgroup members are attitudinally dissimilar. However, attitudinal similarity and group membership could be independent, that is, an individual from one's own group could hold attitudes that are different from other members (Packer, 2008; See & Petty, 2006). The primary aim of the current research is to examine responses toward ingroup and outgroup critics under mortality salience. I investigate how people would react to ingroup and outgroup members who hold attitudinal positions that are dissimilar from themselves, and how reminders of death influence reactions toward an ingroup member who had criticized the group. In particular, the present research aims to shed new light on reactions to ingroup and outgroup critics under mortality salience by investigating reactions where the criticism is presented before the group membership of the critic is made known.

I begin this dissertation by reviewing the basic propositions of terror management theory and the role of proximal and distal defenses in dealing with existential anxiety that arises from reminders of one's mortality in Chapter 1. In Chapter 2, I consider existing research on the cross-cultural generality of mortality salience effects, and establish the applicability of the personal mortality salience paradigm in my primary sample — Singaporean participants. Chapter 3 examines the literature on the intergroup sensitivity effect, and the role of groups in terror management to explore the circumstances under which mortality salience elicits the protection or derogation of ingroup and outgroup critics. Of importance, I propose that the relative salience of a critic's group membership before or after the receipt of a criticism could influence how people react toward ingroup and outgroup critics under mortality salience (Experiment 1). Chapter 4 reviews existing literature on the black sheep effect, and terror management research on sensitivity toward negative ingroup

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members and ingroup features. In Experiment 2, I propose that perceived threat from an ingroup critic mediates the negative evaluations of ingroup critics under mortality salience. Chapter 5 examines how criticisms may not be perceived as harmful because they have positive implications for the group. In particular, Experiment 3 investigates the hypothesis that people evaluate ingroup critics negatively when they provided unjustified criticisms, but not justified criticisms, of the group, under mortality salience. On the other hand, people may protect the ingroup member when criticisms are unjustified than if criticisms were justified under mundane circumstances. Finally, Chapter 6 discusses the implications of the results of this research for terror management theory as well as intergroup processes.

Terror Management Theory: Proximal Defense against Death Awareness

Since the conception of TMT (Greenberg et al., 1997; Greenberg et al., 2008), more than 500 studies have shown that mortality salience leads to responses in the domain of stereotypes and prejudice (e.g. Schimel et al., 1999), inter-group relations (e.g. Greenberg et al., 1990), interpersonal relations (e.g. Kosloff, Greenberg, Sullivan, & Weise, 2010), health (e.g. Goldenberg & Arndt, 2008) and consumer behavior (e.g. Arndt, Solomon, Kasser, & Sheldon, 2004). Inspired from the writings of Ernest Becker (Becker, 1971, 1973, 1975), TMT proposes that humans possess complex cognitive abilities that enable them to be aware of their existence as well as the inevitability of death. Coupled with the innate desire for self-presentation, the awareness of inevitable death generates potential terror (Greenberg et al., 1997).

Immediately after contemplating one's own death, death thoughts are in one's conscious awareness. The accessibility of these thoughts create the potential for terror (Pyszczynski, Greenberg, & Solomon, 1999), therefore, humans attempt to remove death thoughts from conscious awareness by using rational and threat-focused defenses, also known as proximal defenses. One way of removing conscious death thoughts is through active

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suppression of death thoughts – an effortful mental process aimed at reducing the generation and accessibility of death thoughts (Arndt, Greenberg, Solomon, Pyszczynski, & Simon, 1997b; Greenberg, Pyszczynski, Solomon, Simon, & Breus, 1994). Another way of removing conscious death thoughts is by engaging in cognitive strategies that are primarily aimed at denying one's vulnerability to physical death (Pyszczynski et al., 1999). For instance, people can convince themselves that death is distant problem by rationalizing that they have engaged in behaviors to protect themselves from death. Indeed, mortality salient participants compensated for their vulnerability to death from dangerous sun exposure by showing greater intentions to buy sunscreen products (Routledge, Arndt, & Goldenberg, 2004).

Although proximal defenses can defuse the immediate threat triggered by the awareness of death, they cannot effectively eliminate the anxiety because 'the inevitability of death cannot be rationally denied' (Pyszczynski et al., 1999). Therefore, the TMT posits that when death thoughts are out of conscious awareness but highly accessible (e.g. after a delay or distraction), humans employ the use of distal defenses, which are also known as anxiety buffers, to push death thoughts further away from awareness. In particular, there is much empirical evidence for the notion that cultural worldview and self-esteem serve as anxiety buffers against mortality salience.

Cultural Worldview as an Anxiety Buffer

According to the *anxiety buffer hypothesis* of terror management theory, existential anxiety arising from the awareness of one's inevitable death is managed by a two-component anxiety buffer – (1) cultural worldview and (2) self-esteem. The cultural worldview organizes and structures our world such that the universe appears to stable and orderly. It also instills meaning and permanence by providing standards for what is considered valued behavior. By meeting those standards, humans are promised literal or symbolic immortality (Greenberg et al., 1997). Given that one's cultural worldview provides a means of death transcendence, the

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mortality salience hypothesis states that humans defend their worldview when reminded of their mortality, because the defense of their worldview provides protection against the potential for terror by enhancing the belief that they are living a meaningful way of life. This means that under mortality salience, people will prefer others who share their worldview because they validate their worldview; at the same time, they react negatively toward others who do not share their worldview because these others threaten the validity of one's worldview.

In one of the earliest empirical examinations of the *mortality salience hypothesis*, Rosenblatt, Greenberg, Solomon, Pyszczynski, and Lyon (1989) found that, relative to the control condition, mortality salience led to increased punishment of a prostitute (moral transgressor) and increased rewards for a woman who assisted police in apprehending a criminal (person who upholds cultural values). Greenberg et al. (1990) also found that American participants were extremely negative toward individuals who held anti-U.S. sentiments, but favored those who held pro-U.S. sentiments following reminders of their mortality than after thinking about food. In addition, people also reacted more aggressively toward a worldview threatening other by allocating more hot sauce to him under mortality salience (McGregor et al., 1998). This aggressive tendency that was observed in mortality salient individuals was specific to violations of their cultural worldview, and not a general response toward a repulsive individual who had earlier given him/her an unpleasant tasting juice (McGregor et al., 1998, Study 4). Together, these studies support the *mortality salience hypothesis* in showing that death reminders lead to an increased in the need to maintain faith in one's cultural worldview.

Self-Esteem as an Anxiety Buffer

The second component of the anxiety buffer is self-esteem, which reflects the belief that one is living up to cultural standards set by society (Rosenblatt et al., 1989). To the

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extent that self-esteem provides protection against existential anxiety, studies have shown that individuals with high self-esteem were less likely to engage in worldview defense following mortality salience (Greenberg et al., 1993; Greenberg et al., 1992; Harmon-Jones et al., 1997). Harmon-Jones et al. (1997) found that individuals who had received a positive personality feedback (experimentally induced self-esteem) and those who were dispositionally high in self-esteem did not exhibit worldview defense under mortality salience. They did not show any bias in favor of a pro-U.S. author relative to an anti-U.S. author after reminders of death. Together, these findings suggest that self-esteem effectively manages existential anxiety arising from the awareness of one's mortality, hence, reducing the need to engage in cultural worldview defense.

Aside from the empirical evidence that self-esteem acts as an effective buffer against existential anxiety, several studies have shown that mortality salience increases self-esteem-striving. For example, Dechesne, Greenberg, Arndt, and Schimel (2000a) found that mortality salience led to a shift in preference from the school's less successful football team to the school's basketball team. Presumably, identification with successful teams enhances one's own self-worth, thereby providing an effective buffer against death awareness. Finally, in showing that high self-esteem is important under mortality salience, Routledge et al. (2004) found that people whose self-esteem was contingent on having tanned skin showed increased interest in tanning products and services following mortality salience. Notably, this occurred despite the fact that exposure to the sun's radiation was dangerous and detrimental to health.

Symbolic and Literal Immortality

The cultural worldview and self-esteem provide the bases for attaining symbolic and literal immortality – the sense that one is a valued being that is part of something larger and more enduring (Dechesne et al., 2003). To this extent, individuals who are high in symbolic or literal immortality do not need to engage in worldview defense or self-esteem striving

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when reminded of death. Indeed, research by Florian and Mikulincer (1998) found that people who are high in dispositional symbolic immortality, i.e. those who had strong feelings of being part of a universe beyond the self, did not exhibit the tendency to set higher bonds for a moral transgressor (worldview defense) following mortality salience. Similarly, providing people with evidence about the afterlife eliminated the need for mortality-salient participants to enhance their self-esteem via the validation of positive personality feedback (Dechesne et al., 2003). Therefore, through the belief that one's existence transcends beyond physical death, the attainment of symbolic and literal immortality enables humans to effectively manage existential anxiety.

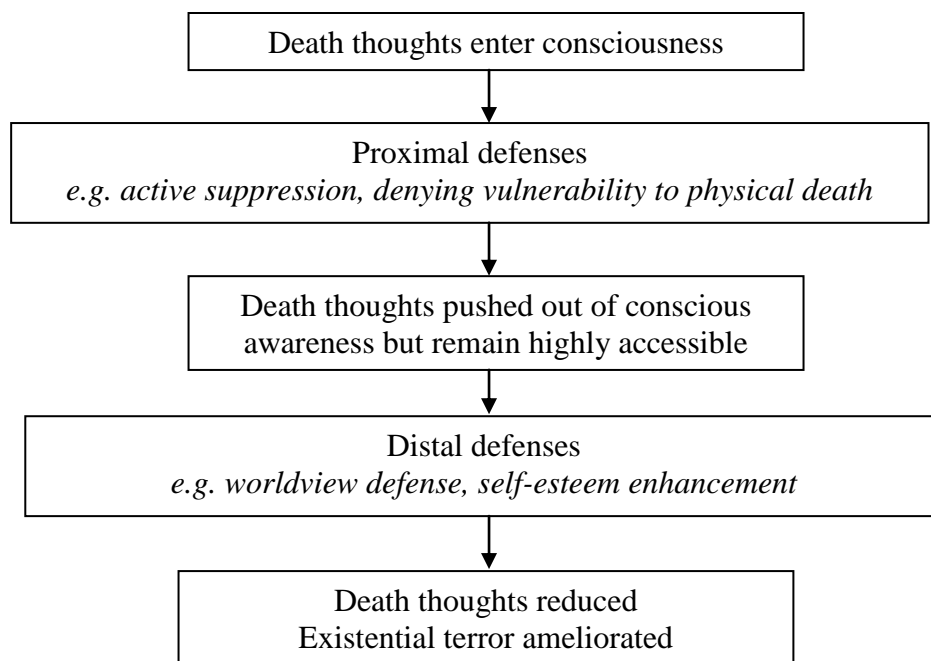


Figure 1. Dual Process Model of Defense Against Conscious and Unconscious Death Thoughts. Adapted from Pyszczynski et al. (1999)

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CHAPTER TWO

Mortality Salience in Singapore

In the extant literature, reminders of mortality have been operationalised in a variety of ways. In typical mortality salience studies, participants are asked to write briefly about their own death, or a non-death related neutral/control topic, such as watching television, eating or negative control topics such as dental pain, an important examination, uncertainty, meaninglessness, or social exclusion, while being told that the experiment is interested in assessing one's personality (Rosenblatt et al., 1989; see Burke, Martens, & Faucher, 2010, for review). Participants then complete one or two distraction questionnaires before finally completing a dependent measure that taps into worldview defense. As mentioned earlier, people use two distinct systems of defense to cope with the awareness of death (see Greenberg, Arndt, Simon, & Pyszczynski, 2000; Pyszczynski et al., 1999, for review), therefore, this delay and distraction between the death prime and the dependent measure is included to allow for death to fade from consciousness so that distal defenses take effect (Greenberg et al., 1994). Less frequently, researchers have also used situational primes such as conducting the experiment near a funeral parlor (Jonas, Schimel, Greenberg, & Pyszczynski, 2002) or cemetery (Gailliot, Stillman, Schmeichel, Maner, & Plant, 2008) and subliminal priming using death-related word (Arndt, Greenberg, Pyszczynski, & Solomon, 1997a) or words related to the September 11 terrorist attacks in the United States (e.g. 911, WTC: Landau et al., 2004), to observe worldview defense effects following mortality salience (see Burke et al., 2010, for review).

Cross-cultural Generality of Mortality Salience Effects

While the bulk of TMT research has been done in the United States (Burke et al., 2010), TMT findings have also been replicated in countries such as Israel (Florian & Mikulincer, 1997), Germany (Fritsche & Jonas, 2005), and Holland (Dechesne et al., 2003).

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Nevertheless, these countries are recognised as Western cultures (Triandis, 1989). Therefore one could suggest that worldview defense, self-esteem protection and self-esteem striving could be terror management mechanisms that are unique to individualistic cultures (Heine, Harihara, & Niiya, 2002). For instance, it is widely recognised that the self is defined as an independent entity in individualistic cultures, but is viewed as part of a group or groups of individuals in collectivistic cultures (Markus & Kitayama, 1991). Therefore, one might expect that personal death implies the cessation of the self to a person from an individualistic culture, but not necessarily to a person from a collectivistic culture.

In support of the above proposition, Kashima, Halloran, Yuki, and Kashima (2004) found that Japanese participants are more likely to engage in worldview defense when they are primed with collective mortality, e.g. death of all the people in their country. In addition, researchers have also failed to find effects of personal mortality salience in Taiwanese samples (e.g. Yen & Cheng, 2010, Study 1). Furthermore, a meta-analysis of terror management studies conducted in East Asia found that the effect size of mortality salience effects were much lower than studies conducted in North America (Yen & Cheng, 2010). On the other hand, a number of studies have also shown that the typical personal mortality salience effects do occur in Asian collectivistic cultures such as Japan (Heine et al., 2002), China (Zhou, Liu, Chen, & Yu, 2008) and Hong Kong (Tam, Chiu, & Lau, 2007). For example, Heine et al. (2002) found that under mortality salience, Japanese participants were more critical of an anti-Japan essay writer than in the important examination control condition.

Besides the relevance of personal mortality salience, research by Ma-Kellams and Blascovich (2011) also suggests that reactions toward mortality salience could be contingent on one's self-construal and social construction of reality. Since individualists value personal uniqueness and self-affirmation, and collectivists value relationships and group affirmation

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(Harter, 2012; Kitayama & Park, 2007), terror management strategies should reflect these worldview differences. Therefore, rather than derogate those who are different from themselves, collectivists might seek to affirm others under personal mortality salience. Indeed, Ma-Kellams and Blascovich (2011) found that collectivistic Asian Americans reported more positive attitudes toward a prostitute (worldview violator) following mortality salience. In contrast, individualistic European Americans reported more negative attitudes toward a prostitute following mortality salience. In the context of the current research, the above studies suggest that individualists and collectivists might react differently to critics and criticisms because of differences in self-construal and values. For instance, individualists might react negatively to critics and criticism because they want to affirm their worldviews. On the other hand, collectivists might tolerate critics and criticisms because they value relationships. While the fear of death is universal, it appears that mortality salience elicits culturally divergent responses as a means of worldview defense.

The Singapore Sample

In view of the mixed evidence for mortality salience effects in Asian populations, it is premature to assume that the typical mortality salience effects will be found in Singapore when personal mortality is induced. Nonetheless, recent research in the area of cross-cultural psychology has adopted the salience perspective as a useful framework in explaining cross-cultural differences (e.g. Oyserman & Lee, 2008). According to this perspective, culture involves more than just the collectivistic-individualistic dichotomy. In fact, one might possess both aspects of individualism and collectivism, but the differences in behavior depend on the number of situations which either of them are cued. This means that individuals might be able to have both self-construals resembling that from individualistic and collectivistic societies, co-existing independently of each other.

Studies have shown that biculturals are capable of readily switching between two

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cultural mindsets with ease (Hong, Chiu, & Kung, 1997; Hong, Morris, Chiu, & Benet-Martinez, 2000). For example, Hong et al. (1997) demonstrated that cultural priming influenced the attribution and socio-cognitive thinking styles of bicultural Hong Kong university students who were well endowed with both traditional Chinese values as well as liberal Western beliefs in a manner that was consistent with cross-cultural literature (see Nisbett, Peng, Choi, & Norenzayan, 2001, for review). They also found that Hong Kong participants exposed to the Asian prime (Chinese Flag, Great Wall of China, Confucius) placed a greater premium on traditional Chinese values and made more external attributions than participants who were exposed to the Western prime (American Flag, Capitol Building, Abraham Lincoln).

Since its independence, Singapore has adopted the policy of multilingualism, with English as the official working language and the recognition of the three Mother Tongues (Mandarin, Malay and Hindu) as official languages. The education system in Singapore emphasizes Asian values like Confucianism and its ancestry of indigenous Malays, and forefathers from China and India (Wee, 1999). On the other hand, Singapore was also once a British colony and continues to inherit a Western heritage in the form of extensive links with the western world through her open and liberal market economy as well as adoption of Western practices such as the legal system (Henderson, 2001; Turnbull, 1989; Wee, 1999). Given that there are some similarities between Hong Kong and Singapore, Singaporeans could also be a bicultural sample capable of frame-switching.

In addition to the above listed similarities, prior research was successful in eliciting Western or Eastern cultural orientation in Singaporean participants using American and Singaporean pictorial primes (Au et al., 2011; Chen, Ng, & Rao, 2005; Cheng, Leung, & Wu, 2011; Ng, 2010). For example, Chen et al. (2005) found that Western-primed Singaporean participants displayed consumer impatience by preferring the immediate options over delayed

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options when the option was framed as promotion focused (e.g. willingness to pay to enjoy the book earlier). This behavior is consistent with what has been found in Western cultures. Eastern-primed Singaporean participants, on the other hand, displayed consumer impatience when the option was framed as prevention focused (e.g. willing to pay to shorten the waiting time for a book). Presumably, such effects were due to cultural differences in the endorsement of certain values (e.g. patience and perseverance). In summary, it appears that Singaporeans might possess both aspects of individualism and collectivism.

Pilot Study:

Mortality Salience and Death-Thought Accessibility

It remains unclear if the key paradigm in terror management literature – inducing personal mortality salience -- would elicit death thought accessibility in our Singaporean sample. In order to examine if the personal mortality salience induction is a relevant and suitable paradigm in a Singaporean sample, the current research employed the use of a word stem completion task to examine death thought accessibility following mortality salience. According to research on the psychodynamics of terror management theory (e.g. Arndt et al., 1997b; Greenberg et al., 1994; Hayes, Schimel, Arndt, & Faucher, 2010), people react to conscious death thoughts by immediately suppressing them. Hence, mortality salience effects such as worldview defense and self-esteem do not emerge immediately following reminders of death. After a short delay, the suppression process relaxes; death thoughts rebound and become highly accessible. The higher levels of death thought accessibility trigger the need to resolve mortality concerns via the cultural anxiety buffer. To the extent that the induction is effective at inducing mortality salience, I hypothesize that participants in the mortality salience condition will show higher levels of death thought accessibility, that is, they will complete more word fragments with death-related words, than participants in the control condition after a short delay.

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Method

Participants and Design.

One hundred and eighty-three (121 females; 62 males) undergraduates from the National University of Singapore, aged between 18 and 26 ($M = 20.9$, $SD = 1.53$) took part in this research for partial course credit. The experiment was based on a one factorial between-subjects design with two conditions: Examination salience vs. Mortality salience. All materials for this experiment were presented on MediaLab (Jarvis, 2008).

Materials and Procedure.

Salience Manipulation. Upon entering the laboratory, participants were asked to sit in front of any computer they liked. They were told that they were enrolled in a study examining ‘Perceptions of Life Experiences’. As in previous TMT studies, participants were asked to type in their responses to two open-ended salience manipulation response questions concerning their thoughts and feelings about either their own death or an exam control topic, as an ostensible measure of personality. Participants in the mortality salience [examination salience] condition were asked to: “Imagine and describe the thoughts and feelings that the thought of your own death [taking an important examination] arouses in you” and “Please describe in as much detail as possible what you think will happen as you die and once you are physically dead [take an important examination].” (Greenberg et al., 1990). Participants were randomly assigned to one of the two conditions.

Positive Affect Negative Affect Scale (PANAS). Participants then proceeded to complete non-death-related filler tasks², including the PANAS (Watson, Clark, & Tellegen,

² Since self-report measures might not be sufficiently sensitive to detect affective reactions, or terror management defenses might have conceivably curbed conscious emotion (Arndt, Allen, & Greenberg, 2001), I included a lexical decision task as an exploratory measure to investigate if implicit measures of emotions might detect affective responses

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1988). Participants responded to 20 items and rated the extent to which they felt specific emotions (e.g. interested, determined, afraid, jittery). Participants responded to 20 items and rated the extent to which they felt specific emotions (e.g. interested, determined, afraid, jittery) at that point in time during the experiment. Participants rated the extent to which they felt each affect on a 7-point scale, ranging from 1 (*Not at all*) to 7 (*A great deal*). The intermediate values were *very slightly*, *a little*, *neutral*, *quite a bit*, *certainly*. All positive affect items were summed to form a mean positive affect score ($\alpha = .89$), while the negative affect items were summed to form a mean negative affect score ($\alpha = .91$).

Death thought accessibility. Subsequently, participants were instructed to complete a 20 item word-stem completion task by filling in two missing letters, as a measure of death thought accessibility (Arndt et al., 1997b; Greenberg et al., 1994). Of the 20 word fragments, 6 could be completed by a neutral or death-related word. The possible death-related words were *coffin*, *grave*, *dead*, *skull*, *killed*, and *buried*. Next, participants were asked if they had participated in similar studies, and asked to report the study's hypothesis. Finally, they were debriefed and dismissed.

Results

PANAS. To examine if mortality salience had induced positive affect or negative affect, two one-way Analysis of Variance (ANOVA) with Salience as the independent variable were carried out on mean positive affect and mean negative affect scores. Analyses

following mortality salience. Participants completed a task that involved categorizing a string of letters as words or non-words. These string of letters include positive emotion words (e.g. glad, optimistic), negative emotion words (e.g. angry, fear), neutral words (e.g. paper, train) and non-words (e.g. irokk, choat). This measure was adapted from previous studies that employed the use of the lexical decision task to examine mood (e.g. Niedenthal & Setterlund, 1994). Based on the mood congruency effect (Bower, 1981), responses to mood congruent words would be faster when a person is in a particular mood. The results revealed no significant differences in reaction times toward positive, negative or neutral emotion words between participants in the exam salience condition ($ps > .60$). Since this measure was included only for exploratory purposes, it was excluded from further analyses.

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revealed a significant main effect of salience on positive affect, $F(1, 181) = 11.1, p = .001, \eta_p^2 = .06$. Participants in the mortality salience condition ($M = 3.91, SD = 1.05$) reported more positive affect than participants in the examination salience condition ($M = 3.37, SD = 1.11$). There was no significant effect of salience on negative affect, $F(1, 181) = .192, p = .66, \eta_p^2 = .001, M_{\text{Mortality}} = 2.50, SD_{\text{Mortality}} = 1.16$ vs. $M_{\text{Examination}} = 2.42, SD_{\text{Examination}} = 1.18$.

Death thought accessibility. One-way ANOVA revealed a significant main effect of Salience on death thought accessibility, $F(1, 181) = 3.94, p = .05, \eta_p^2 = .02$. As predicted, participants who were reminded of their own death displayed higher death thought accessibility. Mortality-salient participants ($M = 2.13, SD = 1.01$) completed the word fragments with more death-related words than did participants in the examination salience condition ($M = 1.84, SD = 1.00$).

Discussion

While there has been conflicting evidence on the applicability of the mortality salience induction in Asian populations, the results of this pilot study showed that Singaporean undergraduates are sensitive to the typical personal mortality salience induction paradigm. Consistent with what has been found in previous TMT studies (see Burke et al., 2010, for review), personal reminders of mortality led to an increase in death thought accessibility after a short delay. Of most importance, this suggests that the mortality salience essay paradigm is a relevant and suitable prime for inducing mortality salience in Singaporeans. In addition, the results of this pilot study also showed that mortality salience led to an increase in self-reported positive affect but not self-reported negative affect. Although most TMT research suggest that mortality salience induces little or no changes in mood, some researchers have occasionally found that mortality salience induces positive affect (Greenberg et al., 1997; Pyszczynski, Greenberg, Solomon, Arndt, & Schimel, 2004). In addition, other researchers have also shown that mortality salient participants tune to

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positive affect to compensate for the negativity aroused from reminders of death (DeWall & Baumeister, 2007). Nevertheless, these changes in affect do not mediate mortality salience effects (Greenberg et al., 1990; Rosenblatt et al., 1989). In the following experiments, I continue to employ the use of the PANAS in order to induce a short delay after the mortality salience induction. This also allows me to examine whether the relationship between mortality salience and self-reported positive affect is a robust phenomenon.

CHAPTER THREE**Reactions to Critical Ingroup and Outgroup Members Under Mortality Salience**

TMT research has shown that increased ingroup favoritism and outgroup derogation occurs under mortality salience because groups serve important terror management functions to resolve death concerns. In addition, research has also shown that worldview defense occurs following reminders of death such that critics of one's worldview are usually treated with hostility. In the case of ingroup critics, i.e. an ingroup member who criticizes the group, under mortality salience, how would people reconcile the two competing motivations? Would mortality salient individuals show enhanced ingroup favoritism toward critic because he is an ingroup member, or would they dislike the ingroup member more because he has criticized the group? Therefore, beyond establishing the relevance of the applicability of the mortality salience induction paradigm in Singapore, the main aim of the current research is to examine responses toward ingroup and outgroup critics under mortality salience. To do so, I review the literature on the intergroup sensitivity effect to explore reactions when ingroup and outgroup members criticize one's group under mundane circumstances. Specifically, the intergroup sensitivity effect predicts that people are more likely to react positively to an ingroup critic under mundane circumstances. However, under mortality salience, reactions toward ingroup and outgroup members might be more complex, especially in situations where terror management strategies such as attitudinal validation and affiliation have competing outcomes.

Ingroup Favoritism, Outgroup Derogation and the Intergroup Sensitivity Effect

Research on the intergroup bias (see Hewstone, Rubin, & Willis, 2002, for review) has often found that the ingroup is evaluated more favorably than the outgroup. This occurs even in minimal groups where participants were told that they were ostensibly categorized based on whether they were underestimators or overestimators of a dot-estimation paradigm

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(Experiment 1) or based on their aesthetic preferences for abstract paintings by two foreign artists, Klee and Kandinsky (Experiment 2). Although participants were, in fact, randomly (and not meaningfully) assigned to one group, they displayed ingroup favoritism and distributed rewards favoring the group they were assigned to (Tajfel, Billig, Bundy, & Flament, 1971). Moreover, research on intergroup attribution biases by Kenworthy and Miller (2002) also found that attributional tendencies reflect intergroup biases in favor of the ingroup member. People explain the attitudes of an ingroup member to be less externally, less emotionally, and more rationally based than those of an outgroup member (Kenworthy & Miller, 2002). It is worth noting that in a separate pilot test, Kenworthy and Miller (2002) found that people rated attitudes that were held for rational reasons as more desirable than if they were for emotional and external reasons. Therefore, the tendency to explain attitudes of an ingroup member as less external, less emotional and more rational reflects ingroup favoritism.

Such favoritism toward ingroup members over outgroup members occurs even when ingroup members criticize the group. Research on the *intergroup sensitivity effect* suggests that people evaluate an outgroup member more negatively than an ingroup member who criticizes the group (Hornsey, Oppes, & Svensson, 2002). For example, Hornsey et al. (2002) presented Australian participants with criticisms of Australia that were ostensibly from an ingroup member (Australian) or an outgroup member (Canadian). They found that criticism from an outgroup critic elicited more negative evaluations from participants than did the same criticism from an ingroup critic. Although the intergroup sensitivity effect (e.g. Hornsey et al., 2002) has been demonstrated on numerous occasions, there are situations where this effect is attenuated, i.e. the ingroup critic is not tolerated more than the outgroup critic. In their research, Ariyanto, Hornsey, and Gallois (2010) found that Muslim participants rated a Muslim critic more negatively when reminded of the ongoing intergroup conflict between

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Muslims and Christians than when the participants were not reminded of the existing conflict between Muslims and Christians. According to Ariyanto and colleagues (2010), one plausible explanation for this finding is that criticism from an ingroup member may be seen as more threatening to the group in conflict situations. Therefore, people are just as harsh on ingroup members who fail to protect the group, as they are to outgroup members.

Evaluations as a Function of Attitude Similarity and Group Membership under Mortality Salience

Unlike research on the intergroup sensitivity effect (e.g. Hornsey et al., 2002), which focuses on reactions to ingroup members who express attitudinal dissimilarity by criticizing the group, TMT research has often examined reactions to group membership and attitudinal similarity (or dissimilarity) as if the two are interchangeable. These mortality salience studies show that reminders of death increase favoritism toward those who are attitudinally similar and derogation of those who are attitudinally dissimilar, without consideration of group membership as an additional factor, or more positive evaluations of ingroup members and more negative reactions of outgroup members, without considering attitude similarity or dissimilarity.

For instance, mortality salience has been shown to increase liking of an individual who is attitudinally similar and the derogation of an individual who adopts attitudinally different positions (see Greenberg et al., 1997, for review). Greenberg et al. (1990) found that American participants favored a pro-American interviewee more under mortality salience, relative to the control condition. They also disliked an anti-American interviewee more under mortality salience, compared to the control condition. In addition, Jonas and Greenberg (2004) also found that mortality salient German participants who were supportive of the German reunification showed a preference for an ostensible French journalist who wrote about the fall of Berlin in a positive way (e.g. highlighting the value of unification) over a

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French journalist who degraded the significance of the event, relative to the dental pain control condition.

At the same time, there is much empirical support for the notion that mortality salience increases ingroup favoritism and outgroup derogation (e.g. Castano et al., 2002b; Greenberg et al., 1990; Harmon-Jones, Greenberg, Solomon, & Simon, 1996). For example, mortality salience has been shown to increase Christian participants' liking for a Christian target and decreased liking for a Jewish target, relative to the control condition (Greenberg et al., 1990). Furthermore, research by Castano et al. (2002b) found that Italian participants displayed ingroup favoritism and outgroup derogation, rating Italians more positively than Germans (outgroup) on ten traits (e.g. warm, hardworking, rational) under mortality salience. This occurs even in minimal groups. Under mortality salience, Harmon-Jones et al. (1996) found that ingroup members were rated more positively relative to the television control condition, when they were made to believe that they were assigned to groups based on their aesthetic preferences.

However, several existing lines of research show that ingroup members could have differing opinions even when these opinions are related to the overall group (Hornsey et al., 2002; Packer, 2008). To my knowledge, only one article has discussed the impact of mortality salience on reactions to a dissenting or attitudinally dissimilar ingroup member. In their research, See and Petty (2006) had participants read written transcripts ostensibly taken from live radio broadcasts. Participants first received information that the interviewee was either a ingroup member or an outgroup member. Specifically, participants in the ingroup condition read that the source worked as an administration officer on the Ohio State University campus, while participants in the outgroup condition read that the source worked as an administration officer on the University of Michigan campus. After participants had already read the information about the source, they then read the individual's pro- or counter-

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attitudinal opinion of The Ohio State University (OSU) or the University of Michigan.

Participants who received the pro-attitudinal arguments read that the source felt that OSU is better than Michigan because OSU students have a positive attitude about their studies, are more engaging and concerned with their role in our society, and more mature than Michigan students. OSU faculty and staff are more cooperative and show more concern about the school and the students. On the other hand, participants who received counter-attitudinal arguments about OSU read that the source felt I think that OSU is worse than Michigan because OSU students do not have a positive attitude about their studies; are less engaging and not very concerned with their role in our society; and are less mature than students at Michigan. The faculty and staff here/there are less cooperative and show less concerned about the school and the students. The results showed that mortality salient participants did not scrutinize the views expressed by their ingroup member; that is, they did not derogate ingroup members who criticized the overall group relative to their control condition counterparts. In fact, mortality salient participants favored the ingroup critic over the outgroup critic. However, a notable aspect of the procedure in that research was that all participants received information about the group membership of the critic before they were presented with the criticism. This raises questions about whether the same pattern of findings (increased ingroup favoritism under mortality salience) would generalize to other conditions. In the next section, I discuss why and how we might expect the pattern to be different in other circumstances.

The Current Research

Although previous research by See and Petty (2006) found that mortality salient participants did not derogate an ingroup member, relative to the control condition (presumably because they were not sensitive to, or, did not attend to the fact that an ingroup member was criticizing their group), it is possible that a different pattern might occur in other

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situations. In other words, in some situations, mortality salient people would be especially harsh toward the ingroup member, relative to the control condition.

First, there are many reasons to believe that people would reject ingroup members in order to protect the overall group under mortality salience. In fact, people might prefer to protect the overall group rather than an individual group member. Marques, Yzerbyt, and Leyens (1988) suggest that the derogation of an ingroup critic can be construed as an alternative form of ingroup favoritism or ingroup protection. That is, the exclusion of a deviant ingroup member helps protect the overall image of the group and its remaining group members (Marques & Paez, 1994). Since groups serve as a means of worldview validation, self-esteem enhancement or symbolic immortality to resolve death concerns, mortality salience might increase the prioritization of one's overall group over an individual ingroup member because a group validates one's worldview. Attitudes, beliefs, and traits are presumably shared with others in the ingroup, therefore, groups typically offer reassurance of the legitimacy of one's worldview (Festinger, 1954; Hogg & Abrams, 1993; Swann, Milton, & Polzer, 2000). Furthermore, since self-esteem provides protection against existential anxiety, people selectively identify with successful groups that enhance their self-esteem when reminded of death. For example, mortality salient individuals tended to identify more with the university basketball team who won their season opener more than football team, who had just lost their first game of the season (Dechesne et al., 2000a). Finally, when reminded of death, groups also alleviate the potential for anxiety because they serve an immortality function. Since aspects of the self are shared with the ingroup, the self can be extended in space and time beyond an individual's death (Castano & Dechesne, 2005; Castano, Yzerbyt, & Paladino, 2004). This means that individuals can attain symbolic and literal immortality through identification with groups. In support of this proposition, research by Sani, Herrera, and Bowe (2009) found that beliefs of the continued existence of an

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ingroup's attitudes, values, and beliefs through time, promoted identification with groups following mortality salience.

Importantly, it is hard to imagine that a dissenting group member could serve any of these functions more effectively than an entire group. For instance, people are likely to feel that their opinions are validated if their opinions are in agreement with the group rather than if an individual agrees with them. This is because, unlike an individual, the group existence transcends a group member's death (e.g. Castano et al., 2004). Therefore groups provide continual validation of one's attitudes. As such, one's group is especially important under mortality salience. Therefore, I propose that people might be especially vigilant for any sign of an ingroup member's failure to protect the integrity of one's group and reject ingroup critics. Such vigilance could arise from people's preference to protect the overall group rather than an individual ingroup member.

A second rationale for expecting that sometimes under mortality salience, people might derogate the ingroup member relative to the control condition is that they have already paid attention to what the ingroup member is saying. As mentioned before, in previous research by See and Petty (2006), one notable feature of the procedure is that all participants received information about the critic's group membership before they were presented with the criticism. This particular order of source and message information might have encouraged participants to use the critic's group membership as a cue rather than to pay attention to what the critic said. Put differently, if participants were to be presented with the criticism before they found out about the group membership of the critic, they might be less likely to rely on the critic's group membership as a cue to determine their liking for the critic (Fleming, 2000; Mackie et al., 1992). Indeed, Mackie, Gastardo-Conaco, and Skelly (1992) found that presenting a heuristic (i.e., message position) after the information encouraged people to process the information more extensively than presenting the heuristic (i.e., message position)

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before the information. Analyses of participants' message processing times in Mackie et al. (1992) revealed that participants who knew that the message position before receiving information spent the least amount of time reading the arguments as compared to participants who processed the information before knowledge of the source's message position. This finding was consistent with the notion that the same variable could play different roles in persuasion (Petty & Wegener, 1999; see also Petty, Briñol, Tormala, & Wegener, 2007).

Applied to the current research, the group membership of the critic could act as a heuristic or not depending on the situation (Mackie & Queller, 2000; Wood, 2000). Importantly, I propose that the timing of when people receive information about the group membership of the critic could moderate whether they use the critic's group membership as a cue such that they pay little attention to what the critic says or whether they are sensitive to the fact that the critic is criticizing the group³. Experiment 1 examined the hypothesis that the order of presentation of source information moderates evaluations of an ingroup and outgroup critic under mortality salience. That is, relative to mundane circumstances, people are more likely to react more positively to an ingroup critic and more negatively to an outgroup critic if information about the critic's group membership is received before the criticism under mortality salience. However, if the same information about the critic's group membership is received after the criticism, people are more likely to react more negatively to an ingroup critic under mortality salience than under mundane circumstances. Experiments 2 and 3 then

³ In the current research, I consider the possibility that attitudinal dissimilarity on a group relevant issue is conceptually similar to criticism of the group, whereas attitudinal dissimilarity on a non-group relevant issue does not constitute as criticism of the group. For instance, Mackie et al. (1992) investigated people's reactions in the context of attitudinal similarity or dissimilarity toward a topic of general importance (i.e. euthanasia, gun control). As the issues examined were not central to the group or the group's identity, it is reasonable to assume that attitudinal dissimilarity on these issues is not equivalent to criticism of the group. However, this research examines attitudinal dissimilarity on issues that are central to the group. As such, it should matter whether another group member holds similar or different attitudes (on aspects) of the group. Hence, a Singaporean who expresses negative attitudes toward Singapore is in the same way criticizing the group or aspects of the group.

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focused on the message-source order to examine further the tendency for mortality salience to increase derogation of the ingroup critic. In particular, Experiment 2 investigated the role of perceived threat as a mediator, and Experiment 3 explored the role of criticism legitimacy as a moderator.

Experiment 1: Reactions Toward Ingroup and Outgroup Critics as a Function of Salience and Message-Source Order

Given that the critic's group membership is not available as a heuristic when processing the criticism in the message-source condition, I predict that ingroup critics are disliked more under mortality salience relative to the dental pain control, because the presence of disagreeing ingroup members could render the group ineffective in providing worldview validation, self-esteem enhancement or symbolic immortality. However, in the source-message condition, group membership of the critic is made known before participants know the position advocated by the critic. Therefore, the critic's group membership acts as a cue in determining reactions toward ingroup and outgroup critics. I predict that mortality salient participants will show increased liking toward the ingroup critic, compared to the dental pain control condition, in the source-message condition.

Method

Participants and Design

One hundred and twenty-two undergraduates (85 Female, 37 Male) from the National University of Singapore, between the ages of 19 and 25 ($M = 20.34$, $SD = 1.41$) took part in this research for partial course credit. Participants were randomly assigned to conditions. The design is a 2(Salience: mortality vs. dental pain) X 2(Source: ingroup vs. outgroup) X 2(Order: message-source vs. source-message) between-subjects study. All materials were presented on Medialab (Jarvis, 2008).

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Materials and Procedure

Salience Manipulation. Participants were told that they were enrolled in a study examining ‘Perceptions of Life Experiences.’ As an ostensible personality assessment, participants were asked to think about their mortality or dental pain by listing their thoughts to the following two open-ended questions: “Please briefly describe the emotions that the thought of your own death [dental pain] arouse in you” and “Jot down, as specifically as you can, what you think will happen to you as you physically die [you feel dental pain]” (Greenberg et al., 1990). After writing their responses to the two questions, participants completed a state version of the PANAS (Watson et al., 1988), which acts as a delay to allow for the relaxation of psychological defenses involved in the immediate suppression of death thoughts following mortality salience (Greenberg et al., 1994). Participants responded to 20 items and rated the extent to which they felt specific emotions (e.g. interested, determined, afraid, jittery) on a 1 (*Not At All*) to 7 (*A Great Deal*) scale. The ten positive emotion items were averaged to form a mean positive affect score ($\alpha = .90$), while the ten negative emotion items were averaged to form a mean negative affect score ($\alpha = .90$).

Criticism. Next, participants were told that the subsequent study examined ‘Attitudes toward Singapore Universities’ and that they will be reading some comments that the experimenters have gathered from a study conducted in a previous semester. Participants were then told that details (e.g. initials of names) are used in order to protect the privacy of past participants. They proceeded to read the criticism about Singapore universities being inferior to Overseas universities.

“Students applying for universities should strongly consider Overseas universities over Singapore Universities. On — campus eateries at Overseas Universities serves better quality food than Singapore universities. Singapore

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students cannot get a decent meal on campus even if they were willing to pay for it. Unlike Overseas universities, Singapore universities have 8am and 7pm classes. Such timings are inhumane. University administrators should realize that in order for students to do well – not just in school but in life - they have to live a little. Furthermore, students in Singapore universities are so competitive. A typical student often starts revising much earlier than necessary. Because most courses are graded on a bell curve, it is too difficult for the average person to do well. Students applying for universities should strongly consider Overseas universities over Singapore Universities.”

Source. After reading the above comment, participants were given information about the affiliation of the author on the next slide. Specifically, if they were assigned to the *ingroup* condition, they were told that “The comment you just read was written by S, a Singaporean student from a University in Singapore.” If participants were assigned to the *outgroup* condition, they were told that “The comment you just read was written by S, a Chinese exchange student from University in China.”

Order. While participants in the *message-source* condition received the criticism before knowing the affiliation of the source, the order of presentation of the criticism and source was reversed for the *source-message* condition. Participants were first informed about the source’s affiliation before being presented the criticism. Before reading the criticism, participants in the *source-message* condition were told that “The following comment was written by S, a Singaporean [Chinese exchange] student from a University in Singapore [China]”.

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Critic Evaluation. Participants' attitudes toward the critic was measured using a nine-item Interpersonal Judgment Scale ($\alpha = .87$). For example, participants reported whether "I would like to meet S", "To what extent do you want to work with S on an upcoming task", and "S would probably not make a good friend to me" on a 1 (*not at all*) – 7 (*very much*) scale (e.g. Greenberg et al., 1990). Items were reverse coded where appropriate. Higher scores indicate liking toward the critic. Finally, all participants were probed for suspicion of the hypothesis before they were debriefed and dismissed.

Results

PANAS. A one-way ANOVA of Salience on mean positive affect scores revealed no differences in self-reported positive affect between participants in the mortality salience ($M = 3.89$, $SD = 1.13$) and dental pain control condition ($M = 3.73$, $SD = 1.17$), $F(1, 120) = .628$, $p = .430$, $\eta_p^2 = .005$. Analyses on mean negative affect scores also revealed that there were also no differences in self-reported negative affect between participants in the mortality salience condition ($M = 2.59$, $SD = 1.07$) and the dental pain condition ($M = 2.50$, $SD = 1.16$), $F(1, 120) = .19$, $p = .661$, $\eta_p^2 = .002$.

Critic Evaluation. A 2(Salience: mortality vs. dental pain) X 2(Source: ingroup vs. outgroup) X 2(Order: message-source vs. source-message) ANOVA on critic evaluation revealed a marginally significant main effect of Source, $F(1, 114) = 3.17$, $p = .08$, $\eta_p^2 = .03$. Overall, participants tended to dislike the outgroup critic ($M = 3.18$, $SD = 1.03$) more than the ingroup critic ($M = 3.49$, $SD = .83$). Importantly, this main effect was qualified by a marginally significant 3-way interaction between Salience, Source, and Order, $F(1, 114) = 3.49$, $p = .06$, $\eta_p^2 = .03$ (see Figure 2).

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Although the interaction was marginally significant, I performed planned comparisons within each type of order to examine trends in the results⁴. As expected, in the *Message-Source* condition, mortality salient participants ($M = 3.06, SD = .97$) tended to dislike the ingroup critic more than dental pain participants ($M = 3.63, SD = .74$), $F(1, 114) = 2.81, p = .10, \eta_p^2 = .02$. There were no differences in evaluations of the outgroup critic between participants in the mortality salience condition ($M = 3.39, SD = 1.22$) and the dental pain condition ($M = 3.16, SD = .933$), $F(1, 114) = .84, p = .36, \eta_p^2 = .01$.

In the *Source-Message* condition, there were no differences in ingroup critic evaluations under mortality salience ($M = 3.79, SD = .75$) and dental pain ($M = 3.47, SD = .71$), $F(1, 114) = .43, p = .52, \eta_p^2 = .004$, and outgroup critic evaluations under mortality salience ($M = 3.02, SD = .98$) and dental pain ($M = 3.18, SD = 1.03$), $F(1, 114) = .23, p = .63, \eta_p^2 = .002$.

⁴ I also examined comparisons between message-source and source-message conditions within each group membership level for mortality salient participants, and for control participants. Of importance, analyses revealed differences in evaluations of the ingroup critic between the message-source condition ($M = 3.06, SD = .97$) and the source-message condition ($M = 3.79, SD = .75$) among mortality-salient participants, $F(1, 114) = 4.55, p = .04, \eta_p^2 = .04$. No other comparisons were significant, $ps > .28$.

Yet another way to decompose the three-way interaction is to examine comparisons between ratings for the ingroup critic versus the outgroup critic within each salience condition for the message-source condition, and then for the source-message condition. Of importance, in the source-message order, mortality salience led to a polarization of evaluations of ingroup and outgroup critics, such that outgroup critics ($M = 3.02, SD = .98$) were disliked significantly more than ingroup critics ($M = 3.79, SD = .75$), $F(1, 114) = 5.38, p = .02, \eta_p^2 = .05$. No other comparisons were significant, $ps > .18$.

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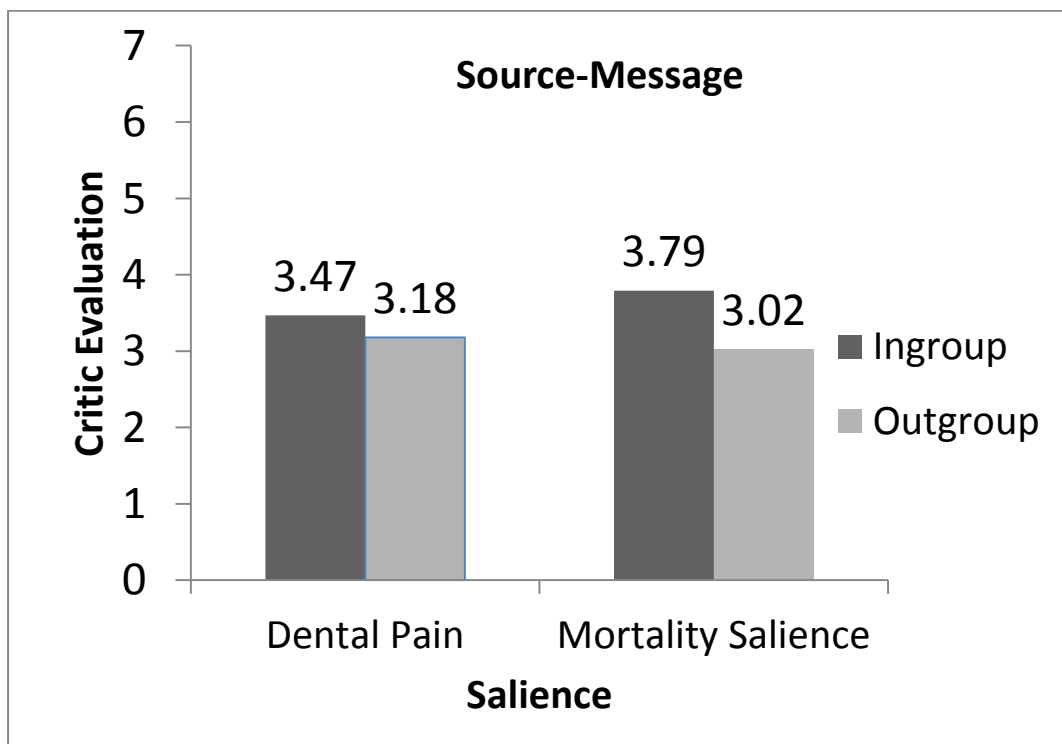
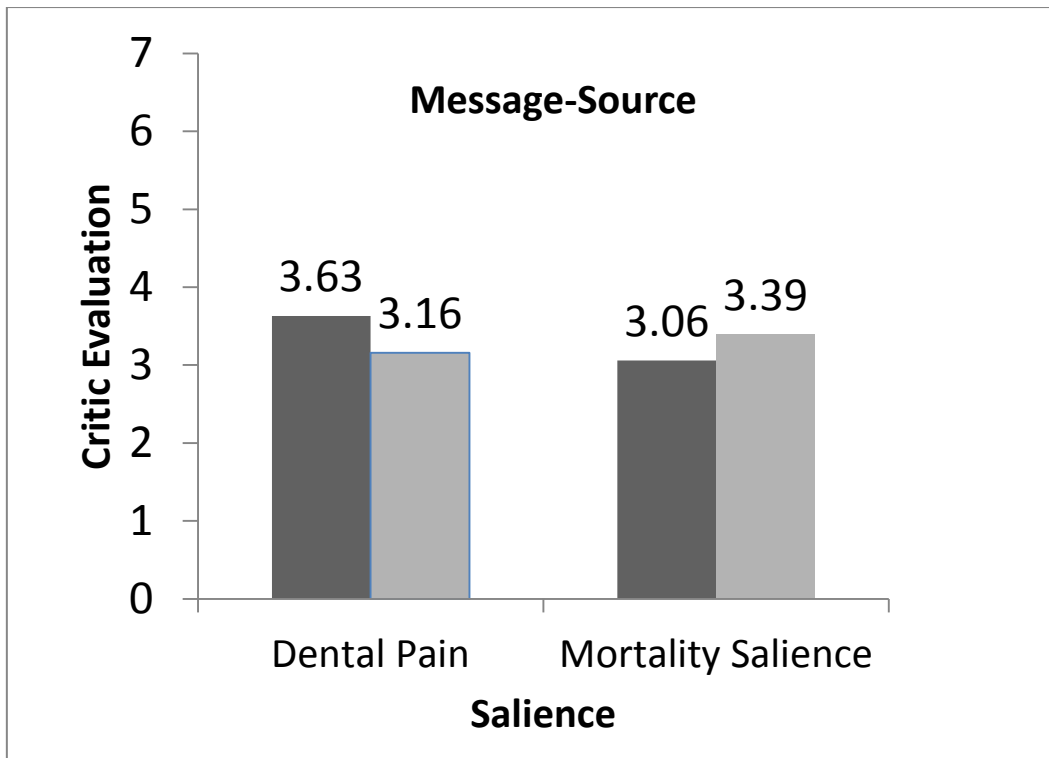


Figure 2. Critic Evaluation as a function of Mortality Salience, Source and Order

(Experiment 1)

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Discussion

Experiment 1 tested my predictions that the timing of information would moderate the influence of mortality salience on reactions to ingroup versus outgroup critics. Importantly, the results of Experiment 1 show that mortality salience does not necessarily elicit protection of ingroup members. When the criticism was presented before information on the critic's group membership was given, mortality salience tended to lead to a decrease in liking for ingroup critics relative to the dental pain control condition. Presumably, since participants have already processed the criticism, they cannot ignore the contents of the criticism. Hence, participants tended to react negatively toward an ingroup member relative to the dental pain control condition, because the ingroup critic is seen as a threat to the group. Therefore, under mortality salience, people are also willing to reject ingroup members who discredit the group.

Unexpectedly, when information about the critic's group membership was presented before the criticism, mortality salience did not lead to increased favoritism or derogation as a function of whether the critic was an ingroup and outgroup member, relative to the control condition. Instead, evaluations of ingroup and outgroup critics were not significantly different under mortality salience relative to the dental pain control condition. Interestingly, this finding was also observed in the counterattitudinal condition in the research by See and Petty (2006). Although I predicted that mortality salience would lead to increased favoritism and increased derogation based on past TMT studies (e.g. Castano et al., 2002b; Greenberg et al., 1990), it is important to note that these studies did not examine attitudinal dissimilarity and group membership independently. In this way, when people encounter ingroup critics under mortality salience, they might have reservations about extending their favoritism toward a critic (even though he is an ingroup member). Nevertheless, they still continue to protect the ingroup member. Thus, mortality salient people did not derogate the ingroup critic.

CHAPTER FOUR**Mortality Salience, Sensitivity and Reactions Toward Ingroup and Outgroup Critics**

Despite some evidence that people do, under certain circumstances, react negatively toward ingroup members under mortality salience (e.g. Arndt, Greenberg, Schimel, Pyszczynski, & Solomon, 2002; Kosloff, Greenberg, Weise, and Solomon (2010), researchers have often placed more emphasis on the findings which show that people protect individual ingroup members as a means of worldview defense (e.g. Greenberg et al., 1990). Nonetheless, the finding that people react extremely unfavorably to negative or unlikeable ingroup members is well-documented in the literature on the *black sheep effect* (Marques & Paez, 1994; Marques et al., 1988). In view of the scant research showing the circumstances in which people react negatively to ingroup members under mortality salience, and initial evidence that supported the hypothesis that the timing of message and source information plays a role in determining reactions toward critical ingroup and outgroup members in Experiment 1, Experiment 2 departs from the conventional focus on ingroup member protection and focuses on understanding the psychological processes that motivate people to derogate ingroup members who criticize the group under mortality salience as a means to protect the overall group. In order to do so, I review existing research on the black sheep effect (Marques & Paez, 1994; Marques et al., 1988), as well as research on increased sensitivity toward ingroup members under mortality salience (e.g. Castano, 2004) in Chapter 4.

Black Sheep Effect

The black sheep effect (Marques & Paez, 1994; Marques et al., 1988) posits that ingroup members who reflect poorly on the group are disliked because these members impinge negatively on the overall image of the group. For example, one study found that Belgian participants evaluated an unlikeable Belgian (ingroup) member more negatively than

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a likeable Belgian member, as well as an unlikable North African (outgroup) member (Marques et al., 1988). Aside from disliking ingroup members with undesirable traits, subsequent research also show that people react more negatively toward ingroup members, as compared to outgroup members, when the ingroup member's attitudes fell outside those of normative group members (Abrams, Marques, Bown, & Henson, 2000). Research suggests that deviant⁵ ingroup members are threatening to the group because they blur the boundaries between the ingroup and the outgroup (Pinto, Marques, Levine, & Abrams, 2010). Given that groups serve the function of structuring the world, i.e. to know who we are, understand our experiences, shape how we react and respond to others, and vice versa (Hogg, 2000; Hogg, Sherman, Dierselhuis, Maitner, & Moffitt, 2007), the failure to affirm the positive distinctiveness of one's group generates uncertainty about the validity of one's conception about the self and the world (Hogg et al., 2007). Moreover, group members also derive self-esteem from the belief that their own group is positively distinct from other groups, i.e. the ingroup is better than other groups (self-esteem hypothesis of the social identity theory, see Rubin & Hewstone, 1998; Tajfel & Turner, 1979; Tajfel, 1986), therefore, the inability to maintain a positive image of the group is also a potential threat to one's self-esteem.

As groups serve to reduce uncertainty and enhance one's self esteem, it is not surprising that this tendency to reject negative ingroup members is more prevalent in intergroup rather than intragroup context (Matheson, Cole, & Majka, 2003); when people are highly identified with the group (*high identifiers*, e.g. Castano, Paladino, Coull, & Yzerbyt, 2002a; Marques et al., 1988); or when the group is viewed as high in perceived entitativity (e.g. Lewis & Sherman, 2010). For instance, Matheson et al. (2003) found that people

⁵ The term 'deviant' refers broadly to an individual whose actions depart from the behavior and norms of a group (Morton, 2011, pp. 96 – 97). In addition, criticism of a group's normative practices by an ingroup member can also be regarded as a form of deviance (Hogg & Tindale, 2005)

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disliked female dissenters more when these dissenters made their pro-choice opinions in an intergroup context (in the presence of a male dissenter) than when they were made in an intragroup context (in the presence of a female dissenter). Since the group embraced a common position on abortion (pro-choice), the dissenter threatened the positive distinctiveness of the group because she adopted a stance that is contrary to the group's position in an intergroup situation (Matheson et al., 2003). When an ingroup member behaves negatively in the abovementioned situations, it is difficult for people to positively bias their explanations for this ingroup member's behavior (e.g. attribute dissent to positive intentions: Hornsey and Imani, 2004; Hornsey et al., 2002). Hence, the uncertainty and self esteem threat arising from the presence of a deviant ingroup member is harmful in these contexts. To reduce such threats and restore positivity to the ingroup, people would reject the deviant ingroup member.

Sensitivity toward Ingroup Members Under Mortality Salience

Aside from the literature on the black sheep effect (Marques & Paez, 1994; Marques et al., 1988), some terror management studies on reactions toward negative ingroup members have shown that people who were reminded of death react negatively to ingroup members under certain circumstances. For instance, research by Kosloff and colleagues (2010) also showed that mortality salience increased liking for charismatic orientation-matched (liberal/conservative) political candidates and increased dislike for uncharismatic orientation-matched political candidates, relative to the intense pain control condition. It appears that people do not simply show preference to group members under mortality salience. Rather, people are sensitive to whether the group member portrayed the group in a positive (e.g. association with missionary work, charismatic personality) or negative (e.g. association with drugs, uncharismatic personality) manner. Furthermore, when negative aspects of the group are highlighted, mortality salience led to negative evaluations of ingroup members (Arndt et

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al., 2002). Arndt et al. (2002) found that people dis-identify with group members under mortality salience when associations with the group undermine self-esteem. Compared to dental pain salience, mortality salience intensified negative evaluations of the work of Hispanic artists, when drugs were highly associated with Hispanics, and positive evaluations of the work of Hispanic artists when missionary work was highly associated with Hispanics. Given that groups also play an important role in providing worldview validation, self-esteem enhancement and the achievement of symbolic or literal immortality, there are strong reasons to believe that people will also strive to reduce any threat to the ingroup when reminded of death. Since people are sensitive to the threat posed by an ingroup critic under mortality salience, they may dissociate themselves from negative ingroup members. This dissociation alleviates the threat posed by these negative ingroup members, and allows their groups to effectively serve terror management functions.

Consistent with this proposition, past TMT research has shown that reminders of death led to enhanced sensitivity toward those who we include as part of our group (Castano & Dechesne, 2005). For instance, Castano (2004) observed that death primes led to over-exclusion of individuals as their ingroup member, especially when the physical features of the individual were ambiguous. In addition, research by Henry, Bartholow, and Arndt (2010) found that event-related brain potentials measuring neural activity (i.e. increased N2 amplitude, which is associated with conflict monitoring) suggests that people react more to negative ingroup features (i.e. angry faces) under mortality salience. Also, P3 latencies, which provide indications of processes involved in stimulus categorization, were longer for mortality salient participants, showing that people find it harder to categorize and evaluate angry faces, as opposed to happy faces, as part of the ingroup under mortality salience (Henry et al., 2010). Indeed, it appears that people are motivated to see the group positively under mortality salience because the group is a means of buffering existential anxiety. Since the

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presence of deviant (negative) ingroup members threatens the positive distinctiveness of the group, people reject deviant ingroup members in order to protect the group under mortality salience. Taken in the context of this research, criticism by an ingroup member would be considered threatening under mortality salience as it renders the group ineffective in ameliorating existential anxiety. As such, the ingroup critic would be evaluated more negatively than under mundane situations, and *as negatively as or more negatively* than outgroup critics (Tarrant & Campbell, 2007).

Experiment 2: Reactions Toward Critical Ingroup and Outgroup Members under Mortality Salience: The Role of Perceived Threat

As mentioned, past terror management research has often shown the emergence of ingroup favoritism following mortality salience (e.g. Castano et al., 2002; Greenberg et al., 1990). This research departs from this focus and examines the conditions under which people derogate ingroup members after being reminded of death. Therefore, in Experiment 2, I observed reactions toward ingroup critics when criticism precedes group membership information about the critic. Since marginally significant results were obtained in Experiment 1, Experiment 2 was designed to replicate the findings of Experiment 1 in showing that people derogate ingroup critics under mortality salience when they received information about group membership after they had read the criticism. Compared to the dental pain control condition, participants will show more dislike toward ingroup critics under mortality salience. Further to that, Experiment 2 aims to examine if evaluations toward ingroup and outgroup critics under mortality salience are mediated by differences in perceived threat.

Finally, Experiment 1 employed the use of both university and national identification as the ingroup-outgroup manipulation. To enhance the generalizability of the results in Experiment 1, Experiment 2 employed the use of national identity as the ingroup-outgroup

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manipulation (Castano et al., 2002b; Greenberg et al., 1990; Hornsey & Imani, 2004; Hornsey et al., 2002).

Method

Participants and Design

Sixty Singaporean undergraduates (45 Female, 15 Male) from the National University of Singapore, between the ages of 18 and 26 ($M = 19.9$, $SD = 1.60$) took part in this research for partial course credit. Participants were randomly assigned to conditions. The study is a 2(Salience: mortality vs. dental pain) X 2(Source: ingroup vs. outgroup) between subjects design. All materials were presented on Medialab (Jarvis, 2008).

Materials and Procedure

Salience Manipulation. The experiment procedure was similar to that of Experiment 1. Participants were told that they were enrolled in a study examining ‘Perceptions of Life Experiences.’ They were first assigned to write about their mortality or dental pain by listing their thoughts to two open-ended questions (e.g. Greenberg et al., 1990). After which, participants completed a state version of the PANAS (Watson et al., 1988) on a 1 (*Not At All*) to 7 (*A Great Deal*) scale. The ten positive emotion items were averaged to form a mean positive affect score ($\alpha = .87$), while the ten negative emotion items were averaged to form a mean negative affect score ($\alpha = .90$).

Criticism. Next, participants were told that the subsequent study examined ‘Attitudes toward Singapore’ and that they will be reading comments that the experimenters have gathered from a study conducted in a previous semester. To enhance our cover story, participants were additionally told that these comments were written by participants who had previously indicated that they disliked Singapore in a pilot study and that details (e.g. initials

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of names) are used in order to protect the privacy of past participants. They then proceeded to read the following comment:

“Singapore is not a nice place to be living or working in. It is hot, humid and sticky most of the time. The day-time temperature is at a high of 32 degrees Celsius. The humidity level is at around 84% and on top of that, there are sudden and unpredictable rain-spells.”

Source. After reading the above comment, participants were given information about the affiliation of the author on a next slide. Specifically, participants in the *Ingroup* condition were told that “The comment you just read was written by R, a Singaporean student from National University of Singapore.” Participants in the *Outgroup* condition were told that “The comment you just read was written by S, a Chinese exchange student from FuDan University in China.”

Perceived Threat. Participants responded to 3 items: “The comments S[R] made reflect badly on me”, “The comments S[R] made reflect badly on my country”, and “S[R] is seeking to discredit Singapore”, on a scale of 1 (Not at all) – 7 (Totally). These items were derived from the literature on social identity theory (e.g. Tajfel & Turner, 1979)). The responses to these 3 items were averaged to form a threat index ($\alpha = .68$) such that higher values indicated greater perceived threat.

Critic Evaluation. Finally, they reported their attitudes toward R or S using a five-item source rating questionnaire ($\alpha = .79$). Participants indicated how likable, intelligent and knowledgeable S[R], their agreement with S[R]’s standpoint, and how true they were the opinions of S[R] on a 1 (*not at all*) – 7 (*extremely*) scale (e.g. Greenberg et al., 1990). Higher scores indicate liking toward the critic. Finally, all participants were probed for suspicion of the hypothesis before they were debriefed and dismissed.

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Results

PANAS. A one-way ANOVA on mean positive affect scores revealed that there were no differences in self-reported positive affect between participants in the mortality salience ($M = 3.79, SD = 1.09$) and dental pain control condition ($M = 3.93, SD = .93$), $F(1, 58) = .30, p = .60, \eta_p^2 = .005$. There were also no differences in self-reported negative affect between participants in the mortality salience condition ($M = 2.72, SD = 1.37$) and the dental pain condition ($M = 2.61, SD = 1.03$), $F(1, 58) = .12, p = .73, \eta_p^2 = .002$.

Critic Evaluation. A 2(Salience: mortality vs. dental pain) X 2(Source: ingroup vs. outgroup) ANOVA on critic evaluation revealed a significant Salience X Source interaction, $F(1, 56) = 7.25, p = .009, \eta_p^2 = .12$. No other effects were significant, $ps > .82$. As predicted, participants tended to dislike the ingroup critic more under mortality salience ($M = 3.91, SD = .66$) relative to the dental pain condition ($M = 4.45, SD = .55$), $F(1, 56) = 3.37, p = .07, \eta_p^2 = .06$. Participants also tended to dislike the outgroup critic more in the dental pain condition ($M = 3.84, SD = .85$) relative to the mortality salience condition ($M = 4.43, SD = 1.10$), $F(1, 56) = 3.88, p = .05, \eta_p^2 = .07$ (Figure 3)⁶.

⁶ I also conducted comparisons within each salience condition. Analyses revealed that participants disliked the outgroup ($M = 3.84, SD = .85$) more than the ingroup critic ($M = 4.45, SD = .55$) in the dental pain condition, $F(1, 56) = 4.24, p = .04, \eta_p^2 = .07$. This is consistent with the intergroup sensitivity effect. In addition, mortality-salient participants tended to show more dislike for the ingroup critic ($M = 3.91, SD = .66$) as opposed to the outgroup critic ($M = 4.43, SD = 1.10$), $F(1, 56) = 3.05, p = .09, \eta_p^2 = .05$.

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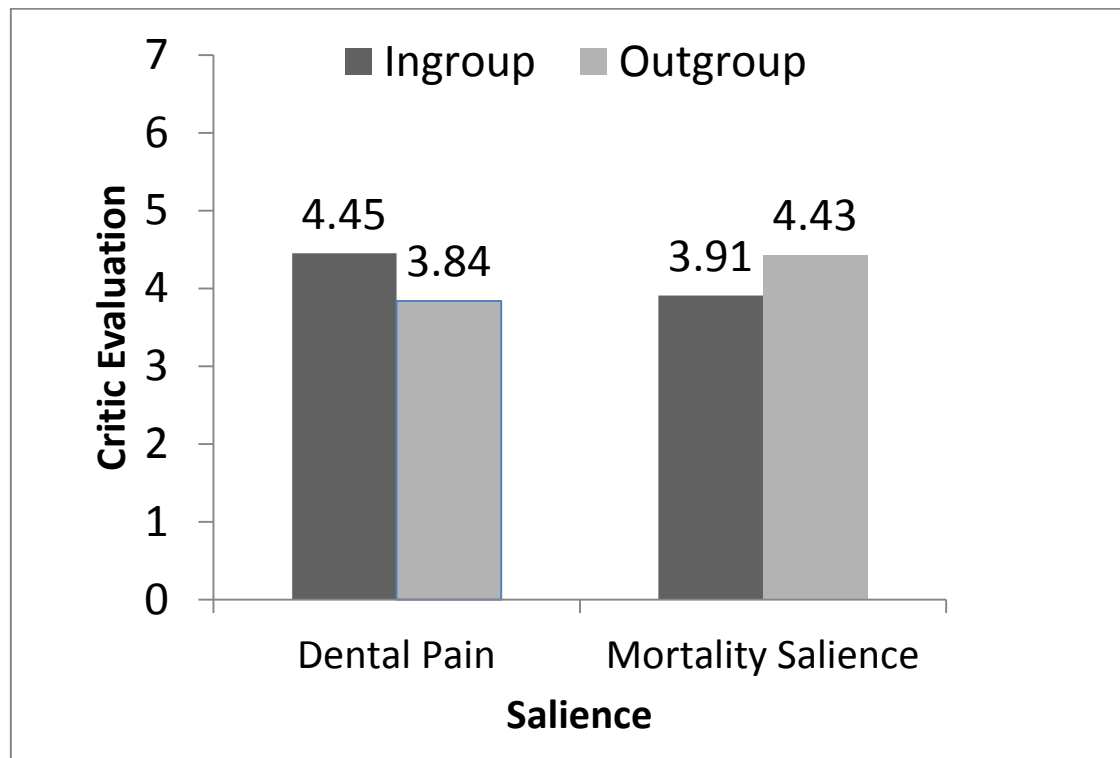


Figure 3. Critic Evaluation as a Function of Salience and Source (Experiment 2)

Perceived Threat. A 2(Salience: mortality vs. dental pain) X 2(Source: ingroup vs. outgroup) ANOVA on the threat index revealed a significant main effect of Source. Regardless of Salience condition, participants perceived criticism from an ingroup critic to be more threatening ($M = 2.83$, $SD = 1.10$) than criticism from an outgroup critic ($M = 2.18$, $SD = 1.03$), $F(1, 56) = 6.83$, $p = .01$, $\eta_p^2 = .11$. Importantly, this main effect was qualified by a significant Salience X Source interaction, $F(1, 56) = 13.52$, $p = .001$, $\eta_p^2 = .19$. No other effects were significant, $ps > .82$.

As expected, participants were more sensitive to criticism from the ingroup under mortality salience. They perceived criticism from the ingroup to be more threatening under mortality salience ($M = 3.27$, $SD = 1.05$) than dental pain ($M = 2.40$, $SD = .99$), $F(1, 56) = 5.97$, $p = .02$, $\eta_p^2 = .10$. Participants perceived the criticism from the outgroup as less

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threatening under mortality salience ($M = 1.69$, $SD = .67$) than dental pain ($M = 2.67$, $SD = 1.11$), $F(1, 56) = 7.60$, $p = .008$, $\eta_p^2 = .12^7$.

Perceived Threat as Mediator. The pattern of Salience X Source interaction on perceived threat is similar to the interaction that was found on critic evaluations. This suggests that perceived threat may act as a mediator of critic evaluations under mortality salience. To test the hypothesis that an increase in perceived threat mediated the dislike toward the ingroup critic under mortality salience, moderated mediation analyses based on 5000 bootstrapped samples using bias-corrected and accelerated 95% confidence intervals were conducted using Hayes (2013) PROCESS macro. Controlling for the effects of perceived threat, the critic's group membership impacted how participants in the dental pain control condition evaluated the critic, such that they disliked the outgroup critic more than the ingroup critic ($t(55) = -1.91$, $SE = .294$, $p = .06$). However, among mortality salient participants, the critic's group membership no longer influenced evaluations ($t(55) = .638$, $SE = .340$, $p = .53$) when perceptions of threat was controlled for. Indirect effects further revealed that perceived threat mediated the effect of group information on critic evaluation in the mortality salience condition (CI: .007 to .721), but not the dental pain condition (CI: -.214 to .119). In the mortality salience condition, criticism from an ingroup member was perceived to be threat to the group, and this in turn translated into more negative evaluations toward the ingroup critic (Table 1).

⁷ Analyzed differently, participants perceived the criticism from the ingroup critic to be more threatening ($M = 3.27$, $SD = 1.05$) as opposed to the same criticism from the outgroup critic ($M = 1.69$, $SD = .67$), $F(1, 56) = 19.8$, $p < .001$, $\eta_p^2 = .26$ in the mortality salience condition. In the dental pain condition, there were no differences in perceived threat toward the criticism between the ingroup ($M = 2.40$, $SD = .99$) and outgroup ($M = 2.67$, $SD = 1.11$), $F(1, 56) = .57$, $p = .45$, $\eta_p^2 = .01$.

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Table 1: Regression Results for Conditional Indirect Effect

Predictor	B	SE	<i>t</i>	<i>p</i>	
Dependent Variable: Perceived Threat					
Constant	2.40	.251	9.57	.001	
Salience	.867	.355	2.44	.018	
Source	.267	.355	.752	.455	
SalienceXSource	-1.84	.502	-3.68	.001	
Dependent Variable: Critic Evaluation					
Constant	4.91	.336	14.6	.001	
Perceived Threat	-.192	.110	-1.74	.087	
Salience	-.380	.308	-1.24	.222	
Source	-.562	.294	-1.91	.061	
SalienceXSource	.779	.461	1.69	.097	
Salience	B	Boot SE		BootLLCI	BootULCI
Dental Pain	-.051	.083		-.214	.119
Mortality Salience	.303	.181		.007	.721

Note: Bootstrap sample size = 5000. LLCI = lower level of the 95% bootstrap percentile confidence interval; ULCI = upper level of the 95% bootstrap percentile confidence interval.

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Discussion

The findings of Experiment 2 replicated what was found in the *message-source* condition in Experiment 1: The ingroup critic was disliked more under mortality salience relative to mundane circumstances. Furthermore, the intergroup sensitivity effect was observed in the dental pain control condition: Participants rated an ingroup member more positively than an outgroup member who provided the same criticism in the dental pain control condition. In addition, mediational analyses also revealed that the derogation of an ingroup critic under mortality salience was driven by an increase in perceived threat. Unlike research on the intergroup sensitivity effect where attributional biases in favor of ingroup members can occur (Hornsey & Imani, 2004; Hornsey et al., 2002; Hornsey, Trembath, & Gunthorpe, 2004), under mortality salience, criticism from an ingroup member was seen as threatening. Since participants have already read the criticism by the ingroup member, therefore it is not possible for them to ignore the criticism (like in See and Petty (2006)). Therefore, to restore the positivity of the group, mortality salient individuals derogate the ingroup critic so as to preserve the group's integrity (Morton, 2011), and eliminate the threat that the critic poses to the group.

Finally, given that mortality salience typically induces negative reactions toward outgroup members (e.g. Greenberg et al., 1990), the results of Experiment 2 also showed that mortality salience led to an unexpected increase in liking for an outgroup critic. As this is the first time that these effects are observed in this research, it is possible that these results might not be reliable and obtained due to statistical chance. Therefore, I observe if these responses toward outgroup critics are replicated in Experiment 3.

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CHAPTER FIVE Reactions to Critical Ingroup and Outgroup Members as a Function of Criticism Legitimacy

In Chapters 3 and 4 of this dissertation, I reviewed the prevalence of intergroup bias under mundane situations, as well as the circumstances under which these biases are attenuated. In both Experiments 1 and 2, the results supported the proposition that: Unlike mundane circumstances, people do not tolerate ingroup critics under mortality salience. Notably, one inherent assumption of most social psychological research on reactions toward deviance is that people typically dislike or dismiss criticisms because criticisms are considered negative and disruptive to existing order (Jetten & Hornsey, 2011). Nonetheless, existing lines of research do show that while attitudinal disagreements may seem harmful, diversity (e.g. demographics, viewpoints and experiences) should be encouraged in groups because they can enhance a group's performance (see Horwitz & Horwitz, 2007, for review). For example, research by Dooley and Fryxell (1999) found that differing opinions from members can positively influence the group's decision outcome. This occurs when group members assume the loyalty of dissenters and regard criticisms as "loyal dissent" that is aimed at promoting positive change (Dooley & Fryxell, 1999).

In light of this, I consider existing research on the role of critics and criticism in introducing innovation and change, as well as the conditions that elicit positive reactions toward critics and criticisms in Chapter 5. Since research suggest that criticisms may not always invite negative reactions, Experiment 3 examines if the legitimacy of a criticism could play a pivotal role in determining responses to ingroup and outgroup critics under mundane circumstances and mortality salience.

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Disagreements, dissent and deviance in groups

As discussed in Chapter 4, research on the black sheep effect has shown that people respond negatively to disagreements, dissent and deviance, rejecting those who threatened the positive distinctiveness and/or the integrity of the group by displaying negative behavior or showing dissent (Marques et al., 2001; Matheson et al., 2003). However, some research has shown that reactions to criticisms can differ depending on context (see Hogg et al., 2005; Hogg & Tindale, 2005, for similar discussions). For instance, Hornsey, Jetten, McAuliffe, and Hogg (2006) found that reactions toward a dissenting group member depended on whether the group norms that embrace individual expression of ideas (individualist norm), or maintenance of harmony through suppressing individuality (collectivistic norm). Among participants who were highly identified with the group, those who were primed with a collectivistic norm, i.e. received information that students at the University of Queensland placed emphasis on the group as opposed to the individual, rated a dissenter more negatively than if they were primed with an individualist norm, i.e. received information that students at the University of Queensland focused on assertion of individuality. In addition, Morton, Postmes, and Jetten (2007) found that people are willing to tolerate ingroup deviants if the position he adopted has positive outcomes for the group. The pattern of results from their study revealed that highly identified group members rated an ingroup deviant who advocated a political stand that contradicted that of the group more positively if his stand was in line with public opinion. When public opinion was consistent with the group's position, highly identified group rated an ingroup deviant who expressed an alternative opinion negatively (Morton et al., 2007). Even though the group member always adopted a position contrary to that of the group, the ingroup deviant's chances of succeeding in a political campaign were higher when he advocated a position that was consistent with public opinion. Since his

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success would reflect positively on the group, group members were more tolerant of his deviant stance.

As shown by the research described above, people's reactions toward an ingroup critic can vary as a function of whether deviance is consistent with group norms (Hornsey et al., 2006) or whether deviance has positive implications on the group, i.e. success of the group (Morton et al., 2007). Indeed, sometimes, criticisms might serve a position function in groups, thus, people might not always react negatively to disagreements, dissent and deviance from ingroup members.

Criticism Legitimacy⁸, Intergroup Sensitivity Effect and Mortality Salience

Returning to the literature on the intergroup sensitivity effect, researchers propose that the source of criticism leads to presumptions about the intentions and motivations of a critic (Hornsey et al., 2002). In the absence of all other information, the group membership of the source is used to determine the motivation of the critic. For instance, Hornsey and Imani (2004) found that perceptions of constructiveness (e.g. "to what extent do you think the comments were constructive", "to what extent do you feel the comments were made in Australia's best interest?") influenced evaluations of critics. Even though participants were presented with the same criticism, they differentially attributed the extent to which the comment was made in the best interest of the group based on whether the critic was an ingroup member (Australian), an outgroup (British) or an ex-ingroup member (born in Australia, but moved to Britain and became a British citizen). When the criticism was made by an ingroup member (vs. an outgroup member or ex-ingroup member), it was perceived to be more constructive. For this reason, the ingroup member was evaluated more positively than the outgroup member or the ex-ingroup member.

⁸ In the current research, I followed Hornsey et al. (2004) in conceptualizing and operationalizing unjustified vs. justified as participants' subjective perceptions of the criticism on that quality.

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Therefore, under mundane circumstances, it appears that an ingroup member who criticizes the group is presumed to be offering constructive and legitimate suggestions that could promote positive change in the group, whereas the same criticism from an outgroup member was perceived to be harmful to the group (Hornsey & Imani, 2004; Hornsey et al., 2002). While much of the research on the intergroup sensitivity effect has been on how reactions toward a critic depend on whether he is an ingroup or outgroup member, I propose that the legitimacy of the criticism can influence reactions toward ingroup and outgroup critics to the extent that a legitimate criticism could minimize doubts that a critic has destructive motives. For instance, in the assessment of the superiority of a university over another university, an evaluation that involves the availability of resources for students is likely to be viewed as legitimate and justified criticism regardless of whether the critic is an ingroup or an outgroup member.

When the criticism is justified, it is harder to attribute such criticism to the willful intention to discredit the group. Under these conditions, the intergroup sensitivity effect is eliminated. Since there is no compelling reason to infer negative intentions and motivations of a critic, e.g. when an outgroup critic provides justified criticism of the group, criticism legitimacy can play a role in alleviating defensiveness toward outgroup critics under mundane circumstances. Moreover, some research has shown that criticisms can serve positive functions in groups. For instance, deviance or dissent in groups encourage sharing of unshared information (information that is uniquely known to each individual in a group, Brodbeck, Kerschreiter, Mojzisch, Frey, & Schulz-Hardt, 2002; Postmes, Spears, & Cihangir, 2001; Schulz-Hardt, Brodbeck, Mojzisch, Kerschreiter, & Frey, 2006), stimulate divergent thinking and improves creativity and performance (Dooley & Fryxell, 1999; Nemeth & Nemeth-Brown, 2003).

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From Chapters 3 and 4, it is apparent that the derogation of ingroup members occurs in situations where group members feel that the positive distinctiveness of the group is threatened by ingroup deviants (e.g. Hogg et al, 2007; Marques et al., 2001; Matheson et al., 2003; Morton, 2011). Presumably, people derogate ingroup critics under mortality salience because they see them as a threat to the group (Experiment 2). Since legitimate criticisms can have positive implications on the group, they can increase the overall positivity of the group, and in turn increase its effectiveness as a death anxiety buffer. In this way, people might not derogate ingroup or outgroup members when they receive justified criticisms under mortality salience.

On the other hand, when people receive unjustified criticisms, under mundane circumstances, people are more likely to attribute such criticism to the willful intention to discredit the group, if they receive the criticism from an outgroup critic. If criticism is from an ingroup member, research suggests that it is more likely to be perceived as constructive and legitimate suggestions that could promote positive change in the group (Hornsey & Imani, 2004; Hornsey et al., 2002). Therefore, under mundane conditions, the intergroup sensitivity effect is more likely to emerge when criticisms are unjustified. Unlike justified criticisms, unjustified criticisms do not serve to enhance the positivity of the ingroup. Therefore, under mortality salience, the ingroup critic is seen as a threat because he is needlessly criticizing the group. Since the ingroup critic's negative behavior threatens the positive distinctiveness of the group, people derogate the ingroup critic. Therefore, consistent with what was found in Experiment 1 and 2, people will be less tolerant of ingroup critics who provide unjustified criticisms under mortality salience because they see them as a threat to the group.

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Pilot Study: Legitimacy of Criticism

In this chapter, I examine people's evaluations of an ingroup versus outgroup critic as a function of the legitimacy of criticism under mundane circumstances, as well as under mortality salience. In order to ascertain that the criticisms employed in this research were sufficiently different in terms of criticism legitimacy, I conducted a pilot test of the criticisms on a separate sample of 50 Singaporean undergraduates.

Method

Participants and Design

Fifty Singaporean undergraduates (34 Female, 16 Male) from the National University of Singapore, aged between 18 and 25 ($M = 20.72$, $SD = 1.68$). Of the 50 participants, 45 participants self-identified themselves as Chinese, three were Malay and two were Indian. Participants were randomly assigned to one of two conditions: Justified vs. Unjustified. All materials were presented on Medialab (Jarvis, 2008).

Materials and Procedure

Criticism Legitimacy. Participants were told that they were enrolled in a pilot study that examined attitudes toward universities. They were asked to read a message that highlighted reasons for why local universities were inferior to overseas universities. Participants in the *Justified Criticism* condition read a message that emphasized legitimate reasons, such as Singaporean universities' curriculum emphasis on formulaic thinking rather than flexible problem-solving (See Appendix D.1). Participants in the *Unjustified Criticism* condition, on the other hand, read a message that focused on less legitimate issues like the low quality of food on campus (See Appendix D.2). Participants were asked to rate "How justified are the author's criticism of Singaporean universities?" and "How legitimate are the author's criticism of Singaporean universities?" on scale of 1 (*Not at all*) – 7 (*Totally*).

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Results

Legitimacy Rating. Scores to both items were averaged to form a legitimacy rating score ($\alpha = .81$). Analyses revealed that participants felt that the message containing legitimate criticism ($M = 4.04, SD = 1.27$) was more justified than the message containing less legitimate criticism ($M = 3.13, SD = 1.29$) against Singaporean universities, $F(1, 48) = 6.36, p = .02, \eta_p^2 = .12$.

**Experiment 3: Reactions Toward Critical Ingroup and Outgroup Members
as a Function of Criticism Legitimacy**

As mentioned, Experiment 3 sought to examine the role of criticism legitimacy on people's evaluations of an ingroup versus outgroup critic under mundane circumstances, as well as under mortality salience. When criticism is unjustified, people will derogate an ingroup critic under mortality salience relative to the control condition. This occurs because people are sensitive to ingroup threats under mortality salience. However, a justified criticism could minimize suspicions about the intention behind the criticism (Hornsey et al., 2002; Hornsey, Robson, Smith, Esposito, & Sutton, 2008). Therefore, I predict no differences in evaluations of ingroup critics between the mortality salience and dental pain control conditions.

In Experiment 1, both university and national identification were used as the ingroup-outgroup manipulation. In Experiment 2, national identity was used as the group manipulation. Since university identification has been used in previous studies on terror management (e.g. Dechesne, Janssen, & van Knippenberg, 2000b), social identity (e.g. Frings, Hurst, Cleveland, Blascovich, & Abrams, 2012), and the intergroup sensitivity effect (e.g. Hornsey et al., 2002), Experiment 3 employed the use of university identification as the ingroup-outgroup manipulation to further enhance the generalizability of the results obtained in this research.

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Method

Participants and Design

Eighty-four undergraduates (58 Female, 26 Male) from the National University of Singapore, between the ages of 18 and 25 ($M = 20.69$, $SD = 1.54$) took part in this research for partial course credit. Participants were randomly assigned to conditions. The design is a 2(Salience: mortality vs. dental pain) X 2(Source: ingroup vs. outgroup) X 2(Criticism Legitimacy: justified vs. unjustified) between-subjects study. All materials were presented on Medialab (Jarvis, 2008).

Materials and Procedure

Salience. As in Experiment 1 and 2, participants were told that they were enrolled in a study examining ‘Perceptions of Life Experiences.’ On arrival at the laboratory, participants were asked to write about their mortality or dental pain depending on the condition they had been randomly assigned (e.g. Greenberg et al., 1990). All participants then completed a state version of the PANAS (Watson et al., 1988) on a 1 (*Not At All*) to 7 (*A Great Deal*) scale. The ten positive emotion items were averaged to form a mean positive affect score ($\alpha = .91$), while the ten negative emotion items were averaged to form a mean negative affect score ($\alpha = .92$).

Criticism Legitimacy. Participants proceeded to complete an ostensibly separate study entitled “Attitudes toward Singapore Universities.” Participants then read a message that highlighted unjustified or justified reasons as to why the critic considered Singapore Universities to be inferior to Overseas Universities. The entire criticism was presented on one computer screen.

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Source. Information about the group membership of the critic was presented at the end of the message on the same screen. Participants in the *Ingroup* condition read that the author of the message was an undergraduate from a Singaporean university while those in the *Outgroup* condition read that the author of the message was an undergraduate from an overseas university.

Critic Evaluation. Participants reported their attitudes toward the critic. This was measured using the five-item source rating questionnaire ($\alpha = .88$) where participants indicated how likable, intelligent and knowledgeable the critic was, their agreement with critic's standpoint, and how true they felt were the critic's opinions were on a 1 (*not at all*) – 7 (*extremely*) scale (e.g. Greenberg et al., 1990). Higher scores indicate liking toward the critic. Finally, all participants were probed for suspicion of the hypothesis before they were debriefed and dismissed.

Results

PANAS. A one-way ANOVA revealed that there were no differences in self-reported positive affect between participants in the mortality salience ($M = 3.54, SD = 1.31$) and dental pain control condition ($M = 3.79, SD = 1.22$), $F(1, 82) = .82, p = .37, \eta_p^2 = .01$. There were also no differences in self-reported negative affect between participants in the mortality salience condition ($M = 2.37, SD = 1.27$) and the dental pain condition ($M = 2.55, SD = 1.37$), $F(1, 82) = .39, p = .53, \eta_p^2 = .005$.

Critic Evaluation. A 2(Salience: mortality vs. dental pain) X 2(Source: ingroup vs. outgroup) X 2(Criticism Legitimacy: justified vs. unjustified) ANOVA on critic evaluation revealed a significant main effect of Criticism Legitimacy, $F(1, 76) = 9.87, p = .002, \eta_p^2 = .12$. Overall, participants disliked the critic who provided unjustified criticism ($M = 3.87, SD = 1.07$) more than the critic who provided justified criticism ($M = 4.41, SD = .63$). There was also a significant Salience X Source interaction, $F(1, 76) = 5.64, p = .02, \eta_p^2 = .07$.

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Participants disliked the ingroup critic more under mortality salience ($M = 3.90$, $SD = 1.02$) than in the dental pain condition ($M = 4.46$, $SD = .79$), $F(1, 76) = 4.65$, $p = .03$, $\eta_p^2 = .06$.

Participants rated the outgroup critic equally under dental pain ($M = 3.95$, $SD = 1.08$) and mortality salience ($M = 4.23$, $SD = .68$), $F(1, 76) = 1.42$, $p = .24$, $\eta_p^2 = .02$.

Of most importance, there was a significant 3-way interaction between Salience, Source, and Criticism Legitimacy, $F(1, 76) = 9.41$, $p = .003$, $\eta_p^2 = .11$ (See Figure 4). As predicted, planned comparisons within the unjustified criticism condition revealed that mortality salient participants ($M = 3.34$, $SD = 1.11$) disliked the ingroup critic more than dental pain control participants ($M = 4.42$, $SD = .75$), $F(1, 76) = 8.84$, $p = .004$, $\eta_p^2 = .10$. However, there were no differences in ingroup critic evaluations between mortality salient participants ($M = 4.46$, $SD = .53$) and dental pain control participants ($M = 4.50$, $SD = .87$) when the ingroup critic provided *justified* criticism, $F(1, 76) = .012$, $p = .91$, $\eta_p^2 = .00$. In addition, participants disliked the outgroup critic less under mortality salience ($M = 4.25$, $SD = .84$) than in the dental pain control condition ($M = 3.36$, $SD = 1.20$), $F(1, 76) = 6.09$, $p = .02$, $\eta_p^2 = .07$, when criticism was *unjustified*. However, there were no differences in critic evaluations for the outgroup target under mortality salience ($M = 4.20$, $SD = .51$) and dental pain ($M = 4.49$, $SD = .61$), $F(1, 76) = .68$, $p = .41$, $\eta_p^2 = .009$, when criticism were justified⁹.

⁹ I also examined comparisons between unjustified and justified criticisms within each salience condition. Analyses revealed no significant differences in critic evaluations of an ingroup member who provided unjustified ($M = 4.42$, $SD = .75$) or justified criticisms against Singapore universities ($M = 4.50$, $SD = .87$) in the dental pain condition, $F(1, 76) = .05$, $p = .82$, $\eta_p^2 = .001$. Participants showed significantly more dislike for an outgroup member who provided unjustified criticism ($M = 3.36$, $SD = 1.20$) than an outgroup member who provided justified criticisms ($M = 4.49$, $SD = .61$), $F(1, 76) = .05$, $p = .82$, $\eta_p^2 = .001$, in the dental pain condition. In the mortality salience condition, participants showed significantly more dislike for an ingroup critic who provided unjustified criticism ($M = 3.34$, $SD = 1.11$) as compared to an ingroup critic who provided justified criticism against Singapore universities ($M = 4.46$, $SD = .53$), $F(1, 76) = .91$, $p = .003$, $\eta_p^2 = .11$. There were no significant differences in critic evaluations of an outgroup member who provided unjustified ($M = 4.25$, $SD = .84$) or justified ($M = 4.20$, $SD = .51$) criticisms in the mortality salience condition, $F(1, 76) = .02$, $p = .88$, $\eta_p^2 = .00$.

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Analyzed differently, comparisons within salience condition show that the ingroup critic ($M = 4.42$, $SD = .75$) was tolerated more than the outgroup critic ($M = 3.36$, $SD = 1.20$) in the dental pain condition, $F(1, 76) = 8.52$, $p = .005$, $\eta_p^2 = .10$, when criticism was *unjustified*. When criticisms were *justified*, there were no differences in liking between the ingroup critic ($M = 4.50$, $SD = .87$) and the outgroup critic ($M = 4.49$, $SD = .61$) in the dental pain control condition, $F(1, 76) = .001$, $p = .98$, $\eta_p^2 = .00$. In addition, the ingroup critic ($M = 3.34$, $SD = 1.11$) who provided *unjustified* criticism was disliked more than the outgroup critic ($M = 4.25$, $SD = .84$), $F(1, 76) = 6.36$, $p = .01$, $\eta_p^2 = .08$, under mortality salience. When criticism were *justified*, there were no differences in liking of the ingroup critic ($M = 4.46$, $SD = .53$) or the outgroup critic ($M = 4.20$, $SD = .51$) in the mortality salience condition, $F(1, 76) = .51$, $p = .48$, $\eta_p^2 = .007$.

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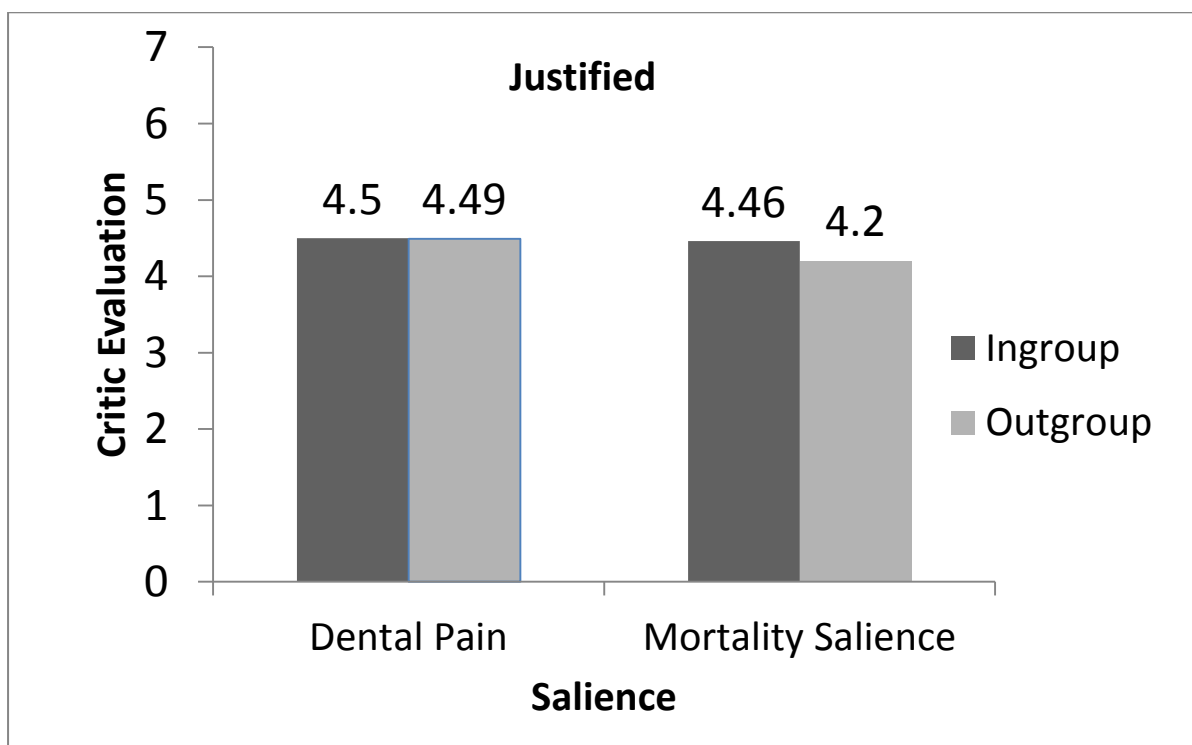
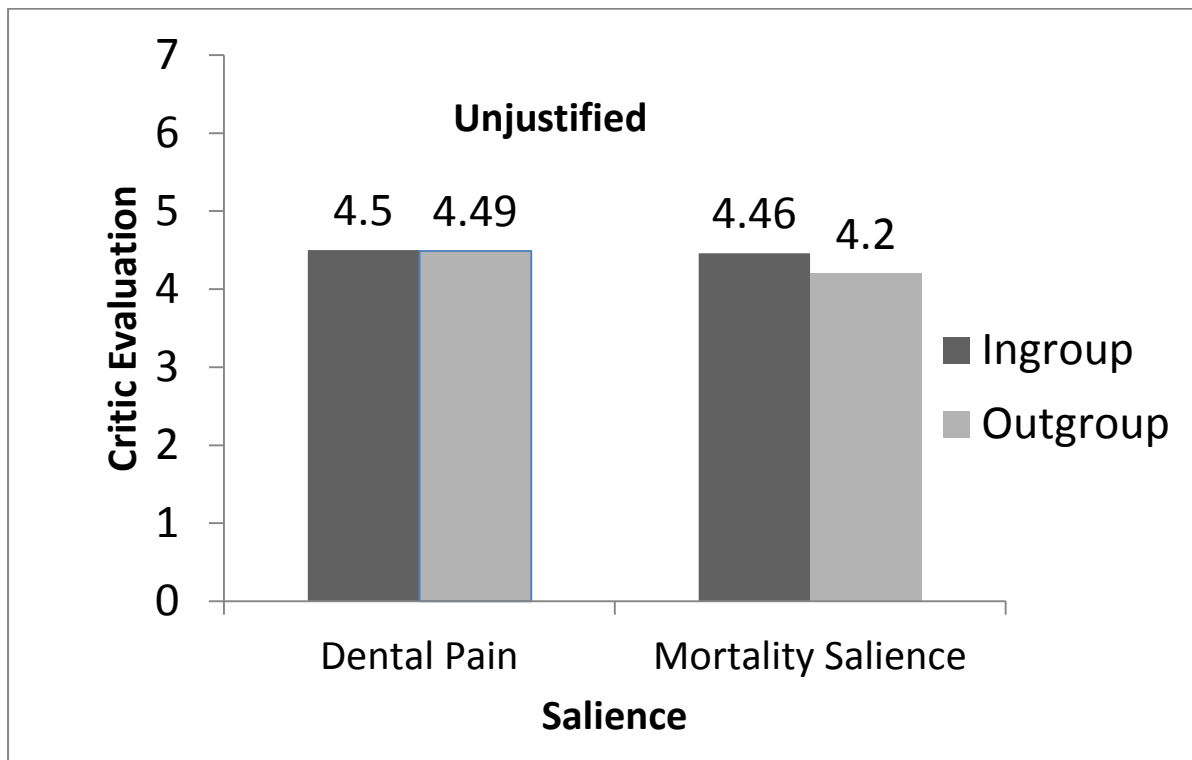


Figure 4. Critic Evaluation as a Function of Salience, Criticism Legitimacy and Source (Experiment 3).

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Discussion

The results of Experiment 3 showed that participants rated an ingroup critic who provided unjustified criticisms more negatively in the mortality salience condition than in the dental pain control condition. The ingroup member who provided unjustified criticism was also disliked more than an outgroup member under mortality salience. In the absence of threats to mortality, people might be more protective of the ingroup member and therefore more tolerant of dissent and alternative viewpoints from an ingroup member (e.g. Hornsey et al., 2002; Platow, Mills, & Morrison, 2000)). In contrast, under mortality salience, people reacted more negatively to the ingroup member who provides unjustified criticism. This occurs because people are especially vigilant for an ingroup member's failure to uphold the integrity of the ingroup. Since the ingroup critic presents a threat to the group, people derogate him under mortality salience.

Consistent with research on the intergroup sensitivity effect, the results of Experiment 3 also showed that participants rated an ingroup member who provided unjustified criticism more positively than an outgroup member who provided the same criticism in the dental pain control condition (see Footnote 7). However, when criticism was justified, there were no differences in evaluations of the ingroup or outgroup critic. These findings suggest that a justified criticism could minimize suspicions about the intention behind the criticism (Hornsey et al., 2002; Hornsey, Robson, Smith, Esposito, & Sutton, 2008). Therefore, evaluations of both ingroup and outgroup critics are based on the legitimacy of the arguments in the criticism, rather than on the basis of group membership. On the other hand, unjustified criticism gives rise to the opportunity for people to query the intentions of critics. Therefore, attributional bias (e.g. extent of constructiveness of criticism: Hornsey & Imani, 2004) in favor of ingroup members are more likely to emerge when one receives unjustified criticism. These results suggest another boundary condition for the intergroup sensitivity effect: When

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there is no compelling reason to infer negative intentions and motivations of a critic (e.g. when an outgroup critic provides a justified criticism), the intergroup sensitivity effect is eliminated.

Interestingly, the results of both Experiment 2 and 3 showed that mortality salience led to an increase in liking for an outgroup critic. Although this finding was unexpected, I propose that this increase in liking for the outgroup critic could have been driven in part by the preference for stereotypic-consistent behaviors under mortality salience. From the perspective of terror management theory, stereotypes are part of one's cultural worldview, hence, people prefer stereotype consistent targets under mortality salience because these stereotypic behaviors help validate their conception of reality (Schimel et al., 1999). Taken in the context of the current research, participants may have expressed liking for the outgroup critic relative to the ingroup critic because the outgroup critic did not violate expectations, while the ingroup critic was derogated because he violated the ingroup stereotype by holding counter-attitudinal beliefs. Although it appears that the observed pattern of results could be derived from the *expectancy violation theory* (e.g. Bettencourt, Dill, Greathouse, Charlton, & Mulholland, 1997; Jussim, Coleman, & Lerch, 1987), I will discuss the limitations of the expectancy violation theory as an alternative explanation in the General Discussion.

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CHAPTER SIX

General Discussion

By and large, people who belong to the same group tend to hold similar attitudes. That is, individuals who identify themselves as Christians usually hold pro-Christian attitudes; the political ideology of an individual (conservative or liberal) corresponds with the group they identify with, Conservatives or Liberals. In this case, group identification generally entails attitude validation. Hence, terror management research has typically found ingroup favoritism and outgroup derogation as a response to mortality salience because group identification leads to the validation of one's attitudes (e.g. Castano et al., 2002b; Greenberg et al., 1990). This research identifies an issue that has received little attention in the literature on terror management and examines reactions in a situation where support of a group member undermines attitudinal validation because the group member's attitude is in disagreement with your own (or the group's) worldview.

Across three studies using different operationalisations of group membership and different kinds of evaluation items, I was able to find the predicted pattern that people do react harshly toward an ingroup critic who discredits the group under mortality salience. One limitation of the current research is the small sample size in each of the three studies. Therefore, to establish the reliability of the results in this research, two meta-analyses for Experiments 1-3 were conducted to test the significance of the combined probabilities (see Rosenthal & Rosnow, 2008). The results revealed that the derogation of an ingroup critic among mortality salient participants, relative to their control counterparts, were reliable, $Z = -3.66, p < .001$. Examined differently, across the 3 Experiments, the finding that ingroup critic evaluations were more negative compared to evaluations of the outgroup critic under mortality salience, were also reliable, $Z = -2.41, p < .001$. Under mortality salience, people are more likely to reject ingroup critics. Experiment 1 demonstrates that this pattern occurs

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when participants are presented with the criticism before knowing the critic's group membership but not when participants know the critic's group membership before being presented with the criticism. Further to this, mortality salience leads to the derogation of ingroup critics because criticism by the ingroup member is perceived as threatening (Experiment 2). Finally, the derogation of ingroup critics under mortality salience occurs when the criticism is unjustified but not when the criticism is justified (Experiment 3). In order to protect the overall group, group members reject ingroup critics who needlessly criticize and discredit the group under mortality salience. The results of Experiment 3 suggest that the effects that emerged in Experiments 1 and 2 were because the criticisms were considered unjustified. Indeed, participants in the unjustified criticism condition in Experiment 3 received the same criticism that all participants received in Experiment 1. In addition, a pilot study conducted on a separate sample revealed that people perceived the criticism that was used in Experiment 2 to be low on legitimacy¹⁰. Lastly, it was found that the intergroup sensitivity effect is also more likely to occur when criticisms is unjustified than when criticism is justified. Presumably, this occurs because attributional biases are more likely to occur when criticisms are unjustified (Experiment 3).

Group Protection under Mortality Salience

The bulk of existing research in mortality salience seems to support the idea that people protect an ingroup member under mortality salience (Castano, 2002b; Greenberg et

¹⁰ To determine if the criticism of Singapore was considered unjustified, a pilot study was conducted on a separate sample of 58 undergraduates (40 Female, 18 Male) from the National University of Singapore, aged between 19 to 24 ($M = 20.40$, $SD = 1.24$). Participants were asked to rate the extent to which the comment was an unjustified and justified reason to dislike Singapore. Responses were made on a scale of 1 (*Not at all*) to 7 (*Very Much*). Participants' ratings for the "unjustified" item were reverse-coded, and then averaged with their "justified" ratings to form a mean legitimacy score ($\alpha = .68$), such that higher scores meant perceptions of more legitimacy. As expected, a one sample t-test (test value = 4) revealed that participants perceived the criticism as low on legitimacy ($M = 3.22$, $SD = 1.34$), $t(57) = -4.43$, $p < .001$).

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al., 1990; See & Petty, 2006). Furthermore, some researchers suggest that people do so even at the expense of defending or validating their worldview (e.g. See & Petty, 2006). For example, in See and Petty (2006), the knowledge that an individual is from one's ingroup fulfills one's death anxiety needs, such that the ingroup's pro- or counter-attitudinal position had little effect on the evaluations of an ingroup source under mortality salience. However, evaluations of the outgroup depended on the outgroup member's position. When the outgroup member's attitude position was pro-attitudinal, he/she was evaluated more positively. These lines of research show that people affiliate with ingroup members as a means of buffering anxiety under mortality salience. This protection of the ingroup member was also apparent in the current research, even though the ingroup member was critical of the group. When people received information about the critic's group membership before reading the contents of the criticism, people continued to tolerate an ingroup critic.

Beyond this, Experiments 1- 3 found that mortality salience elicits the derogation of the ingroup critic, especially when they receive information about the critic's group membership after processing the contents of his criticism. In other words, the current research does not only replicate the prior finding that mortality salience increases the derogation of an outgroup relative to an ingroup critic (See & Petty, 2006), but demonstrates that such outgroup derogation occurs only when people receive the group membership information before the criticism whereas the opposite pattern --- increased ingroup derogation --- occurs when people receive the criticism before the group membership information. As mentioned, even though this derogation of an ingroup critic appears to contradict evidence of affiliation strategies (i.e. preference for an ingroup member) in previous TMT research, the rejection of an ingroup critic can help protect the overall image of the group (Marques & Paez, 1994; Marques et al., 1988).

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One notable exception to the current results is the research conducted by Wisman and Koole (2003). Wisman and Koole (2003) found that participants opted to sit with a group of people who do not share their worldview, rather than sit alone. This contradicts the current findings in suggesting that people would rather sit with someone who criticizes their group than sit alone. Nevertheless, it is important to note that the dependent variable in Wisman and Koole (2003) measured seating preferences, and not ingroup protection. While it is possible that seating preferences reflected the need to affiliate following mortality salience, it is also plausible that participants chose to sit in a worldview-threatening group for the purpose of confronting the individuals who criticized his worldview.

Finally, the results of Experiment 1 suggest that one determinant of the strategy that people employ is the timing when people receive criticism and group membership information. If participants were presented with group membership information of the critic first, they could rely on the critic's group membership (affiliation) as a means of terror management, and ignore the contents of the criticism. On the other hand, if participants received the criticism before they found out about the group membership of the critic, they cannot ignore the contents of the criticism. In response to the threatening implications of the criticism, people would derogate ingroup critics so that the positive distinctiveness of the group is upheld. In this way, the group can continue to effectively serve its terror management functions under mortality salience. Therefore, the current research suggests that both group protection strategies can emerge under mortality salience to ameliorate existential anxiety.

The Substitutability Hypothesis

Besides the idea that people can adopt either one of the abovementioned group protection strategies to ameliorate existential anxiety, it would be intriguing to find out the circumstances under which people will protect the individual group member, as opposed to

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rejecting the deviant group member to protect the overall group under mortality salience? On a related note, researchers have had differing viewpoints on which terror management defense mechanism – worldview validation, self-esteem and affiliation, plays the most important role in ameliorating existential anxiety. For instance, previous research found that participants preferred to sit in a worldview threatening group rather than sit alone, and ingroup evaluations did not depend on the attitudinal position adopted by the member. These research by Wisman and Koole (2003) and See and Petty (2006) suggest that affiliation is prioritized over worldview defense as a terror management mechanism. In the context of this research, this means that when both defenses are present, people would engage in individual member protection rather than protection of the overall group.

However, there are conflicting opinions on whether affiliation, i.e. individual member protection, is the principal mode of managing terror. A meta-analysis by Pyszczynski et al. (2004) showed that people do not simply affiliate with anyone following mortality salience. They seek affiliations with the purpose of attaining positive self-regard. For instance, they avoid associating with groups whose members are associated with negative behaviour (Arndt et al., 2002). Furthermore, research by Strachman and Schimel (2006) found that people reduced feelings of commitment to their romantic partner, who subscribed to a different religious, ethnic, or political worldview, in response to mortality salience. Instead of affiliation, people engaged in worldview defense as a means of buffering anxiety. These lines of research suggest that people would protect the overall group instead of individuals with whom they would normally want to affiliate with.

Experiment 1 reconciles these contrasting phenomena by providing initial evidence of *substitutability*, i.e. that one defense mechanism could serve as an alternative for another when dealing with mortality awareness (e.g. Arndt & Greenberg, 1999; McGregor et al., 1998; Schmeichel & Martens, 2005; Strachman & Schimel, 2006). Based on the theory of

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substitution by Lewin (1935), substitute actions can take place to address any form of existing tension when the original action intended to resolve the tension is not available (see Steele & Liu, 1983; Tesser, 2000; Tesser & Martin, 1996). In the context of terror management theory, worldview validation, self-esteem and affiliation serve the same function of ameliorating mortality concerns. Therefore, the presence of any one of these mechanisms could reduce the need for other mechanisms (e.g. Eidelman & Biernat, 2003). Indeed, past research found that experimentally-enhancing self-esteem reduces the need for another terror management defense – derogation of a worldview threatening other (worldview defense; Harmon-Jones et al., 1997).

In Experiment 1 of the current research, mortality salient participants tended to be more protective of the ingroup critic when they knew the critic's group membership before reading the criticism. Just like in See and Petty (2006), participants protected members of their group as a means of buffering anxiety when they were informed of the critic's membership prior to receiving the criticism. Under these circumstances, it appears that people adopt affiliation as a means of ameliorating existential anxiety, focusing on their shared group membership with ingroup critic rather than attitudinal dissimilarity. However, if participants received the criticism before knowledge of the critic's group membership, mortality salient participants derogated the ingroup critic to protect a worldview that is adopted by the group. When criticism is received before group membership information, people focused on attitudinal dissimilarity and engaged in worldview defense to deal with existential concerns. The finding that the timing of presentation of information plays an important role in determining eventual reactions toward ingroup and outgroup critics provide support for the substitutability hypothesis: The activation of terror management defenses could be dependent on opportunity (see Arndt et al., 2002; See & Petty, 2006, for similar suggestions). This means that when the opportunity for affiliating with an ingroup member

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presents itself first (e.g. knowledge of the critic's group membership before reading his criticism), people protect group members as a means of ameliorating anxiety. However, when the opportunity for worldview defense presents itself first (e.g. content of the criticism is processed before knowledge of the critic's group membership), people react by protecting the views held by the group.

Future research can test the substitutability hypothesis by including measures that assess participants' cognitive processes within the experimental procedure. For instance, researchers could include measures that assess message processing (e.g. amount of time taken to read the criticism, number of arguments recalled) in the procedure in Experiment 1. Since mortality salient participants might choose to affiliate with the ingroup critic and ignore the contents of the criticism if they knew the critic's group membership first, the time taken to process the criticism might be shorter as compared to participants in the message-source condition. Similarly, mortality salient participants in the source-message condition may also recall fewer arguments than those in the message-source condition because they did not pay attention to the arguments that were put forward by the ingroup critic.

Although the current research only focused on the interplay between worldview defense and affiliation as terror management defenses, self-esteem can also be a substitutable strategy against mortality concerns. Under mortality salience, boosting self-esteem by affirming a cherished value (e.g. tolerance, Greenberg et al., 1992) or engaging in activities that boosts one's self-esteem (e.g. demonstrating driving skill through risky driving, Taubman Ben-Ari, Florian, & Mikulincer, 1999; see Pyszczynski et al., 2004) has been shown to reduce the need to engage in affiliation or worldview defense (Arndt & Greenberg, 1999; Schmeichel & Martens, 2005). Therefore, in the context of the current research, I predict that people who were first given the opportunity to affirm their worldview (e.g. by providing pro-attitudinal arguments) would not derogate an ingroup critic. On the other hand,

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people who were first introduced to the ingroup critic before given the opportunity to affirm their worldview would derogate the ingroup critic. Future research can examine if the substitutability hypothesis generalizes to other terror management mechanisms that have been identified in the literature.

Specificity of Reactions in Response to Reminders of Death

Another issue that is of interest in TMT research is whether mortality salience effects are specific to reminders of death. In all 3 experiments of the current research, the results revealed that the intergroup sensitivity effect emerged in the dental pain control condition while the black sheep effect was found when mortality was salient. Therefore, the rejection of ingroup critics does not generalize to pain salience. However, as reviewed in the earlier sections of this dissertation, the black sheep effect also emerges under conditions that are not necessarily associated with mortality salience (e.g. intergroup context, Matheson et al., 2003; high identifiers, Castano et al, 2002a; Marques et al., 1988; highly entitative groups, Lewis & Sherman, 2010).

The emergence of effects, parallel to those found under mortality salience, in the abovementioned situations, suggests that reminders of death elicit the rejection of ingroup critics because these critics evoke feelings of uncertainty and threat. Indeed, previous research have shown that uncertainty (McGregor, Zanna, Holmes, & Spencer, 2001; van den Bos & Miedema, 2000) or threats to meaning (Heine, Proulx, & Vohs, 2006) produce effects that are similar to those observed under mortality salience. For instance, McGregor et al. (2001) found that personal uncertainty arising from the awareness of inconsistencies of the self leads to extremity of participants' positions on social issues (Study 1 and 2) and harsher punishment for a worldview violator (i.e. prostitute). In addition, van den Bos and Miedema (2000) also found that just like thoughts about one's mortality, thoughts about one's

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uncertainty led to increased attention to procedural fairness (adherence to norms; Gailliot et al., 2008).

Of relevance to the current research, while the word ‘death’ is not explicitly mentioned in studies on threats in intergroup context, it might be closely linked to the problem of death (Pyszczynski, Greenberg, Solomon, and Maxfield, 2006). From an evolutionary perspective, groups continue to exist because group membership plays an important role in enhancing an individual’s chances of survival and reproductive success (i.e., cooperation with fellow group members for protection from predators, sharing of resources (Buss, 2007; Van Vugt & Schaller, 2008)). Since threats to the group serve as reminders of competition and conflict over resources (e.g. Robbers Cave Experiment, Sherif, Harvey, White, Hood, & Sherif, 1961), ingroup members who subscribe to alternative views or criticize the group, disrupt the group and create uncertainty about individual’s survival and reproductive fitness (Neuberg, Smith, & Asher, 2000; Schaller & Neuberg, 2008).

Therefore, Pyszczynski et al (2006) propose that meaning threats and uncertainty may also elicit the rejection of deviant ingroup members through a process known as fluid compensation¹¹. For instance, the uncertainty manipulation by McGregor et al. (2001) involved inducing temporal discontinuity by asking participants to recollect childhood or

¹¹ Aside from the proposition that similar reactions observed in situations involving uncertainty and threats to meaning are due to fluid compensation effects, a meta-analysis by Martens, Burke, Schimel, and Faucher (2011) also revealed that mortality salience effects are stronger with longer delays, but responses to uncertainty and meaning threats decline with time. This suggests the possibility that uncertainty and threats to meaning might elicit similar effects to mortality salience because these threats weaken the structures (worldview, self-esteem, affiliation) that keep death thoughts at bay (Martens et al., 2011). Pyszczynski et al. (2006) highlight that beyond the uncertainties on various aspects of death, e.g. time and place, importantly, uncertainty alone cannot account for mortality salience effect because terror management theory maintains that mortality salience leads to worldview defense, self-esteem enhancement and affiliation because death is inevitable. That is, death itself is a certainty. Together, the above provides some evidence that mortality salience effects are uniquely different from reactions to uncertainty and threats to meaning.

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adolescence memories at the time of the experiment session, and in the year 2035. Since the manipulation required participants to think about the future (the year 2035) and reflect on past experiences, this could have produced awareness to time and inadvertently, the awareness of inevitable death (Becker, 1971; Routledge & Arndt, 2008). Furthermore, certain intergroup contexts inevitably evoke the concept of death. For instance, in describing intergroup conflict between Muslims and Christians in Indonesia, Ariyanto et al. (2010) mentioned death related words like “killed”, “victims”, “burned house”. Thus, the concept of death is sometimes highly related to intergroup contexts. Therefore, it is not surprising to find that humans respond to intergroup threats and group identity threats with similar psychological defense mechanism as those that are engaged following mortality salience. Future research could examine if the rejection of ingroup deviants in intergroup contexts, for example, is a direct response to mortality salience or a consequence of uncertainty or threats to meaning.

Identity Threat and Expectancy Violation

For the most part, this research adopts the perspective of the social identity theory (Tajfel et al., 1971; Tajfel, 1986) in understanding reactions toward ingroup and outgroup critics. Of relevance to the current research, the ingroup critic might have elicited two forms of social identity threat¹². The adoption of an alternative viewpoint by an ingroup member could have violated stereotype expectancies of the ingroup and blurred the distinction between the ingroup and other groups (*distinctiveness threat*). Since the ingroup critic discredited the group under mortality salience, his presence also elicited a threat to the value of the group and the validity of the attitudes the group holds (*threat to group value and status*). Nevertheless, one possible explanation for the findings of the current research stems

¹² Social identity threat may take one of four forms – categorization threat, distinctiveness threat, threats to value of the group, and lack of ingroup acceptance (Branscombe, Ellemers, Spears, & Doosje, 1999; Ellemers, Spears, & Doosje, 2002).

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from the expectancy violation theory (e.g. Bettencourt et al., 1997; Jussim et al., 1987), which predicts that group members reject the ingroup critic because he/she violated the ingroup stereotype by holding counter-attitudinal beliefs. Prior TMT research has shown that mortality salience increases one's preference for individuals who behave in a stereotype consistent manner as compared to individuals who behave in a stereotype inconsistent manner (Schimel et al., 1999). Specifically, Schimel et al. (1999) found that liking for an African American target who was described to be dressed in "untied high-top sneakers, an Atlanta Braves shirt, low-worn black shorts, dark sunglasses, and a backward baseball cap" increased following mortality salience. When the African American target was described to be dressed in "a button-down light blue dress shirt and tie with khaki dress pants, penny-loafers, and black framed glasses", participants in the mortality salience condition liked the African American target less compared to participants in the television control condition. In the context of this research, people could have derogated the ingroup critic under mortality salience because he violated the ingroup stereotype. Aside from rejecting the ingroup critic, this research also observed an increase in liking toward an outgroup critic under mortality salience, relative to the control condition, in both Experiments 2 and 3. Based on the theory, this preference for the outgroup critic could have occurred because the outgroup critic behaved in a stereotype-consistent manner, thereby preserving the validity one's conception of reality (Schimel et al., 1999). Although the latter finding was unexpected, both the rejection of an ingroup critic *and* liking of an outgroup critic suggest that the effects observed could be a direct response toward worldview violators.

However, the results observed in the justified criticism condition in Experiment 3 do not support the expectation violation theory as a viable alternative explanation to the results of the current research. If people derogate ingroup critics under mortality salience because ingroup critics had violated expectations and behaved in a stereotypic-inconsistent manner,

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and preferred outgroup critic because he behaved in a stereotypic-consistent manner, people should also dislike the ingroup critic because he/she would have violated stereotypic expectancies by criticizing the group even though his/her criticism was justified. It is also important to note that beyond predicting that participants will show dislike toward the stereotypic-inconsistent ingroup critic, and liking for the stereotypic-consistent outgroup critic, the expectancy violation theory further predicts that liking toward stereotypic-consistent and stereotypic-inconsistent targets, are *polarized*, such that an outgroup stereotypic-consistent target is liked more than the ingroup stereotypic-consistent target, and the ingroup inconsistent target is disliked more than the outgroup-inconsistent target. However, the current research did not examine reactions toward a stereotype-consistent ingroup member and a stereotypic-inconsistent outgroup member. Given these limitations, there were no comparisons of reactions toward a stereotype-inconsistent ingroup member with that of a stereotype-consistent ingroup member under mortality salience. Similarly, this research also did not compare reactions toward a stereotype-consistent vs. a stereotype-inconsistent outgroup member. Therefore, future research examining reactions toward both critical and non-critical ingroup and outgroup targets are necessary to ascertain if the expectancy violation theory provides a cohesive framework in understanding reactions toward ingroup and outgroup members under mortality salience.

While I identify the expectancy violation theory as a plausible alternative explanation that the rejection of an ingroup critic could be a direct response to worldview threat, it is worth noting that expectancy violation processes might still be closely tied to the processes proposed by this research (social identity theory, Tajfel et al., 1971; Tajfel, 1986). The violation of stereotype expectancies could serve as a threat to the distinctiveness and value of the group (identity-related threats). This results in the subsequent need to re-establish positive distinctiveness between groups and restore the integrity of the ingroup through the rejection of

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an ingroup critic. In this way, the ingroup can continue to serve as a means of attitude validation and self-esteem enhancement, and effectively buffer existential anxiety in the event of reminders of death.

Practical Implications

Criticisms in the face of terror threat. Psychologists are increasingly interested in the practical implications of research in terror management theory, especially in the domain of politics (e.g. Mcdermott & Zimbardo, 2007). How can this research contribute to our understanding reactions toward politicians and policies? Willer (2004) found that the timing of articles on terrorism collected from Washington Post during the period of 2001 and 2004 predicted Gallup polls on Bush's presidential approval. In an experimental study, Cohen, Ogilvie, Solomon, Greenberg, and Pyszczynski (2005) also found that terror-related campaign advertisements promoted the appeal of Bush and influence voting patterns. In the television control condition, Kerry was favored over Bush by 4:1. However, under mortality salience, Bush had a 2:1 edge over Kerry. The findings correspond with Landau et al. (2004)'s earlier findings that reminders of death increase support for Bush against Kerry. Landau et al. (2004) suggest that surge in support for Bush is the preference for a charismatic leader, and symbolic figure for the war against terror (Landau et al., 2004). When taken in the context of this research, it is possible that the declining support for Kerry emerged when there were terror alerts, or when people are reminded of death, because Kerry was seen as an American (i.e. ingroup member) who had not provided justified reasons for criticizing an elected president, and the policies on the war on terror that had earlier been popular with American public ("Latest summary: American public opinions and the war on terrorism," 2001, December 21). Therefore, in view that people derogate ingroup critics under mortality salience, political candidates looking to garner support for office need to be cautious when they present criticisms of the existing system without strong justification while at the same

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time defining themselves as ingroup members (e.g. concerned 'Singaporeans'). When death reminders are widespread, such criticisms by ingroup members could result in a reversal of endorsement of political candidates.

Mortality salience and consumer persuasion. This research also has practical implications for consumer persuasion, i.e. understanding how consumers react to information under mortality salience, and the possible outcomes of persuasion. Suppose a company hired a Singaporean salesperson to persuade Singaporean consumers to buy an imported product instead a domestically produced brand. He does so by degrading aspects of the locally produced brand¹³. Under mundane circumstances, the Singaporean salesperson, as opposed to a foreign salesperson, would be more effective at persuading consumers to buy the imported product. However, when fear appeals are used in consumer persuasion (e.g. death appeals; vulnerability to the risk of death, threat of impending death), the Singaporean salesperson would probably see an increase in sales only if he first introduces himself as a Singaporean before he begins criticizing the domestic product. This is so because, under mortality salience, the knowledge of the group membership of the critic before receipt of the criticism leads to protection of the ingroup member, even though he criticized a locally produced item to promote a foreign product. On the contrary, if the salesperson begins promoting his product by criticizing the domestic product before stating his nationality, mortality salience would lead to negative reactions toward ingroup critics. Consequently, Singaporean consumers would derogate the Singaporean salesperson and reject the foreign product he is promoting. Thus, even in consumer settings, the findings of the current research suggest that

¹³ In their study, Fransen, Fennis, Pruyn, and Das (2008) showed that mortality salience leads to increased favoritism toward domestic products vs. foreign products. They propose that this polarization of attitudes toward domestic and foreign brands is a reflection of ingroup favoritism and outgroup derogation in a consumer setting. Based on this research, it is reasonable to assume that the criticism of domestically produced items poses a threat to national identity.

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the group membership of a salesperson and the manner in which information is delivered can arouse differential reactions in response to persuasive attempts under mundane circumstances and mortality salience.

Future Directions

In line with what has been found in this research, future research can continue to broaden the understanding of reactions toward critical ingroup and outgroup members by examining the psychological processes underlying responses to ingroup and outgroup critics under mortality salience. Since this research suggests that critical ingroup members pose as a threat to the distinctiveness and/or value of the group, more research can be conducted to examine the circumstances in which ingroup critics evoke identity threats under mortality salience. For example, future research could also examine if group permeability moderates the observed effects toward ingroup critics in this research. Specifically, group permeability may determine the level of threat experienced when confronted with an ingroup critic under mortality salience. Past research by Dechesne et al. (2000b, Experiment 2) manipulated group permeability of university identification by either informing participants that the choice of one's university is definite (impermeable) or reversible (permeable). Upon receiving criticism about the university, mortality-salient participants in the permeable group distanced themselves by not showing affiliation with the university. On the other hand, participants in the impermeable group derogated the university critic. Taken in the context of this research, the results suggest that criticisms from an ingroup member would more likely be perceived as a threat to the distinctiveness and value of the group under mortality salience when group boundaries are impermeable. When group boundaries are thought to be permeable, individuals can adopt the strategy of distancing themselves from the group. In this way, the evaluations of an ingroup critic would not be affected under mortality salience because their criticisms may not be perceived as threatening to the group. This line of

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research would strengthen the notion that the adoption of identity management strategies such as rejecting an ingroup critic or tolerating an ingroup critic under mortality salience depends on the implications of an ingroup member's negative behavior on the self and group.

Future research could also examine individual difference variables that could moderate the use of individual member protection vs. group protection strategies under mortality salience. Routledge, Juhl, Vess, Cathey, and Liao (2013) showed that people who scored highly on the interdependent self-construal scale, i.e. those who define their selves in terms of their group identity, affiliate with their group as a means of coping with mortality salience. After being asked to write about their own death, these participants elicited higher levels of national identification, higher levels of university identification, and more willingness to make sacrifices for their religion, relative to the participants who scored lower on the interdependent self-construal scale. Given that people who defined themselves as highly interdependent value their group and align themselves with their group goals (Markus & Kitayama, 1991), it would be interesting to examine whether they would prioritize the protection of the group over the protection of individual ingroup members who have discredited the group, following reminders of death.

More research is also needed to understand how the expulsion of a critical ingroup member alleviates threat. Specifically, does the expulsion of a critical ingroup member increase the overall positivity of the group and thus its effectiveness as a means of worldview validation or attaining self-esteem in the event of reminders of death?

It would also be intriguing to examine if group members react to all critical ingroup members in the same way. For example, Pinto et al. (2010) found that responses to deviant group members depended on whether the deviant group members were new group members (those who are still in the process of learning the norms of the group), full group members (those who have learnt and internalized the norms of the group), or marginal group members

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(those who have learnt the norms of the groups but did not live up to expectations of the group) members (e.g. Levine & Moreland, 1994). Since full members are more representative of the group, deviant acts from full members are more detrimental to the group, therefore, people derogated deviant full members more than new or marginal members (Pinto et al., 2010). Taken in the context of this research, it is possible that the socialization status of the ingroup critic (new, full, or marginal) could play an important role in determining the magnitude of identity threat experienced upon encountering an ingroup critic under mortality salience. Therefore, people might derogate ingroup critics who are full members, as oppose to ingroup critics who are new or marginal members.

Finally, in the present research, mortality salience was induced using an ostensible personality test, where participants were asked to write on two open-ended questions. This mortality salience induction paradigm only serves as an indirect means to examine the consequences of terrorism and terrorism news (Das, Bushman, Bezemer, Kerkhof, & Vermeulen, 2009). In order to enhance the generalisability of the results obtained in this research, future research can examine if real-life mortality primes, such as images of war or destruction (e.g. Vail Iii, Arndt, Motyl, & Pyszczynski, 2012), symbols of death (e.g. Gailliot, Schmeichel, & Baumeister, 2006) or news of terrorism and terrorist attacks (Das et al., 2009) can also elicit similar effects.

Conclusion

Twelve years on from the September 11 terror attacks, the images and reports on the Boston Marathon bombings, Savar garment factory collapse in Bangladesh, the tornado that swept Oklahoma, and the threat of disease outbreaks such as the Severe Acute Respiratory Syndrome (SARS) and the Middle East respiratory syndrome (MERS), continue to reiterate the importance of understanding how the fear of death affects people's attitudes and behaviors. Broadly speaking, this dissertation is devoted to understanding peoples' reactions

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when mechanisms responsible for managing terror are at odds, i.e. affiliation with the group does not in turn lead to attitudinal validation. Specifically, this research is interested in examining how people respond to critical ingroup and outgroup members in the event of death reminders, and the underlying motivations behind such reactions. Given the myriad of situations that occur in real life, more research is necessary to fully understand how people react under mortality salience and why they do so. In closing, I hope that this research will lead to new advances in research that enriches our understanding of group-directed terror management strategies, as well as a more thorough understanding of the motivational underpinnings behind human behavior under mortality salience.

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Appendix A:**Mortality Salience and Death Thought Accessibility Pilot Study Materials**

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Appendix A.1 Instructions for Mortality and Control Salience Manipulations**The Projective Life Attitudes Assessment**

This assessment is a recently developed, innovative personality assessment. It consists of a series of studies and questionnaires. Recent research suggests that feelings and attitudes about significant aspects of life tell us a considerable amount about the individual's personality. We are interested to look at people's gut-level reactions to these questions to assess the different dimensions of your personality. Your responses will be appreciated.

Press 'Continue' to proceed


Continue ▶

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Appendix A.2 Mortality Salience Manipulation

Please briefly describe the thoughts and feelings that the thought of your own death arouses in you.


Press 'Continue' to proceed.



Continue ▶

Do describe as specifically as you can, what you think will happen as you die and once you are physically dead.

Press 'Continue' to proceed.



Continue ▶

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Appendix A.3 Examination Control Manipulation

Please briefly describe the thoughts and feelings that the thought that dental pain arouses in you.

Press 'Continue' to proceed.

Continue ▶

Do describe as specifically as you can, what you think will happen as you experience dental pain.

Press 'Continue' to proceed.

Continue ▶

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Appendix A.4 Positive Affect Negative Affect Scale (PANAS) Sample Question

This scale consists of a number of words that describe different feelings and emotions. Read each item and then select the appropriate response that best indicates to what extent you are feeling right now.

Press 'Continue' to proceed.

Continue ▶

Nervous

- | | |
|---|---------------|
| 1 | Not At All |
| 2 | Very Slightly |
| 3 | A Little |
| 4 | Neutral |
| 5 | Quite a Bit |
| 6 | Certainly |
| 7 | A Great Deal |

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Appendix A.5 Word Stem Completion Sample Question

We are simply pre-testing this questionnaire for future studies. Please complete the following by filling letters in the blanks to create words. Please fill in the blanks with the first word that comes to mind. Write one letter per blank. Some words may be plural.

Please type the FIRST word which comes to your mind.

E.g. T _ _ N

Response: Then

OR

Response: Thin

Continue ►

DE _ _

Press ENTER when you have typed your answer

Continue ►

Appendix B:
Experiment 1 Materials

Perception of Life Experiences

Please switch off all handphones or
turn them to silent mode.

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Appendix B.2 Pain Salience Manipulation

Please briefly describe the thoughts and feelings that the thought that dental pain arouses in you.

Press 'Continue' to proceed.



Continue ▶

Do describe as specifically as you can, what you think will happen as you experience dental pain.

Press 'Continue' to proceed.



Continue ▶

Appendix B.3 Instructions for Experiment 2

INSTRUCTIONS

In a pilot study conducted last semester, participants were asked to indicate whether they preferred Singapore universities or Overseas universities and write in detail why they felt so.

You will be reading one of the comments made by an individual. *All names used in this study have been changed to protect the privacy our participants.*

Please read the information provided and answer the questions that follow.

[Click here to Continue](#)

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Appendix B.4 Sample of Criticism from an Ingroup Critic (Source-Message condition)

Students applying for universities should strongly consider Overseas universities over Singapore Universities. On –campus eateries at Overseas Universities serves better quality food than Singapore universities. Singapore students cannot get a decent meal on campus even if they were willing to pay for it. Unlike Overseas universities, Singapore universities have 8am and 7pm classes. Such timings are inhumane. University administrators should realise that in order for students to do well – not just in school but in life - they have to live a little. Furthermore, students in Singapore universities are so competitive. A typical student often starts revising much earlier than necessary. Because most courses are graded on a bell curve, it is too difficult for the average person to do well. Students applying for universities should strongly consider Overseas universities over Singapore Universities.

[Click here to Continue](#)

The comment you just read was written by *S*, a Singaporean student from a University in Singapore.

[Click here to Continue](#)

Appendix B.5 Sample of Criticism from an Outgroup Critic (Source-Message condition)

The following comment was written by
*S, a Chinese exchange student from a
University in China.*

[Click here to Continue](#)

Students applying for universities should strongly consider Overseas universities over Singapore Universities. On-campus eateries at Overseas Universities serves better quality food than Singapore universities. Singapore students cannot get a decent meal on campus even if they were willing to pay for it. Unlike Overseas universities, Singapore universities have 8am and 7pm classes. Such timings are inhumane. University administrators should realise that in order for students to do well – not just in school but in life - they have to live a little. Furthermore, students in Singapore universities are so competitive. A typical student often starts revising much earlier than necessary. Because most courses are graded on a bell curve, it is too difficult for the average person to do well. Students applying for universities should strongly consider Overseas universities over Singapore Universities.

[Click here to Continue](#)

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Appendix B.6 Critic Evaluation using Interpersonal Judgment Scale (Sample Question)

We would like to know your opinions of S.

Please answer the following questions.
Your responses will be kept confidential.

Continue ►

I would like to get to know S better.

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

Appendix C:
Experiment 2 Materials

Appendix C.1 Instructions for Experiment 3

INSTRUCTIONS

In a previous semester, we conducted a pilot study on attitudes toward Singapore. Participants who indicated that they disliked Singapore in the pilot study were recruited in a subsequent study to find out more about why they disliked Singapore.

You will be reading one essay written by an individual. *All names used in this study have been changed to protect the privacy our participants.*

[Click here to Continue](#)

Appendix C.2 Criticism of Singapore

Singapore is not a nice place to be living or working in. It is hot, humid and sticky most of the time. The day-time temperature is at a high of 32 degrees Celsius. On top of that, there are sudden and unpredictable rain-spells. It's so small, you don't have the option of inter-state or inter-city travel for weekend getaways or holidays. The local attractions – statues, temples, and museums, are boring and unappealing. Moreover, people in Singapore have no fashion sense. They go out in shorts and slippers all the time.

[Click here to Continue](#)

Appendix C.3 Group Membership Manipulation

The comment you just read was written by
*S, a Singaporean student from the National
University of Singapore.*

[Click here to Continue](#)

The comment you just read was written by
*S, an exchange student from FuDan
University in China.*

[Click here to Continue](#)

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Appendix C.4 Sensitivity to Threat (Sample Question)

S is seeking to discredit Singapore.

1	Not at all
2	
3	
4	
5	
6	
7	Totally

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Appendix C.5 Evaluations of Critic using Source Rating questionnaire (Sample Question)

How much do you like S?

1	Not at all
2	
3	
4	
5	
6	
7	Totally

Appendix D:
Criticism Legitimacy Pilot Study Materials

MORTALITY SALIENCE AND CRITICISMS

Appendix D.1 Justified Criticism

Data from the Educational Testing Service (ETS) have shown that Singapore students are less engaged and concerned about their role in society. Overseas students are more mature and informed about the relevant issues and problems around them. Also, professors from overseas universities are also more concerned about the school and their students. On average, they spend 5 times more time engaging in reciprocal, collaborative discussions with their students. The curriculum at overseas universities is geared towards practical applications and career-oriented teaching. On the other hand, Singapore universities remain largely theoretically-based, with emphasis on formulaic thinking rather than flexible problem solving. This is perhaps why overseas universities received far more distinctions in a recent Times ranking of top universities. Students applying for universities should strongly consider Overseas universities over Singapore Universities.

MORTALITY SALIENCE AND CRITICISMS

Appendix D.2 Unjustified Criticism

Students applying for universities should strongly consider Overseas universities over Singapore Universities. On-campus eateries at Overseas Universities serves better quality food than Singapore universities. Singapore students cannot get a decent meal on campus even if they were willing to pay for it. Unlike Overseas universities, Singapore universities have 8am and 7pm classes. Such timings are inhumane. University administrators should realise that in order for students to do well – not just in school but in life - they have to live a little. Furthermore, students in Singapore universities are so competitive. A typical student often starts revising much earlier than necessary. Because most courses are graded on a bell curve, it is too difficult for the average person to do well. Students applying for universities should strongly consider Overseas universities over Singapore Universities.

Appendix E:
Experiment 3 Materials

MORTALITY SALIENCE AND CRITICISMS

Appendix E.1 Justified Criticism from an Ingroup Critic (Sample)

Data from the Educational Testing Service (ETS) have shown that Singapore students are less engaged and concerned about their role in society. Overseas students are more mature and informed about the relevant issues and problems around them. Also, professors from overseas universities are also more concerned about the school and their students. On average, they spend 5 times more time engaging in reciprocal, collaborative discussions with their students. The curriculum at overseas universities is geared towards practical applications and career-oriented teaching. On the other hand, Singapore universities remain largely theoretically-based, with emphasis on formulaic thinking rather than flexible problem solving. This is perhaps why overseas universities received far more distinctions in a recent Times ranking of top universities. Students applying for universities should strongly consider Overseas universities over Singapore Universities.

- R. N., Undergraduate from a Singapore University

MORTALITY SALIENCE AND CRITICISMS

Appendix E.2 Unjustified Criticism from an Outgroup Critic (Sample)

Students applying for universities should strongly consider Overseas universities over Singapore Universities. On-campus eateries at Overseas Universities serves better quality food than Singapore universities. Singapore students cannot get a decent meal on campus even if they were willing to pay for it. Unlike Overseas universities, Singapore universities have 8am and 7pm classes. Such timings are inhumane. University administrators should realise that in order for students to do well – not just in school but in life - they have to live a little. Furthermore, students in Singapore universities are so competitive. A typical student often starts revising much earlier than necessary. Because most courses are graded on a bell curve, it is too difficult for the average person to do well. Students applying for universities should strongly consider Overseas universities over Singapore Universities.

- R. N., Undergraduate from an Overseas University